

**DEVELOPMENT OF A FAMILY ADAPTATION MODEL WITH A MEMBER WHO HAS DIABETES MELLITUS WITH COMPLICATIONS OF FOOT DIABETES****Moch. Bahrudin<sup>1</sup>, Tanty Wulan Dari<sup>2</sup>, Titik Sumiatin<sup>3</sup> and Agus Setyo Utomo<sup>4</sup>**<sup>1,2,3</sup>Poltekkes Kemenkes, Surabaya, Indonesia<sup>4</sup>Poltekkes Kemenkes, Malang, Indonesia

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**ABSTRACT**

*Diabetes mellitus with complications of one diabetic foot disease with disturbance feather resulting blood appearance especially public health problems became burden family as impact defects that appeared post complications. This studied aims to develop a family adaptation model in treating diabetes mellitus patients with diabetic foot complications. This studied used surveyed researched methods with a total sample of 200 member respondents family: wife/husband and children who took care of them direct experienced family members diabetes mellitus with diabetic foot complications, respondent taken at home after 1 week patient went home from house ill, design observational discrete with approached cross-sectional, taking sample with non-probability purposive sampling with used questionnaire of family care centered developed by researchers by testing the validity and reliability above 0.6 and data analysis through SEM-PLS test. The results of this studied explained that adaptation was influenced by coping strategies family ( $p=0.001$ ). The final results of this studied also showed that family demographics affect stressed ( $p=0.000$ ), stressors affect family perceptions ( $p=0.000$ ) and stressed ( $p=0.007$ ), stressed influences current family perceptions ( $p=0.041$ ), support social influence on current family perceptions ( $p=0.003$ ), self-confidence ( $p=0.017$ ) and coping strategies ( $p=0.03$ ). Spiritual coping influences adversity quotient ( $p=0.001$ ) and coping strategies ( $p=0.005$ ). Belief self-influence on the solution strategy problem ( $p=0.033$ ). Intelligence emotional influences problem- emotion coping strategies ( $p=0.000$ ) and beliefs self ( $p=0.0003$ ). Current family perceptions influence problem-emotion focused coping strategies ( $p=0.044$ ) and stressed ( $p=0.002$ ). Adversity quotient influences current family perceptions ( $p=0.001$ ). It could be concluded through this researched that the family adaptation model was an excellent model for helping families in caring for patients with diabetes mellitus with diabetic foot complications at home after gone home from house sickness.*

**Keywords:** Family, Adaptation Model, Diabetes Mellitus, Complications, Foot Diabetes.

**INTRODUCTION**

Diabetes mellitus and complications, specifically diabetic foot issues, can cause significant changes in a family. These changes can manifest in a variety of ways, including modifications to the household environment, financial matters, and positions within the relationships<sup>3</sup>. Individuals within the family are prone to assuming additional obligations, which may include providing daily support, emotional guidance, and participation in the organization and execution of patient care, regardless of whether they are considered a spouse, sibling, child, grandchild, or acquaintance<sup>20</sup>. Minimal time is frequently allotted for sufficient preparation due to the sudden and unexpected onset of diabetes mellitus accompanied by diabetic foot complications<sup>9</sup>. Whether family life begins later or arrives later, navigating these circumstances can present significant physical, mental, and emotional obstacles<sup>22</sup>.

The family plays a vital role in the process of recovering from diabetes mellitus, particularly in cases involving diabetic foot complications<sup>26</sup>. A member of the family is entrusted with the responsibility of providing care for individuals who are afflicted with both diabetes mellitus and diabetic foot complications<sup>18</sup>. The caregiving responsibilities associated with diabetic patients with foot complications can place substantial emotional, mental, and physical strain on both the patients and their caregivers<sup>10</sup>. In addition to the intrinsic complexities, work interruptions, and changes to familial routines, this obligation necessitates a multitude of concessions and poses a myriad of challenges. Conversely, families possess the capacity to positively influence the recuperation process following diabetes mellitus in cases of diabetic foot complications by empowering affected individuals to take better care of themselves. It is worth mentioning that the omission of patients and their families from the home-

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based follow-up and post-diabetes mellitus care plan may potentially increase the risk of developing further health complications. These complications may include joint contractions, aspiration pneumonia, recurrent diabetic foot complications, and urinary tract infections (UTIs)<sup>5</sup>.

Families who have a family member with diabetes mellitus and diabetic foot complications frequently experience heightened levels of stress, anxiety, and depressive symptoms throughout the condition's subacute and chronic phases<sup>8</sup>. It is worth mentioning that anxiety symptoms continue to persist at elevated levels, which stands in stark contrast to stress levels and depressive symptoms that do not demonstrate a gradual decrease<sup>6</sup>. Families who are confronted with diabetic foot complications and experience long-term adverse outcomes (lasting one year) can be identified during the sub-acute phase, which generally occurs two months after the initiation of diabetes mellitus<sup>27</sup>. As a result, it is anticipated that families will possess the ability to adapt to the changing conditions experienced by members of the family who have diabetes mellitus or diabetic foot problems, in addition to adjusting to modifications within the family unit structure<sup>2</sup>.

According to Hill's ABCX theory, a crisis (X) can result from the interaction of an incident with family members that initiates a crisis (B) and the family's subsequent interpretation of the incident (C). Within the framework of the family, a stressor arises when the family considers the occurrences as a potential danger (family appraisal) and the family's available resources are inadequate to manage the threat (secondary appraisal)<sup>21</sup>. Hill's ABCX model elucidates two essential principles. Initial consideration is given to the magnitude of change brought about by the distressing event. It then investigates the susceptibility of the family to stress<sup>21</sup>. Anxiety levels are impacted by various factors, including the family's knowledge of managing and preventing complications associated with diabetes mellitus and diabetic foot problems, their capacity to assist patients with activities of daily living (ADL), their access to rehabilitation services, and their awareness of community resources<sup>12</sup>.

Additionally, education is necessary in order to provide nursing care that is in accordance with the particular concern, degree of reliance, and needs of the patient. This includes competencies such as administering medications, managing incisions, preventing peptic ulcers, and preventing aspiration. In addition to medical proficiency, social support is of paramount importance, providing patients with advice, compassion, and essential instruments for their rehabilitation and care<sup>16</sup>. This support is derived from various sources, including families, healthcare providers, and the wider community. Spiritual/Religious Coping (SRC) refers to the manner in which an individual confronts difficult life circumstances by means of their spirituality, religious convictions, or personal devotions. SRC can encompass both positive and negative strategies. Positive strategies include preserving a positive attitude toward God, seeking assistance, and obtaining spiritual insight. Negative strategies include dissatisfaction with religious representations or a negative reevaluation of God and meaning<sup>7</sup>. There is evidence from multiple studies that positive SRC strategies correlate with enhanced physical and mental health outcomes for individuals of all ages. On the contrary, there is also evidence that establishes a connection between negative SRC and notable symptoms of depression, anxiety, isolation, compromised physical well-being, and reduced life satisfaction.

### **METHOD**

This study utilizes a survey research methodology, specifically classified as applied research, which entails selecting a sample from a population and using a questionnaire as the main instrument for data collecting. The questionnaire is constructed using theoretical modifications developed by researchers, guaranteeing its validity and reliability with scores above 0.7. The study employs a cross-sectional design, using an explanatory research technique. The study was conducted in the specified sampling site, namely the houses in the General Hospital of Bangil, between April and May 2023.

The group being studied comprises all households with individuals who developed post diabetes mellitus with diabetic foot problems within one week of getting home care. The study's sample consists of families that meet specific inclusion criteria. These criteria include living in the same household as the individual recovering from post diabetes mellitus with diabetic foot complications, being the primary family caregivers, and having family

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members who have received treatment or were hospitalized due to post-diabetes mellitus with diabetic foot complications. The sample size was calculated based on the guideline for Structural Equation Modeling analysis, which recommends include a minimum of 100 to 200 households who are responsible for the care of their family members.

### RESULTS AND DISCUSSION

**Table 1. Cross Tabulation of Family Characteristics with Family Stress year 2023**

Characteristics	Heavy Stress (n, %)	Moderate Stress (n, %)	Light Stress (n, %)	Total (n, %)
<b>Age</b>				
< 19 Years	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	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)
<b>Level of Education</b>				
Elementary School	12 (29.3)	2 (4,9)	27 (65.9)	41 (100)
Junior High School	6 (14)	3 (7)	34 (79.1)	43 (100)
Senior High School	10 (10.5)	8 (8,4)	77 (81.1)	95 (100)
Diploma/Graduate	2 (9.5)	2 (9.5)	17 (81)	21 (100)
Total	30 (15)	15 (7.5)	155 (77.5)	200 (100)
<b>Economic Status</b>				
Below Standard	21 (18,9)	11 (9,9)	79 (71.2)	111 (100)
Above Standard	9 (10,1)	4 (4,5)	76 (85.4)	89 (100)
Total	30 (15)	15 (7.5)	155 (77.5)	200 (100)
<b>Knowledge Level</b>				
Not Enough	10 (32.3)	2 (6,5)	19 (61.3)	31 (100)
Enough	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)
<b>Family Role</b>				
Husband	10 (16,9)	4 (6,8)	45 (76.3)	59 (100)
Wife	13 (18,8)	9 (13)	47 (68.1)	69 (100)
Child	6 (12.5)	0 (0)	42 (87.5)	48 (100)
Siblings	0 (0)	1 (7,7)	12 (92.3)	13 100)
Other	1 (9,1)	1 (9,1)	9 (81.8)	11 (100)
Total	30 (15)	15 (7.5)	155 (77.5)	200 (100)
<b>Family Members</b>				
2 Family Members	7 (23.3)	3 (10)	20 (66.7)	30 (100)
3 Family Members	10 (19,2)	2(3,8)	40 (76.9)	52 (100)
4 Family Members	3 (5,9)	6 11.8)	42 (82.4)	51 (100)
5 Family Members	7 (24,1)	0 (0)	22 (75.9)	29 (100)
6 Family Members	1(3,8)	2 (7,7)	23 (88.5)	26 (100)
7 Family Members	2 (16,7)	2 (16,7)	8 (66.7)	12 (100)
Total	30 (15)	15 (7.5)	155 (77.5)	200 (100)

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The table presents the attributes of persons experiencing different levels of stress (high, moderate, and low) in relation to various demographic parameters. The dataset provides a comprehensive analysis of stress levels across various demographic groups, enabling a detailed investigation into the correlations between stress and these variables.

Age is a significant factor in determining stress levels, with persons between the ages of 20 and 30 experiencing the greatest rates of intense stress. The degree of education achieved also has an impact on stress levels, with those who have just finished elementary school reporting higher levels of significant stress. Stress levels are further influenced by factors such as economic position, amount of expertise, family role, and the size of the family.

The results suggest that those with lesser levels of education, economic position, and knowledge are more susceptible to feeling high levels of stress. Stress inequalities are influenced by family roles and the number of family members, since spouses and children tend to experience greater levels of intense stress compared to siblings and other family members. The data highlights the complex relationship between stress and other demographic characteristics, offering useful insights for future study and therapies targeting stress in different population groups.

The primary caregivers for family members with diabetic foot issues resulting from post-diabetes mellitus are mostly husbands (29.5%), wives (34.5%), and children (24%). The statistics data about family caregiving demonstrates a consistent pattern, highlighting that spouses, parents, or children are usually the main caregivers. Significantly, this research emphasizes that spouses and children have comparable difficulties while taking on the responsibility of caring. Significantly, most caring families live in the same residence as the individuals receiving care, highlighting the beneficial influence of strong familial bonds in facilitating caregiving duties. Community nurses have a crucial role in helping family members set shared expectations and encouraging effective coping strategies.

This research elucidates the importance of community resources, including social networks, in facilitating the sustained recuperation of individuals with post-diabetes mellitus and diabetic foot problems. The effectiveness of this intervention is determined by both external influences and the levels of self-efficacy and collective efficacy inside the community. Families with high collective efficacy have confidence in the community's capacity to provide many forms of assistance, including emotional, informational, instrumental, and judgmental help.

Spiritual coping arises as a significant element, providing families with an existential belief system to understand the deep significance and purpose of caring<sup>13</sup>. This coping mechanism improves self-soothing and reduces negative impressions while aiding the folks receiving care<sup>25</sup>. The Adversity Quotient, which measures a family's contentment and feeling of safety in their caring endeavors, is enhanced by the successful use of spiritual and religious coping mechanisms<sup>11</sup>. This enables people to discover meaning in their duties and carry out their obligations in a responsible manner<sup>23</sup>.

Moreover, the research suggests that self-confidence is nurtured via education, since there is a positive correlation between greater levels of education and heightened self-confidence<sup>28</sup>. Individuals that have high self-efficacy have strong convictions, determination in conquering obstacles, and resilience in the face of problems and exhaustion<sup>19</sup>. Moreover, religious and spiritual coping strategies function as intrinsic means of managing stress by empowering people to confront stressors and encouraging contemplation of difficult circumstances<sup>4</sup>.

Families primarily use coping techniques that center on problem-solving, strategizing, and engaging in critical thinking to effectively care for post-diabetes patients with diabetic foot difficulties<sup>14</sup>. It is worth mentioning that families that use problem-focused coping techniques often have reduced levels of stress, anxiety, and despair<sup>17</sup>. Emotion-focused coping methods, such as acceptance, seeking emotional support, humor, positive reframing, and religious practices, help to alleviate psychological suffering in families<sup>15</sup>. An important achievement of this research is the creation of a family adaption model for the care of patients with post-diabetes mellitus and diabetic

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foot problems<sup>1</sup>. This model, which is grounded in the double ABCX theory and incorporates spiritual and religious coping, establishes new connections between variables that have not been previously investigated<sup>24</sup>.

### **CONCLUSION**

Family adaptation model in treating diabetes mellitus with diabetic foot complications is formed through several factors, namely family perceptions, stress, family perceptions about the conditions experienced by the family, problem-emotion coping strategies and adaptation. Community resources as a protective factor influencing family problem-emotional coping strategies include collective efficacy, social support, social networks and access to contacts and information new.

Factors that influence family stress are family characteristics, stressors and family perceptions. this shows that these three factors are determining factors that influence family stress during nursing care sufferer. Factors that influence family perceptions at the beginning of the patient's treatment process are stressors. the existence of a stressor can determine the extent to which the family perceives the treatment process as a threat or an additional burden on the family, where in turn the stressor will affect the family's adaptation process in helping care for sufferers. family characteristic factors do not directly influence family perceptions in beginning.

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