

The Impact of an Attitude- and Cognition-Based Self-Care Model on the Psychological Empowerment of Hospitalized Patients Following High-Risk Surgeries in Selected Hospitals in Shiraz

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Abstract:

Background and Objective: Patients recovering from high-risk surgical procedures encounter numerous psychological challenges alongside their physical conditions. Psychological empowerment is increasingly recognized as a critical factor influencing treatment outcomes and improving quality of life for these individuals. An attitude- and cognition-based self-care model offers a promising approach to enhance patient capabilities. This study aims to evaluate the effects of this self-care model on the psychological empowerment of hospitalized patients following high-risk surgeries.

Materials & Methods: This study employed a descriptive-correlational design with a quantitative approach. The study population comprised 264 patients hospitalized for high-risk surgeries at selected hospitals in Shiraz in 2025. From this population, a sample of 153 individuals was selected using Morgan's sampling table and a simple random sampling technique. Data were collected using standardized instruments, including a self-care capability questionnaire and the Psychological Empowerment Scale developed by Spreitzer and Mishra (1997). The validity of these instruments was confirmed through expert evaluations, and their reliability was confirmed with Cronbach's alpha coefficients of 0.84 and 0.94, respectively. Data analysis was performed using SPSS software, employing Pearson correlation coefficient tests and multivariate regression analysis.

Results: Pearson correlation analysis revealed a significant positive correlation between overall self-care model scores and psychological empowerment among patients ($p < 0.01$). Furthermore, each dimension of self-care demonstrated positive and significant correlations with the overall psychological empowerment score and its four dimensions: meaningfulness, competence, self-determination, and impact ($p < 0.05$). Multivariate regression analysis revealed that the components of the self-care model significantly explained the variance in psychological empowerment, highlighting its predictive capabilities.

Conclusion: The results of the study indicate a significant association between the attitude- and cognition-based self-care model and enhanced psychological empowerment among patients recovering from high-risk surgeries. This finding highlights the necessity of improving knowledge, fostering positive attitudes, and promoting self-care behaviors, thereby enabling patients to feel more capable, in control, and influential throughout their recovery process. Consequently, it is recommended that educational interventions based on this model be integrated into postoperative care protocols as an effective strategy for promoting mental health and empowering patients.

Keywords: Mental Health, Postoperative Care, Self Care, Cognition

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Background and Objective

Self-care is a vital component of primary healthcare, significantly impacting health outcomes in both developed countries with advanced healthcare systems and developing nations with limited access to specialized services. The World Health Organization (WHO) defines health as "a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity." This comprehensive definition signifies a paradigm shift in the perception of health—from a strictly biomedical perspective to a biopsychosocial model—where self-care and education are fundamental cornerstones for the management of various health conditions.¹ Empowering patients through education enhances health sustainability and diminishes the risk of complications associated with chronic diseases; research indicates that insufficient education can increase the risk of severe disease complications by up to fourfold.²

Patient education is not only beneficial but also a crucial aspect of modern healthcare delivery. Factors such as an increased emphasis on health promotion, a shift toward preventive care rather than treatment, shorter hospital stays, the rising incidence of chronic diseases, and an aging population have underscored the necessity for structured patient education.³ Patients have the right to receive comprehensive information about their diagnosis, treatment options (both medical and surgical), and the associated benefits and risks. This information should be customized to meet individual needs, thereby facilitating significant behavioral modifications. In contemporary nursing practice, patient education is recognized as a fundamental responsibility, essential for promoting health and supporting patients in managing their conditions.⁴

Self-care behavior is a pivotal concept in health promotion, encompassing the decisions and actions individuals take to manage health challenges or enhance their well-being.⁵ These behaviors include, but are not limited to, seeking information,

attending regular medical check-ups, engaging in physical activity, ensuring adequate rest, making lifestyle modifications, adhering to a nutritious diet, and monitoring symptoms of illnesses. Evidence suggests that a considerable proportion of healthcare is provided by patients and their families, with only a small fraction of symptoms requiring specialized medical intervention.⁶

In the context of high-risk surgeries, a comprehensive study conducted in the United States revealed that the majority of morbidity and mortality associated with emergency general surgery are concentrated in seven specific procedures, predominantly within the gastrointestinal system. These procedures—including bowel resection, peptic ulcer repair, laparoscopy, and appendectomy—account for approximately 80% of the total complications and mortality linked to emergency surgical interventions.⁷ The study analyzed data from over 421,000 patients between 2008 and 2011, reporting an overall mortality rate of 1.2% and a complication rate of 15%. Importantly, the risk of death is up to eight times higher for patients undergoing emergency surgeries compared to those receiving similar procedures electively.⁷ These statistics emphasize the critical significance of preventive self-care in mitigating the necessity for high-risk surgical interventions.

Self-care encompasses a range of actions that individuals undertake to maintain their physical and mental well-being, prevent diseases and accidents, and manage chronic conditions.¹ Effective self-care not only enhances quality of life but also empowers patients, thereby reducing the likelihood of hospital readmissions.⁸ To successfully navigate post-treatment challenges, active patient engagement in the care process is essential, requiring increased awareness, attitude adjustments, and the acquisition of practical skills. Emerging care models, including empowerment programs, prioritize the active involvement and accountability of patients in their daily self-care routines.⁹

The empowerment of patients has become a pivotal strategy in modern healthcare. Therefore, this study aims to investigate the relationship between self-care practices and psychological empowerment among hospitalized patients following high-risk surgeries, as well as to determine the extent of this influence.

· In a semi-experimental study conducted by Mohseni Pouya (2017), titled "The Impact of an Educational Intervention Based on the Pender Health Promotion Model on the Self-Efficacy of Patients Regarding Self-Care Behaviors After Heart Surgery," 220 patients were randomly assigned to two groups (110 in each) one month after heart surgery. Data collection involved a self-care questionnaire developed in accordance with the Pender model. The findings indicated significant changes in perceived self-efficacy over time ($P < 0.001$), with the intervention demonstrating a notable effect on other variables when controlled ($P = 0.036$). Specifically, the average self-efficacy scores in the intervention group were higher than those in the control group at both three and six months post-intervention. Consequently, the Pender Health Promotion Model is endorsed as an effective framework to enhance self-efficacy among patients following heart surgery.¹⁰

· Gharayati et al. (2016) conducted a study titled "Investigating the Impact of Educational Intervention via Mobile Phone on Self-Care Behaviors of Patients with Major Thalassemia." The outcomes revealed that before the intervention, there were no statistically significant differences in the mean scores of awareness, attitudes, and self-care behaviors between the intervention and control groups. However, after the intervention, the intervention group exhibited a substantial increase in mean scores for awareness, attitudes, and self-care behaviors ($P < 0.05$), whereas the control group exhibited no significant changes.

· In another study, Bigdeli et al. (2015) investigated "Factors Associated with Self-Care Behaviors in Patients with Type 2 Diabetes." Their findings indicated that the

mean self-care score among diabetic patients was 3.77 ± 1.15 . Significant correlations were found between self-care behaviors and various factors, including the duration of diabetes ($P = 0.013$), type of treatment regimen ($P = 0.035$), and abdominal obesity ($P = 0.046$). Notably, diabetic knowledge ($B = -0.123$) and duration of diabetes ($B = 0.170$) were identified as significant predictors of self-care behavior. This study highlights the necessity of enhancing diabetic knowledge among patients, a process that should be supported by healthcare professionals to improve self-care practices.¹¹

· Furthermore, Behzad et al. (2015) examined the effect of a tele-nursing empowerment program on self-efficacy in self-care among elderly patients with hypertension. The study revealed no significant differences in demographic and disease-related characteristics between the two groups. The control group had mean self-efficacy scores of 4.3 ± 0.3 before the program and 6.3 ± 0.3 afterwards. In contrast, the experimental group exhibited significantly higher scores, increasing from 5.3 ± 0.4 to 1.4 ± 0.3 following the intervention. Before the intervention, the average self-efficacy scores displayed no statistically significant difference between the two groups ($P = 0.44$). However, the experimental group experienced significant improvements in self-efficacy after the workshop and telephone follow-up ($P \leq 0.05$), indicating that the tele-nursing empowerment program effectively enhanced self-efficacy in self-care among elderly patients with hypertension.¹²

· Noohi (2015) investigated the effects of implementing the Orem Self-Care Model on the cognitive abilities and self-care performance of patients in the internal medicine ward of a cardiac hospital. The study revealed a statistically significant increase in the mean cognitive ability score for self-care in the experimental group, rising from 2.03 ± 0.15 before the intervention to 12 ± 0.001 afterward. Moreover, the mean performance ability score improved from 28.32 ± 51.9 to 105.43 ± 96.3 following the intervention. These results indicate a

statistically significant enhancement in self-care abilities in the experimental group when comparing pre- and post-intervention scores ($P < 0.001$), whereas the control group exhibited no significant changes ($P > 0.05$).

These findings suggest that the application of Orem's self-care model, along with self-care education initiatives, significantly enhances patients' self-care abilities, highlighting education as a critical method for developing these skills.¹³

· In a separate study, Nemaati (2013) conducted an investigation entitled "Investigation of Post-Tracheostomy Care in Hospitals," which aimed to assess both the frequency and quality of post-tracheostomy care across educational and therapeutic centers in Rasht. This descriptive study evaluated the post-tracheostomy care practices involving 96 hospitalized patients in educational hospitals in Rasht during 2010-2011.

Findings

The analysis of tracheostomy care revealed that while all pediatric patients (constituting 3.6% of the total population) were provided with tracheostomy tube sizes in compliance with recommended standards, a significant majority of adult patients (86.7%), equivalent to 78 individuals, were fitted with tubes that did not conform to established guidelines (9 mm for males and 7.5–8 mm for females). Throughout their care, all patients received humidified oxygen and antibiotics; however, 16.7% did not receive cold vapor therapy. Additionally, several facets of post-tracheostomy care fell short of established standards: adequate cuff pressure was achieved in only 55.2% of cases, hyperventilation prior to suctioning was conducted in 49% of instances, proper tracheostomy tube sizing was adhered to in merely 15.8% of patients, dressing changes were performed in 47.91% of cases, and cuff emptying was executed appropriately in only 44.78% of patients. These findings indicate that the quality of post-tracheostomy care within educational hospitals in Rasht is inconsistent with established medical guidelines, highlighting the necessity for

increased attention and enhancement by healthcare professionals.¹⁴

· In a study conducted by Chan Hua Ma (2018), the factors influencing self-care behaviors in young and healthy adults with hypertension were evaluated utilizing the health belief model. The research identified several key predictive factors, including age, hypertension-related complications, perceived susceptibility, perceived severity, perceived benefits of self-care, perceived barriers to self-care, and self-efficacy. Collectively, these factors accounted for 47% of the variance in self-care behaviors, underscoring their significance within this population.¹⁵

Furthermore, Anna Rab and colleagues (2017) conducted an experimental study aimed at examining planned self-care interventions to empower survivors of colorectal and lung cancer treatments. Their exploratory analysis revealed noteworthy improvements across various domains, including depression, anxiety, self-efficacy, physical functioning, mental and physical limitations, pain management, general health perceptions, health transitions, physical health summaries, and overall quality of life (QOL) measured before and after the intervention.¹⁶

· Soo Kyang Park (2017) investigated the factors influencing self-care behaviors among individuals with Chronic Obstructive Pulmonary Disease (COPD) in South Korea. The average self-care behavior score was 119.30. Significant predictors included educational level, the frequency of emergency visits in the previous year, overall health perception, and training on exacerbation and symptom management, which together accounted for 43.9% of the variance in self-care behaviors. Notably, when individual symptoms were included in the regression model, anxiety emerged as the most significant contributing factor, highlighting its considerable influence on self-care behaviors. Additionally, incorporating a clustered variable for symptoms increased the total variance attributed to self-care behaviors, exceeding

that attributed to individual symptoms alone.¹⁷

1. Definition of Concepts

Self-Care

Self-care involves individuals taking responsibility for their health and well-being through daily actions designed to maintain and improve their quality of life. It includes mindful and intentional activities that individuals undertake for themselves and their families to preserve physical and mental health, fulfill social needs, prevent illness or injury, manage discomfort and chronic conditions, and support recovery after acute illnesses or hospital discharge. Ultimately, self-care not only enhances individual health outcomes but also improves personal effectiveness and autonomy.

Empowerment

Empowerment refers to the process of transforming feelings of inadequacy into increased individual control over one's environment. This process aims to diminish the dominance and interference of experts while promoting individual choice and self-management. Empowerment initiates with individuals identifying their own needs and aspirations and focuses on harnessing developmental capacities, resources, and necessary support to achieve their objectives.¹⁸

2. Theoretical Framework of the Research

Within the domain of self-care, no single definition is universally accepted. Levin characterizes self-care as a process in which untrained individuals utilize their abilities to promote wellness, prevent illness, diagnose health issues, and address them at the primary healthcare level within the health system. Levin asserts that, although self-care primarily functions independently of professional assistance, it is informed by the technical knowledge and skills individuals acquire through a combination of specialized and nonspecialized experiences.

Barofsky classifies self-care into four distinct categories: regulatory behaviors,

disease prevention, symptom management, and disease alleviation. Segal and Goldstein (1989) adapted Barofsky's framework to define these categories as follows:

1. **Regulatory Self-Care:** Routine health maintenance activities, including proper nutrition, sleep hygiene, and personal care.

2. **Preventive Self-Care:** Regularly undertaken actions chosen by individuals to promote health, such as exercise, healthy dieting, and routine health screenings.

3. **Reactive Self-Care:** Responses to symptoms that healthcare professionals have not yet classified as diseases.

4. **Restorative Self-Care:** The ability to adhere to treatment regimens or behavioral modifications as recommended by healthcare professionals.

According to Bandura (1986), "theories" represent the foundational determinants and mechanisms that shape and define a given phenomenon. Theories are constructed from one or more logically interrelated propositions that explain related phenomena. In contrast, a "model" serves as a structural framework that organizes our understanding of a specific subject. Models are designed to assist individuals comprehend particular challenges and organize relevant information. They typically clarify processes and objectives, thereby providing a systematic framework for the design, implementation, and evaluation of health programs.¹⁵

In Orem's self-care theory, health and wellness are defined as two distinct yet interrelated human conditions.

Health: This term signifies a state in which an individual's physical and mental systems are fully developed, functioning optimally, and free from defects.

Wellness: Wellness is characterized by experiences of satisfaction, joy, and fulfillment, including spiritual dimensions. It involves the pursuit of personal ideals and the ongoing internalization of these aspirations. Although wellness is inherently linked to health, personal achievements, and adequate resources, it is critical to recognize that individuals can experience wellness even when facing physical limitations or

functional disorders. Within this context, self-care is defined as a regulatory behavior enabling individuals to secure and maintain essential resources for survival, preserve physical and psychological well-being, and promote personal growth within the natural boundaries necessary for life and functional integrity.

The term "empowerment" is defined in the Oxford Compact Dictionary as involving "becoming powerful," "granting permission," "providing power," and "becoming capable." Empowerment encompasses a variety of motivational strategies designed to increase employee participation and improve performance. The primary objective of employee empowerment is to align individual objectives with those of the organization.

For employees to genuinely experience empowerment, they require more than just authority; they also need adequate training, financial resources, and essential information to effectively fulfill their responsibilities. Some interpretations of empowerment perceive it as a form of decentralization that involves delegating decision-making authority to subordinates. This process not only promotes employee engagement in management practices but also extends beyond simple self-regulation.¹⁹

Numerous definitions of empowerment exist, each reflecting unique perspectives and ideological frameworks. Although a precise, universally accepted scientific definition of empowerment remains elusive, a comprehensive definition can be articulated as follows:

Empowerment is a dynamic, spontaneous process rooted in the socio-cultural context of a community, designed to enhance individuals' power and capability to take actions that improve their living conditions.

Key concepts in this definition include process, dynamism, socio-cultural context, and individual participation. Within this process, influential leaders and key individuals assume vital roles, highlighting the significance of skills associated with social organization and development.

Empowerment fundamentally represents a positive concept that emphasizes the opportunities and capacities of individuals and their environments to recognize issues, identify inadequacies, and implement interventions.²³ It serves as a facilitative process through which power is transferred from one person or group to another. In the context of health promotion, empowerment is a tangible objective to be achieved by 2010, emphasizing individuals' active participation and decision-making to enhance their health.²⁴ Key empowerment skills include problem-solving, self-confidence, and the ability to build trust.²⁰

In healthcare, patient empowerment focuses on enhancing self-determination and self-regulation, enabling individuals to achieve their full potential in health and well-being. This process begins with the provision of information and education and culminates in active participation in decision-making regarding disease management and care options.¹⁷

The empowerment model advocates that healthcare professionals support individuals in making informed decisions that are appropriate to their unique circumstances. By fostering an environment of shared information and collaborative decision-making, patients are encouraged to take an active role in their treatment journey. Empowerment fundamentally involves uncovering and nurturing an individual's intrinsic capacity to take responsibility for their own health. In the context of health education, the concept of power does not signify dominance or the alteration of others' behaviors; rather, it focuses on the inclination and desire for meaningful change.²¹

Empowerment is defined as "helping patients discover and develop their intrinsic capacity to take responsibility for their lives and gain mastery over their illness." This sense of responsibility is linked to three defining characteristics of the disease.²²

According to Thomas and Wilthaus (2000), empowerment is a process that enhances individuals' intrinsic motivation regarding their responsibilities. This process

manifests across four cognitive domains: effectiveness and control over activity outcomes; competence, defined as the belief in one's capability to fulfill responsibilities; meaningfulness, which involves valuing goals based on personal ideals and standards; and choice, the freedom to act within designated parameters.²³

Self-efficacy is a critical component of self-empowerment. As Bandura (1998) defined it, self-efficacy refers to the belief in one's capacity to succeed. Individuals with robust self-efficacy believe they can achieve their goals, a concept closely related to the "locus of control." A realistic assessment of one's self-efficacy can lead to effective actions and is intimately connected to the notion of locus of control. In the context of health promotion, enhancing an individual's confidence in their personal control over situations can significantly elevate self-efficacy. Ultimately, a person's perceived control over their circumstances results from their self-efficacious experiences.

In health promotion, enhancing self-efficacy is essential and can be achieved by creating meaningful and contextually relevant successful experiences. The relationship between learned helplessness and self-worth suggests that empowered individuals typically exhibit high self-esteem, whereas those experiencing learned helplessness often have a diminished sense of self-worth. Individuals with high self-esteem are generally more resilient to social pressures and do not heavily rely on group behaviors for validation. When confronted with threatening situations, they are more inclined to gather information and make informed decisions. Thus, it can be concluded that elevated self-esteem contributes to stronger decision-making capabilities, enabling individuals to approach challenges from an informed perspective and ultimately directing them toward healthier choices.²⁴

Materials and Methods

The current research is situated within a positivist paradigm and employs a quantitative approach to investigate the subject matter. With the primary objective of developing a functional self-care model and

assessing its impact on patients' psychological empowerment, this study is classified as applied research. Data collection was conducted using a descriptive-survey methodology, which aimed to depict the current state of the self-care model variables and psychological empowerment within the studied community, while facilitating data gathering through questionnaires administered to a sample population. Since the research intends to explore relationships between variables without researcher intervention, the study is characterized as correlational research. The statistical population comprises adult patients hospitalized following high-risk surgeries in selected hospitals in Shiraz during the first quarter of the year 1404 (2025 in the Gregorian calendar). After extensive investigations and obtaining official approvals from the relevant administrative and statistical units of the hospitals, a total of 264 patients were deemed eligible for inclusion during this period. A simple random sampling method was implemented to ensure that each member of the population had an equal opportunity for selection, thereby enhancing the generalizability of the findings. The required sample size was determined utilizing the Krejcie and Morgan table, estimating a necessary sample of 153 participants. To mitigate potential issues such as incomplete questionnaires or lack of cooperation, additional questionnaires were distributed to ensure at least 153 valid and complete responses for final analysis. The data collection instruments comprised two standardized questionnaires. To assess the dependent variable—psychological empowerment—the Psychological Empowerment Questionnaire developed by Spreitzer was utilized. This instrument, validated and employed in prior studies by Mishra, consists of 12 items that encompass four principal dimensions: "meaningfulness," sense of competence, sense of self-determination, and sense of impact. It uses a five-point Likert scale for scoring. The validity and reliability of this tool have been confirmed through numerous domestic and international studies. To evaluate the

independent variable—the self-care model based on attitudes and cognition—the standard self-care ability questionnaire was administered. This questionnaire examines various aspects of patients' attitudes, knowledge, and practices related to self-care. Its content validity and reliability have also been confirmed in previous studies, typically achieving a Cronbach's alpha coefficient above 0.70. Following instrument validation, the researcher proceeded to data collection. By visiting the selected hospitals, eligible patients within the sample were identified. After explaining the research objectives and obtaining informed consent, the questionnaires were distributed.

Upon completion of data collection, the information was analyzed using SPSS version 26 statistical software. Data analysis was conducted at two levels: descriptive and inferential statistics. Descriptive statistics included frequency distribution tables, means, and standard deviations to summarize and describe the demographic characteristics of the sample and the general features of the research variables. For inferential analysis, appropriate statistical

tests were applied to evaluate the research hypotheses. The Pearson correlation coefficient was used to examine the existence, strength, and direction of the linear relationship between the self-care model and psychological empowerment. Additionally, multivariate regression analysis employing the simultaneous method was conducted to predict psychological empowerment based on the components of the self-care model, thereby assessing the contribution of each self-care dimension in explaining the variance in psychological empowerment. The significance threshold for all inferential tests was set at $P < 0.05$.

Main Hypothesis: Self-care impacts the empowerment of hospitalized patients.

Sub-Hypotheses

- Personal factors influence the empowerment of hospitalized patients.
- Family factors influence the empowerment of hospitalized patients.
- Environmental (community) factors influence the empowerment of hospitalized patients (see Figure 1).

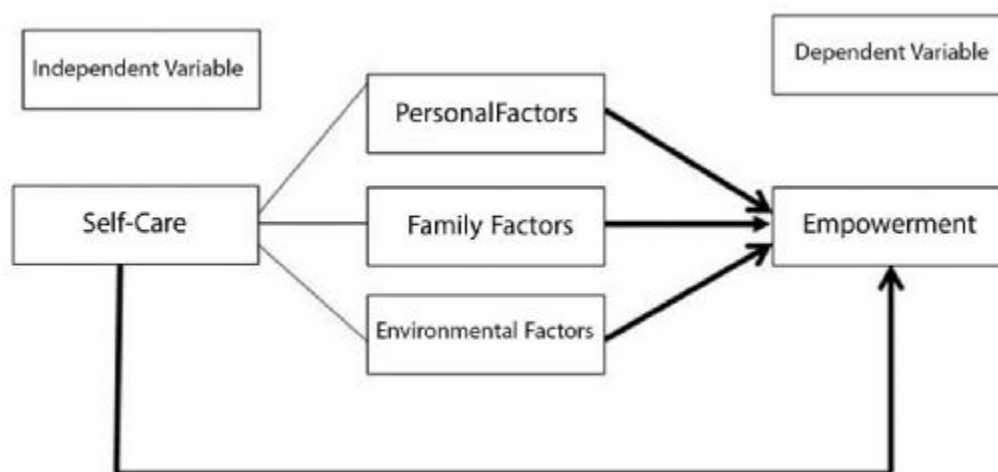


Figure 1- Conceptual model
Table 1- Descriptive analysis of variables

Variable	Statistical indicators					
	Mean	Standard Deviation	Minimum	Maximum	Skewness	Stretch
Competence	13.26	1.28	10	15	-0.257	-0.381

<i>Autonomy</i>	13.49	1.16	11	15	-0.685	-0.327
<i>Influence</i>	13.38	1.28	10	15	-0.743	-0.246
<i>Meaningfulness</i>	13.37	1.46	8	15	-1.28	-2.876
<i>Trust</i>	13.26	1.28	10	15	0.257	-0.381
<i>Empowerment</i>	66.77	5.09	51	75	-0.699	-0.878
<i>Personal</i>	113.91	5.08	102	124	-0.118	-0.49
<i>Family</i>	51.13	4.01	40	59	0.354	-1.035
<i>Environmental</i>	60.04	6.18	49	72	-0.075	-0.879
<i>Self-care</i>	225.09	13.39	196	250	-0.268	-0.631

Analysis

A. Descriptive Statistics

As presented in Table 1, the mean and standard deviation for psychological empowerment were 66.777 and 5.095, respectively, with further details provided for its subscales: competence, autonomy, impact, meaningfulness, and trust. The mean score for self-care measures was 225.098, with a standard deviation of 13.394, further detailed in its subcategories: personal, familial, and environmental. The skewness and kurtosis values ranged between -1 and 1, indicating that the variables followed a normal distribution. Therefore, the Pearson correlation coefficient, a parametric test, was suitable for analyzing the research hypotheses.

B. Inferential Statistics

The results indicate a significant relationship between self-care and empowerment ($P < 0.01$, $r = 0.349$), illustrating a positive direct correlation; as self-care increases, so too does the empowerment of hospitalized patients. Notably, self-care is most strongly correlated with the autonomy dimension of empowerment. Additionally, positive correlations exist between self-care and the remaining four dimensions—competence, impact, meaningfulness, and trust—indicating that enhancements in self-care

correspond to increases in these dimensions of patient empowerment.

The analysis of the regression coefficient values in Table 3 reveals a positive association between the independent and dependent variables. The t-values and significance levels of the multivariate equation confirm that total self-care significantly influences psychological empowerment at the $p < 0.05$ level, with 95% confidence.

$$Y = a + bx$$

$$\text{Empowerment Value} = 24.504 + 0.371 (\text{Total Self-Care})$$

Table 2- Results of the correlation coefficient test (correlation matrix) between self-care and empowerment dimensions

Variable		Self-care	Personal factors	Family factors	Environmental factors	Competence	Autonomy	Affect	Meaningfulness	Trust
Personal factors	Correlation coefficient	0.825								
	Meaningfulness	< 0.001								
Family factors	Correlation coefficient	0.911	0.668							
	Meaningfulness	< 0.001	< 0.001							
Environmental factors	Correlation coefficient	0.895	0.530	0.774						
	Meaningfulness	< 0.001	< 0.001	< 0.001						
Competence	Correlation coefficient	0.261	0.321	0.197	0.174					
	Meaningfulness	< 0.001	< 0.001	0.015	0.032					
Autonomy	Correlation coefficient	0.441	0.314	0.418	0.426	0.401				
	Meaningfulness	< 0.001	< 0.001	< 0.001	0.548	< 0.001				
Affect	Correlation coefficient	0.114	0.239	0.002	0.049	0.753	0.303			
	Meaningfulness	0.160	< 0.001	0.976	< 0.001	< 0.001	< 0.001			
Meaningfulness	Correlation coefficient	0.305	0.265	0.209	0.306	0.233	0.770	0.396		
	Meaningfulness	< 0.001	0.008	0.009	< 0.001	0.004	< 0.001	< 0.001		
Trust	Correlation coefficient	0.261	0.321	0.197	0.175	1.000	0.401	0.753	0.233	
	Meaningfulness	1.000	0.460	0.015	0.032	< 0.001	< 0.001	< 0.001	< 0.001	
Empowerment	Correlation coefficient	0.349	0.37	0.256	0.285	0.854	0.729	0.816	0.681	0.854
	Meaningfulness	< 0.001	0.003	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

Hypothesis 1: Personal factors influence the empowerment of hospitalized patients.

The findings in Table 2 reveal a significant relationship between personal factors and patient empowerment ($P < 0.01$, $r = 0.37$). This positive correlation indicates that as personal factors increase, patient empowerment also rises. Specifically, personal factors have a notable impact on the dimensions of competence and confidence, suggesting that enhancements in these factors are positively associated with increases in competence, autonomy, influence, and meaningfulness among patients.

To better understand the influence of personal factors on overall patient empowerment and to identify which factors serve as stronger predictors, a multivariate regression model employing the stepwise method was employed. The results are presented in Table 4. The regression coefficients demonstrated a direct relationship between the independent and dependent variables, with significance levels suggesting that personal factors remain significant at the 0.05 level ($P < 0.05$) with 95% confidence.

$$Y = a + bx$$

Empowerment = $4.008 + 0.081$ (Personal Factors)

Hypothesis 2: Family factors influence the empowerment of hospitalized patients.

Results in Table 2 indicate a significant relationship between family factors and empowerment ($P < 0.01$, $r = 0.256$). This positive correlation suggests that as family factors increase, patients' empowerment also grows. Family factors demonstrate the strongest association with the autonomy dimension, indicating that enhanced family support corresponds with positive developments in competence, autonomy,

influence, and meaningfulness among patients.

To clarify the impact of family factors as influencing variables and to assess their overall explanatory power on patient empowerment, a multivariate regression model utilizing the stepwise method was implemented. The results are presented in Table 5.

The regression coefficients presented in Tables 4-7 indicate a significant and direct relationship between the variables introduced at two distinct stages of the equation. The T-values and significance levels from the multivariate analysis confirm that family factors are statistically significant at the 0.05 level ($P < 0.05$) with a 95% confidence interval.

$$Y = a + b_1(X_1) - b_2(X_2)$$

Empowerment = $5.670 - 0.091$ (Family Factors)

Hypothesis 3: The Impact of Environmental Factors on Patient Empowerment.

The results presented in Table 2 reveal a significant correlation between environmental factors and patient empowerment ($P < 0.01$, $r = 0.285$). The correlation coefficient indicates a positive and direct relationship, suggesting that improvements in environmental factors are associated with increased patient empowerment. Notably, environmental factors exhibit the strongest correlation with the autonomy dimension, a key aspect of empowerment. This positive relationship also extends to other dimensions of empowerment, including competence, influence, meaningfulness, and confidence. As environmental factors improve these dimensions of psychological empowerment in patients likewise increase.

Table 3- Results of multivariate regression for predicting empowerment

<i>Variable Name</i>	<i>Adjusted Coefficient of Determination</i>	<i>Coefficient of Determination</i>	<i>Beta</i>	<i>Mean Difference</i>	<i>Meaningfulness</i>	<i>Tolerance Statistics</i>	<i>Variance Inflation</i>
<i>Total self-care</i>	0.370	0.137	0.370	4.90	0.000	1	1

Table 4- Results of multivariate regression for predicting empowerment

<i>Variable Name</i>	<i>Adjusted Coefficient of Determination</i>	<i>Coefficient of Determination</i>	<i>Beta</i>	<i>Mean Difference</i>	<i>Meaningfulness</i>	<i>Tolerance Statistics</i>	<i>Variance Inflation</i>
<i>Personal factors</i>	0.321	0.103	0.321	4.167	0.000	1	1

Table 5- Results of multivariate regression for predicting empowerment

<i>Variable Name</i>	<i>Adjusted Coefficient of Determination</i>	<i>Coefficient of Determination</i>	<i>Beta</i>	<i>Mean Difference</i>	<i>Meaningfulness</i>	<i>Tolerance Statistics</i>	<i>Variance Inflation</i>
<i>Family factors</i>	0.319	0.102	-0.284	-2.732	0.007	1	1

Table 6- Results of multivariate regression for predicting empowerment

<i>Variable Name</i>	<i>Adjusted Coefficient of Determination</i>	<i>Coefficient of Determination</i>	<i>Beta</i>	<i>Mean Difference</i>	<i>Meaningfulness</i>	<i>Tolerance Statistics</i>	<i>Variance Inflation</i>
<i>Environmental factors</i>	0.426	0.181	0.426	5.786	0.000	1	1

To further elucidate the influence of these environmental constructs and determine their collective predictive power, a multivariate regression analysis utilizing

the stepwise method was conducted. The results are detailed in Table 6.

The regression coefficients confirm a direct relationship between the environmental variables and the dependent

variable. The t-values and significance levels indicate that the environmental factors are significant at the 0.05 level ($p < 0.05$) with a 95% confidence interval.

$$Y = a + b$$

Empowerment Value = $8.674 + 0.080$
(Environmental Factors)

Discussion and Conclusion

The central finding of this research supports the existence of a positive and significant relationship between a self-care model based on attitudes and cognition, and the psychological empowerment of patients recovering from high-risk surgeries. This conclusion aligns with extensive literature emphasizing the critical role of active patient engagement in managing both chronic and acute health conditions. Previous studies have demonstrated that effective management of long-term illnesses necessitates a transition from viewing the patient as a passive recipient of care to recognizing the patient as an active partner in the therapeutic process. The findings of this study extend this paradigm to the complex field of postoperative care following high-risk surgeries, emphasizing that self-care is not merely advisable but essential for optimizing psychological outcomes.

The concept of patient empowerment aims to equip individuals with the knowledge, skills, and self-awareness necessary for effective illness management.⁸ The findings of this study empirically demonstrate that implementing a self-care model enhances four dimensions of psychological empowerment: meaningfulness, competence, self-determination, and impact.

This empowerment mechanism functions as follows: when patients receive education about their health conditions, they gain increased competence to manage symptoms effectively. Active involvement in treatment decisions fosters a sense of self-determination and control over their lives. Furthermore, observing the positive effects of self-care activities during the recovery process enhances patients' sense of influence, thereby providing a more profound meaning to their healthcare

journey. This holistic approach, which emphasizes motivational, psychological, and behavioral dimensions, aligns with the findings of Funnel and Anderson,⁹ who identified empowerment as critical for improving health outcomes in diabetic patients.

A notable strength of this study resides in its structured theoretical framework, which guided the design of the intervention. Orem's self-care model was employed as the clinical foundation to evaluate patients' needs and plan educational interventions. This model is based on the principle that nursing practice should empower individuals to enhance their self-care capabilities.²⁵ Rather than delivering generalized information, this research began with a comprehensive assessment of each patient's abilities and educational needs, subsequently providing individualized training tailored to their unique circumstances. Such personalized strategies significantly increase the probability of adopting self-care practices and overcoming common barriers to patient education.

However, potential barriers to effective self-care must not be overlooked. Factors such as low health literacy, limited access to services, treatment costs, and socio-cultural challenges can significantly impede self-care efforts.²⁶ Although this study did not directly measure these barriers, the positive outcomes observed suggest that structured educational programs can effectively address these obstacles. Nevertheless, it is important to acknowledge the limitations of this study, which was confined to specific hospitals over a limited timeframe, potentially affecting the generalizability of the findings across diverse cultural and economic contexts. Additionally, reliance on self-reported measures may introduce response bias.

Final Conclusions and Recommendations

In summary, this research provides compelling evidence that the attitude- and cognition-based self-care model is an effective approach for enhancing the psychological empowerment of patients

during the critical postoperative phase following high-risk surgeries. This insight supports a transformative shift in nursing and healthcare practices—from a model in which patients are mere recipients of care to one that recognizes them as active, empowered participants in their healthcare journey.

Based on these findings, the following recommendations are proposed:

- **Clinical Recommendations:** Patient education protocols within surgical departments should be revised and developed according to validated theoretical frameworks, such as Orem's self-care model. Conducting workshops to equip nurses with the necessary skills to assess self-care needs and provide tailored education is essential.

- **Research Recommendations:** Future studies employing longitudinal designs are recommended to explore the long-term sustainability of the effects of self-care on empowerment. Additionally, conducting qualitative research could provide deeper insights into patients' experiences and challenges throughout their self-care journey.

In light of the findings related to the impact of self-care and its dimensions on the empowerment of hospitalized patients, the following recommendations are proposed:

- Implementing self-care models in health policies addressing chronic diseases could significantly enhance community health outcomes. Extending this research on a larger scale across various disease contexts is recommended to achieve a comprehensive evaluation of the results.

- Given the critical role of self-care behaviors in preventing both early and late complications of diseases and promoting longevity, it is essential for nurses to assess patients' self-care situations during therapeutic interventions. Collaborative efforts with other healthcare team members to develop and implement planned educational initiatives aimed at enhancing patients' self-care behaviors are strongly recommended.

- This research identifies empowerment as a crucial determinant of

self-care behaviors in patients. Consequently, it is essential to conduct educational sessions focused on self-care to enhance not only patients' self-management skills but also their overall sense of empowerment and competence.

- Healthcare officials and stakeholders should utilize these findings to design and implement nursing models that effectively manage diseases and their associated symptoms. This proactive approach has the potential to reduce treatment costs for patients while simultaneously alleviating symptoms and improving disease management. In particular, Orem's self-care model could play a pivotal role in achieving these outcomes.

- Recognizing that patients have varying levels of health literacy, it is essential to prioritize self-care education tailored to individuals with lower literacy skills in health promotion initiatives. Developing customized programs that align with patients' literacy levels will facilitate better engagement and understanding, ultimately enhancing their self-care behaviors.

Further Research Recommendations

In light of the findings of this study concerning the relationship between self-care, empowerment, and patient outcomes, the following recommendations are proposed:

- 1- Expanding the application of self-care models within health policies related to chronic diseases can significantly improve community health outcomes. A large-scale study involving diverse patient populations and various conditions should be conducted to validate these findings and assess their broader applicability.

- 2- Given the critical role of self-care behaviors in preventing both early and late complications of diseases and promoting longevity, nurses must assess patients' self-care abilities during therapeutic interventions. Identifying individual care needs and collaborating with interdisciplinary teams will facilitate the development and implementation of

targeted educational programs designed to foster effective self-care practices.

3- By emphasizing empowerment as a vital component of self-care, this research highlights the necessity of organizing educational initiatives to enhance patients' self-efficacy and health management skills.

4- Healthcare officials and stakeholders can utilize these insights to develop strategic plans that incorporate nursing models for effective disease management and symptom control. This approach will not only reduce the financial burden on patients but also

address their overall health needs, thereby enhancing the effectiveness of Orem's self-care model.

5- Finally, acknowledging the disparities in literacy levels among patients, tailored health promotion programs focusing on self-care should be developed. By adapting educational materials and interventions to meet the needs of individuals with lower literacy, healthcare providers can more effectively empower all patients in their self-care journeys.

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