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The Relationship between Performance Accomplishment and Physiological–Emotional State with Adaptation among Patients with Diabetes Mellitus

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Abstract

Diabetes Mellitus (DM), as a major non-communicable disease, continues to pose a global health challenge due to its rapidly increasing prevalence. In Indonesia, approximately 11.3% of the adult population is affected by diabetes. The chronic nature of DM substantially influences patients' quality of life across physical, psychological, social, and role-related domains. Consequently, effective DM management requires not only medical treatment but also psychosocial support to enhance patients' adaptive capacity. This study aimed to examine the relationship between performance accomplishment and physiological emotional state and overall adaptation among patients with Diabetes Mellitus. A correlational cross-sectional design was employed involving 145 patients with type 2 DM recruited from Jayengan Primary Health Center (Surakarta) and Tambak Rejo Primary Health Center (Surabaya). Data were collected using self-efficacy source questionnaires and an adaptation instrument based on Roy's Adaptation Model. Multiple linear regression analysis revealed that performance accomplishment was significantly associated with patient adaptation (B = 8.110; β = 0.394; p = 0.001), as was physiological–emotional state (B = 6.765; β = 0.286; p = 0.001). Performance accomplishment emerged as the most dominant contributor to adaptation. These findings highlight the importance of DM management interventions that prioritize gradual mastery experiences and emotional support to strengthen patients' adaptive responses.

INTRODUCTION

Diabetes Mellitus (DM) is a chronic disease that requires long-term adaptation, as individuals must adjust their dietary patterns, physical activity, medication regimens, cope with potential complications, and manage the psychological burden associated with the condition. The World Health Organization (WHO) estimates that the number of people living with diabetes in Indonesia will increase from 8.4 million in 2000 to approximately 21.3 million by 2030. The burden of diabetes mellitus in Indonesia is substantial; data from the International Diabetes Federation (IDF) indicate that in 2024, approximately 20.4 million individuals aged 20–79 years were living with diabetes, with a high proportion of undiagnosed cases (73.2%) (International Diabetes Federation, 2024).

In Central Java, the number of diabetes mellitus cases in 2024 reached 635,945 individuals, while the Surakarta residency recorded 185,230 cases (Jateng, 2024). Beyond Surakarta, the city of Surabaya ranked second in terms of diabetes mellitus prevalence, with 61,024 reported cases (Surabaya, 2024).

The high prevalence of diabetes mellitus highlights the urgent need for effective disease management to enable patients to cope with emerging symptoms. Improving quality of life and successful disease management do not rely solely on medical interventions but are also influenced by patients' sources of self-efficacy. Self-efficacy refers to an individual's

confidence and judgment regarding their ability to perform self-management activities required in daily life, readiness for behavioral change, and adherence to therapeutic regimens (Liu & Woodruff, 2012). In diabetes mellitus, self-efficacy focuses on an individual's belief in their capacity to manage, plan, and modify behaviors in order to achieve a better quality of life (Ariani et al., 2012).

According to Bandura, the sources of self-efficacy include direct experience (performance accomplishment), observing others' experiences (vicarious experience), verbal persuasion, and physiological feedback and emotional arousal. When individuals possess these sources of self-efficacy, they are more likely to demonstrate effective adaptation. Roy conceptualizes humans as holistic beings composed of biological, psychological, and social dimensions. The environment encompasses all internal and external conditions that influence and affect individual and group development and behavior. The external environment may include physical, chemical, or psychological factors perceived by individuals as threats, whereas the internal environment refers to mental processes within the individual—such as experiences, emotional capacity, personality traits—and biological stressor processes at the cellular or molecular level originating within the body. These internal and external factors manifest in individual behaviors as responses to disturbances or stressors (Alligood, 2014).

The impact of diabetes mellitus is closely associated with emotional distress, anxiety, and depression, which may interfere with disease management and quality of life (Mangoulia et al., 2024). Findings from a study by Ataya et al., (2024), indicate that self-efficacy is associated with emotional well-being and physical health, highlighting the importance of psychological aspects in the adaptation process. However, these findings also suggest that most studies assess self-efficacy as a global score rather than examining its specific sources, such as performance accomplishment and physiological–emotional state. In fact, these two sources may provide clearer explanations of how self-efficacy is formed.

Other studies have emphasized self-efficacy primarily in relation to quality-of-life outcomes, while adaptation (adjustment to illness) has received less attention as a primary variable (Wei et al., 2025a). In Indonesia, research on diabetes mellitus has largely focused on distress, coping, and interventions; however, studies examining the specific relationship between sources of self-efficacy and patient adaptation remain scarce.

This study contributes scientifically by clarifying specific components of self-efficacy sources as predictors of adaptation, rather than relying solely on a general self-efficacy score. By identifying which sources of self-efficacy are more strongly associated with patient adaptation, this research helps to clarify priority psychological factors that contribute to successful adaptation among individuals with diabetes mellitus. By measuring two sources of self-efficacy separately, the findings of this study are expected to inform the development of more precise, efficient, and targeted intervention frameworks for patients with diabetes mellitus.

RESEARCH METHODS

The research design employed in this study was an analytical correlational design with a cross-sectional approach. The dependent variable in this study was the adaptation of patients with Diabetes Mellitus, while the independent variables included performance accomplishment and physiological–emotional state. The study population consisted of 1,366 patients with type 2 Diabetes Mellitus registered at Tambak Rejo Primary Health Center, Surabaya City, and 750 patients with type 2 Diabetes Mellitus at Jayengan Primary Health Center, Surakarta City. The sample comprised 145 respondents selected using purposive sampling. The inclusion criteria were patients diagnosed with type 2 Diabetes Mellitus aged between 20 and 75 years, while the exclusion criteria were patients with type 2 Diabetes Mellitus who had cognitive impairments. This study obtained ethical approval from the Ethics Committee of Aisyah University under approval number 696/X/AUEC/2025. Data collection was conducted from October to November 2025. The instruments used were a self-efficacy source questionnaire consisting of 20 items and the Roy Adaptation questionnaire consisting of 25 items, both utilizing a Likert scale. Data were collected from respondents through Google Forms. Data analysis was performed using multiple linear regression with the assistance of SPSS version 27.

RESULT

Respondent Characteristics

The results showed that the majority of respondents were aged 45–59 years (42.8%). Most respondents were female (80.7%), had elementary school education (37.9%), and were predominantly housewives (38.6%). The majority of respondents had an income below the regional minimum wage (75.9%). Most participants did not experience disease complications (72.4%) and had been living with Diabetes Mellitus for 0–5 years (53.1%). Detailed respondent characteristics are presented in the following table:

Table 1. Frecuency Distribution of Respondent Characteristics (n=145)

Respondent Characteristics	Frecuency	%
Age (year)		
25-44 (middle age)	10	6,9
45-59 (elderly)	62	42,8
60-74 (old)	73	50,3
Gender		
Man	28	19,3
Woman	117	80,7
Educational Level		
Diploma/Bachelor's degree	14	9,7 31,0
Senior High School	45	17,2
Junior High School	25	37,9
Elementary School	55	4,1
No Formal Education	6	
Income		
Above the Regional Minimum Wage	35	24,1
Below the Regional Minimum Wage		

Respondent Characteristics	Frecuency	%
	110	75,9
Occupation		
Teacher	2	1,4
Houswife	56	38,6
Private/self Employed	29	20,0
Retired	12	8,3
Unemployed	45	31,0
PNS	1	7,0
Complication		
No Complication	105	72,4
With Complication	40	27,6
Duration of Disease		
0-5 year	77	53,1
>5 year	68	46,9

**source: Primary Data, 2025*

Table 2. Frecuency Distribution of Performance Accomplishment

Performance Accomplishment	f	%
Adequate	99	68,3
Inadequate	46	31,7
Total	145	100

**source: Primary Data, 2025*

Table 3. Frecuency Distribution of Physiological Emotional State

Physiological Emotional State	f	%
Adequate	115	79,3
Inadequate	30	20,7
Total	145	100

**source: Primary Data, 2025*

Based on Tables 2 and 3, the findings indicate that the majority of respondents had adequate performance accomplishment as a source of self-efficacy (68.3%), while 31.7% were classified in the inadequate category. In addition, physiological–emotional state as a source of self-efficacy was predominantly in the adequate category (79.3%), whereas 20.7% of respondents were classified as inadequate.

Table 4. Frecuency Distribution of Diabetes Melitus Patient Adaptation

Adaptation	f	%
High	125	86,2
Low	20	13,8
Total	145	100

Based on Table 4, the results show that the majority of respondents demonstrated a high level of adaptation in managing Diabetes Mellitus (86.2%), while 13.8% of respondents exhibited a low level of adaptation.

Result of Multiple Linier Regression Analysis

In this study, multiple linear regression analysis was conducted to examine the relationship between performance accomplishment and physiological–emotional state and the adaptation of patients with Diabetes Mellitus.

Table 5. Multiple Linear Regression Analysis of Factors Assosiated with Adaptation among Patient in Diabetes Melitus

Variabel	B	SE	Beta	t	p-value
Performance Accomplishment	8.110	1.510	0.394	5.370	0.001
Physiological–Emotional State	6.765	1.735	0.286	3.899	0.001
Konstanta	53.181	3.417	-	15.562	0.001

Note: R= 0,555; R^2=0,308; Adjusted R^2=0,298; F=31,555; p=0,001

The results of the analysis indicated that the regression model was statistically significant (F = 31.555; p = 0.001). The coefficient of determination (R^2 = 0.308) suggests that 30.8% of the variance in patient adaptation was explained by performance accomplishment and physiological–emotional state, while the remaining 69.2% may be influenced by other factors.

Partially, performance accomplishment was significantly associated with adaptation among patients with Diabetes Mellitus (B = 8.110; β = 0.394; p = 0.001). Similarly, physiological–emotional state was also significantly associated with patient adaptation (B = 6.765; β = 0.286; p = 0. performance accomplishment 001). However, performance accomplishment emerged as the most dominant variable contributing to patient adaptation.

DISCUSSION

Self-efficacy is defined as an individual's belief in their capability to organize and perform specific tasks required to achieve desired outcomes (Ariani et al., 2012). Self-efficacy can be developed through several sources, namely direct experience (performance accomplishment), observing others' experiences (vicarious experience), verbal persuasion, and physiological feedback and emotional arousal. Based on the results of multiple linear regression analysis, performance accomplishment and physiological–emotional state were found to be simultaneously and significantly associated with patient adaptation among individuals with diabetes mellitus (R = 0.555; R^2 = 0.308; p = 0.001). These findings indicate that both variables together explain 30.8% of the variation in patient adaptation, while the remaining 69.2% may be influenced by other factors. Partially, both sources of self-efficacy were significantly associated with patient adaptation (p = 0.001). However, performance accomplishment was shown to have a more dominant influence on patient adaptation (regression coefficient B = 8.110; β = 0.394) compared to physiological–emotional state (B = 6.765; β = 0.286).

These results support Bandura's self-efficacy theory, which posits that successful experiences in previous programs are the primary source in shaping an individual's self-belief. In this context, patients with diabetes mellitus who have experienced success in managing their treatment, adhering to medication, regulating their diet, and controlling blood glucose levels

tend to have greater self-confidence and adapt more easily to their disease condition (Bandura, 1997)(Bandura, 1997). The findings of this study are consistent with previous research showing that high self-efficacy is positively correlated with lower stress levels, more stable blood glucose control, and more effective coping and adaptation ($r = 0.578$; $p < 0.001$) (Wei et al., 2025).

In diabetes mellitus, adaptation is highly behavior-based, emphasizing adjustments in roles and daily routines. Therefore, successful experiences in carrying out self-care—such as limiting sugar intake, adhering to medication, and controlling blood glucose levels—can serve as concrete evidence that accelerates the formation of self-efficacy and strengthens adaptation. This is supported by the findings of Ataya et al., (2024), which indicate that confidence in managing diabetes mellitus plays an important role in the lived experience of the disease and emotional well-being. Although these findings only describe the general influence of self-efficacy without specifying its sources, their implications support the assertion that when patients feel capable, their adaptation tends to be better.

Similarly, the study by Ting et al., (2025) demonstrated the role of self-efficacy in improving diabetes management and quality of life among patients with diabetes mellitus. Within the Roy Adaptation Model, patients with strong performance accomplishment tend to exhibit more positive adaptive responses (Borzou et al., 2022). When linked to respondent characteristics, the majority of whom were elderly (60–74 years, 50.3%), patient adaptation may occur through accumulated experience and established routines. Elderly individuals who are accustomed to treatment regimens, dietary management, and regular monitoring tend to have more stable lifestyles, which facilitates the development of performance accomplishment (successful experiences).

Alliston et al., (2024) reported that self-management programs for older adults were statistically proven to improve diabetes management abilities, including reductions in body mass index, body weight, and excessive lipid levels. Regarding disease duration, most respondents had lived with diabetes mellitus for 0–5 years (53.1%), during which patients may still be learning to adapt, resulting in more emotional instability (a more sensitive physiological–emotional state). Meanwhile, patients who had experienced the disease for more than five years (46.9%) tended to have accumulated more successful experiences (increased performance accomplishment), enabling them to adapt more effectively.

In contrast, the second variable, physiological–emotional state, was statistically a weaker predictor compared to performance accomplishment ($B = 6.765$; $\beta = 0.286$). This may be because this variable is more fluctuating in nature; anxiety, stress, and fear of complications can worsen or improve depending on symptoms and situational factors. In patients with diabetes mellitus, fatigue, anxiety, stress, and physical discomfort may appear and disappear in accordance with blood glucose levels and daily life situations. This aligns with the findings of Derang et al., (2023), who reported that psychological conditions (stress) among individuals with diabetes mellitus vary widely and are influenced by many factors. Due to its situational nature, this variable is less likely to remain a strong and stable predictor.

A study conducted in China on diabetes-related stress and its effects on family function and coping among patients with type 2 diabetes mellitus found that diabetes-related distress

had an indirect effect (19.06%) on patients' coping abilities and adaptation to the disease (Wei et al., 2025b). Thus, these findings suggest that physiological and emotional conditions do not always reflect patients' actual ability to manage and adapt to their illness.

Other variations in adaptive capacity may also be associated with the respondents' gender, which was predominantly female (80.7%). Women may experience higher levels of distress than men, consistent with a 2025 CDC report indicating that a diabetes mellitus diagnosis tends to generate greater anxiety among women (Alexander et al., 2025). When anxiety levels are higher, the physiological–emotional state tends to play a more significant role. Nevertheless, under certain conditions, women may also be more resilient in forming behavioral changes, allowing performance accomplishment to remain the dominant factor. Physiological–emotional state may play a greater role when socioeconomic status is lower, as this affects the ability to access healthcare. Low income tends to hinder access to healthy food, healthcare services, and health screening. When resources are limited, patients are more prone to distress and may struggle to build performance accomplishment(Oktaviyani et al., 2022).

Although performance accomplishment (successful experiences in disease management) is a primary factor influencing adaptation, this does not diminish the importance of physiological–emotional state. Both factors play equally significant roles in enhancing patients' adaptive capacity. Adaptation to Diabetes Mellitus occurs comprehensively through the integration of clinical, psychosocial, and behavioral aspects. Patients require both skills and confidence to manage their condition. When success is achieved in a particular task, it strengthens patients' self-confidence and enables them to perceive Diabetes Mellitus as a manageable condition (Power et al., 2020). Therefore, the findings of this study provide practical nursing implications to improve patients' adaptive capacity, including:

1. Focusing on performance-based interventions by implementing programs that prioritize gradual tasks and achievements, such as daily adherence to dietary plans and medication routines, as well as monthly programs such as regular blood glucose monitoring.
2. Establishing peer support systems to enable patients with Diabetes Mellitus to share successful management experiences with fellow patients, thereby reducing emotional burden and psychological distress.

CONCLUSION

The dominant factor influencing the adaptive capacity of patients with Diabetes Mellitus is performance accomplishment. The greater the patients' successful experiences in managing their disease, the better their ability to adapt to the condition they experience.

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