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PATIENT SELF-CARE MANAGEMENT: IS ACTIVITY OF LIFE FUNCTION OPTIMIZATION NURSING BASED OREM'S MODEL EFFECTIVE?

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Abstrak

Penelitian ini diakui karena capaian kepuasan pasien yang belum mencapai 100% dari kisaran 2024, dan diprediksi hal ini disebabkan oleh beberapa insiden keselamatan pasien yang merupakan bentuk pelayanan yang buruk. Tujuan penelitian ini diharapkan dapat menjadi dasar bagi inovasi keperawatan yang lebih holistik yang berorientasi pada pemulihan fungsi hidup pasien. Penelitian ini menggunakan Quasi Experimental dengan desain Pretest-Posttest Control Group. Populasinya adalah pasien rawat inap yang menderita Demam Tifoid Tifoid . Teknik sampel menggunakan Purposive Sampling, dan perhitungan sampel menggunakan rumus Lameshouw sehingga diperoleh sampel 44 pasien yang dibagi menjadi kelompok intervensi dan kelompok kontrol. Hasil penelitian menunjukkan bahwa ada perbedaan yang sangat signifikan antara perawatan mandiri pasien sebelum dan sesudah intervensi ALFON berbasis Model Orem. Penerapan ALFON berdasarkan Model Orem secara signifikan lebih efektif dalam meningkatkan status fungsional pasien Demam Tifoid dibandingkan dengan metode perawatan keperawatan. Faktor paling dominan yang mempengaruhi keberhasilan implementasi ALFON adalah kompetensi perawat. ALFON berdasarkan Model Orem sangat efektif dalam meningkatkan kemandirian dan status fungsional pasien Demam Tifoid. Program untuk meningkatkan kompetensi perawat dan memperkuat lingkungan kerja perlu menjadi prioritas untuk mendukung keberhasilan implementasi intervensi berbasis model keperawatan ini.

Kata Kunci: *ALFON; Model Orem; Demam Tifoid; perawatan diri; status fungsional; Keperawatan*

Abstract

This study is acknowledged because of the achievement of patient satisfaction that has not reached 100% of the 2024 range, and it is predicted that this is due to several patient safety incidents which are a form of poor service. The purpose of this research is expected to be the basis for a more holistic nursing innovation oriented towards the recovery of patients' life functions. The study used Quasi Experimental with a Pretest-Posttest Control Group design. The population is inpatients suffering from Typhoid Typhoid Fever. The sample technique used Purposive Sampling, and the sample calculation used the Lameshouw formula so that a sample of 44 patients was obtained which was divided into intervention groups and control groups. The results showed that there was a very significant difference between patient self-care before and after the Orem Model-based ALFON intervention. The application of ALFON based on the Orem Model was significantly more effective in improving the functional status of Typhoid Fever patients compared to nursing care methods. The most dominant factor influencing the success of the implementation of ALFON is the competence of nurses. ALFON based on the Orem Model is very effective in improving the independence and functional status of Typhoid Fever patients. Programs to improve nurse competencies and strengthen the work environment need to be priorities to support the successful implementation of this nursing model-based intervention.

Keywords**:** ALFON; Orem Model; Typhoid Fever; self-care; functional status; Nursing**.**

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INTRODUCTION

Typhoid fever is a systemic infection caused by the bacteria Salmonella typhi, which is generally transmitted through the consumption of contaminated food or water. (1). The disease is still a global health problem, especially in developing countries and tropical regions such as Southeast Asia, Africa, and Latin America. According to WHO data, there are about 11 to 20 million cases of typhoid fever worldwide each year, with deaths ranging from 128,000 to 161,000 cases. The disease is mainly endemic in the regions of Southeast Asia, South Asia, and Sub-Saharan Africa (2). In Indonesia, typhoid fever is an endemic disease with an incidence ranging from 350 to 810 cases per 100,000 population, and the prevalence of this disease reaches 1.6% and ranks fifth in the list of infectious diseases affecting all age groups. In addition, typhoid fever is also the 15th leading cause of death in Indonesia, contributing 1.6% of total deaths (3).

The main symptoms of typhoid fever include prolonged fever, fatigue, headache, pain in the joints and muscles, abdominal pain, nausea, vomiting, as well as bowel disorders such as diarrhea or constipation. These symptoms can last for several weeks if not treated properly, causing the patient to experience a decrease in the ability to carry out daily activities (4). Serious complications such as gastrointestinal bleeding, hepatitis, encephalopathy, and myocarditis can occur if typhoid fever is not treated appropriately (5).. These complications not only prolong the recovery period but also increase the risk of death, which of course has a significant impact on the patient's quality of life (5). Typhoid fever can significantly disrupt patients' daily activities, ranging from the inability to work or go to school to limitations in physical and social activities, therefore, prompt and appropriate treatment is essential to minimize the negative impact of the disease on the patient's life (6).

The self-care deficit nursing model developed by Dorothea Orem emphasizes the importance of an individual's ability to care for himself or herself in order to maintain health and well-being (7), and some aspects related to self-care management are self-care deficit identification, implementation of nursing interventions, and patient education and empowerment (7). In this model, the role of the nurse is to help individuals who experience limitations in self-care so that they can achieve or recover their independence (7). In nursing practice, this model is used to assess patients' self-care capabilities, identify areas of deficit, and design appropriate interventions to improve patient independence (8). For example, in patients with thypoid disease that affects mobility, nurses may teach adaptive techniques for daily activities or provide tools to support self-care (9).

Activity of Life Function Optimization Nursing (ALFON) is an innovative approach in nursing that aims to optimize the life function of patients through increased physical activity and independence in carrying out daily activities (10). This approach emphasizes the role of the nurse in encouraging patients to remain physically active, even during the course of treatment, in order to prevent deterioration in function and speed up the recovery process (11). This approach is in line with research findings that show that nursing interventions integrated into daily care, such as patient function assessment, goal setting, individualized planning, and patient involvement in physical activity, can improve patients' functional status and independence (10). Empirical evidence proves that some of the factors that influence ALFON are family support, nurse competence and nursing environment (7). The implementation of ALFON in cases of chronic diseases such as congestive heart failure has succeeded in improving the functional capacity and quality of life of patients (12). Although not yet specific to the case of Typhoid Fever, a study by (13) shows that the ALFON approach is effective in increasing the independence of patients with infectious diseases who experience physical weakness and decreased activity. In Typhoid Fever patients, ALFON becomes particularly relevant given the characteristics of the disease which include prolonged fever, physical weakness, and indigestion that significantly interfere with the patient's daily living activities and prolong the recovery period (14).

This research was conducted at the Military Hospital in North Sumatra, because based on secondary data obtained from internal parties, there are 910 cases of typhoid fever reported in the span of 2024, where the cases rank third out of the ten largest diseases in the inpatient rooms of advanced health facilities. Based on research (7) It was revealed that ALFON in patient self-care management based on the Orem nursing model has a high urgency both in terms of scientific aspects, nursing practices, and the impact on patients and health institutions. But research from (7) It was carried out on patients with hypertension, while this study was carried out on patients with typhoid fever, according to the case that occurred in the object of the study, so that the difference became a novelty. This research has a high urgency because it has the potential to provide significant benefits in the field of nursing, both academically, clinically, and in improving the quality of health services. By developing and testing the effectiveness of ALFON in the self-care management of typhoid fever patients based on the

Orem Self-Care Deficit Model, this research can be the basis for more holistic nursing innovations and oriented towards the recovery of patients' life functions.

METHODS

This study uses a quasi-experimental with a pretest-posttest control group design, this design is aimed at testing the effectiveness of an intervention or treatment by comparing the experimental group and the control group before and after the intervention is given. The experimental group in this study was Typhoid Fever patients who received Activity of Life Function Optimization Nursing (ALFON) interventions, while the control group was Typhoid Fever patients who received standard care, and the intervention was given as long as the patients received treatment in an inpatient facility. The application of ALFON is based on the Orem Self-Care Deficit Nursing Model, which focuses on meeting the patient's self-care needs. This intervention may include: (1) Assessment of the patient's self-care ability. (2) Identification of self-care deficit. (3) Implementation of the nursing system (wholly compensatory, partly compensatory, supportive-educational). (4) Patient education and empowerment. The reason the researcher is that this method can be used to test the effectiveness of ALFON by comparing the group that received the ALFON intervention with the control group that received standard care.

The population used was an inpatient of the Military Hospital in North Sumatra who was diagnosed with typhoid fever. The sample technique used purposive sampling, the sample calculation used the lameshouw formula using a confidence level of 1.96, the test strength was 0.84, the estimated variant was 2 and the expected difference between the two groups was 5. So based on this stipulation, the number of samples was obtained as many as 43.5 and the number of samples in this study was 44 respindens, where each group was 22 patients (intervention + control). With inclusion criteria (1) Patients who experience a self-care deficit according to the Orem Model. (2) Patients who are ≥ 19 years old. (3) Patients who are willing to follow the research procedure. Exclusion criteria (1) Patients with severe comorbid conditions. (2) Patients with impaired consciousness or critical conditions are admitted to the ICU. (3) Patients who receive other treatment interventions that may affect the results of the study.

Data collection was carried out by survey method directly to respondents using questionnaires developed by themselves according to the indicators adopted in the relevant research. The questionnaire scale uses a score range of 1 – 5. This study consisted of 3 independent variables, namely family support (X1) with the aim of measuring how much family care about health conditions, family concern in accompaniment, family concern for providing encouragement and motivation, how often the family helps in daily activities during illness and how often the family reminds them to take medication according to the schedule, consists of 5 statements. The nurse competency variable (X2) measures how well the nurse understands Typhoid Fever, how skilled the nurse is in carrying out nursing actions, how clear the nurse is in providing education about self-care, how good the nurse is in providing emotional support, and how competent the nurse is in implementing care that suits the patient's needs, consists of 5 statements. The nursing environment variable (X3) which is intended to measure the patient's perception of the condition of the nursing room (lighting, ventilation, and hygiene) supports the implementation of nursing care, the availability of medical facilities and equipment in the workspace in accordance with the needs in treating Typhoid Fever patients, the relationship between nurses and other health workers in the workspace is well established so as to support collaboration, support from superiors for the implementation of care Nursing is well felt, and the nursing environment as a whole provides a sense of comfort and security in carrying out nursing duties. The dependent variable, namely self-care (Y) with indicators of assessing self-care ability, self-care deficit identification, implementation of nursing interventions, and patient education and empowerment, consisted of 15 statements aimed at measuring Typhoid Fever patients' perceptions of nursing interventions that optimize patients' life functions based on the Orem Model.

Validity and reliability tests were carried out on 30 respondents. The validity test uses the correlation of the moment product, where all instruments on all variables are declared valid because they have a calculation value of > 0.361. The reliability test used Cronbach's alpha, and all instruments had a Croncbach's alpha value > 0.70. So that all statements on each variable are used entirely in follow-up research. Submission of ethics review is carried out by filling out the form and completing the required documents, such as ethics protocols, proposals complete with the researcher's CV, informed consent and research instruments, proof of payment. The UNKAHA Ethics Committee assesses the risks of the research and determines the categories of the study: Exempted (free of ethical review, minimal risk), *Expedited* (quick review, medium risk), *Fullboard* (plenary review, high risk or vulnerable subject). The results of the study by the UNKAHA Ethics Committee were approved and given an *Ethical Approval letter* with letter number 0325/KEP/UNKAHA/LPPM/XI/2025.. The data analysis technique used a statistical program

consisting of a homogeneity test to determine homogeneity in patient demographics. Descriptive analysis uses frequency distribution. The data normality test before determining the difference test, the difference test is carried out using a paired sample T test if the data is normally distributed to test the difference between the intervention group sample and the control group. Logistic regression analysis was carried out to determine the relationship between research variables. Logistic regression is used because logistic regression is more resistant to outliers, compared to linear regression which is strongly affected by extreme data points.

Based on the results of the analysis, it was found that the average age in the intervention group was 44.77 years with a standard deviation of 8.54, while in the control group the average age was 44.82 years with a standard deviation of 8.84. A very minimal mean age difference (0.05 years) indicates that both groups have homogeneous age characteristics. Respondent characteristics by gender showed that both groups were dominated by women, namely 59.1% in the intervention group and 72.7% in the control group. Based on education level, the majority of respondents had a high school education, namely 45.5% in the intervention group and 63.6% in the control group. The average length of treatment for the two groups was identical, which was 3.55 days, showing good homogeneity in the treatment time variable.

RESULTS AND DISCUSSION

Results

Before the differential test, a data normality test was first carried out using Shapiro-Wilk with a value of Sig. = 0.098 > 0.05, which showed that the data was normally distributed so that it was eligible for a parametric test, and the differential test was carried out using the Paired Sample T-Test.

Analysis of differences in patient self-care before and after Orem Model-based ALFON intervention was conducted using the Paired Sample T-Test. Before the hypothesis test was carried out, a data normality test was first carried out using Shapiro-Wilk with the result of a value of Sig. = 0.098 (> 0.05), which showed that the data was normally distributed so that it was eligible for a parametric test. The results of the Paired Sample T-Test are presented in the following table:

Table 1. Results of Paired Sample T-Test Self-Care Patients Before and After ALFON Intervention

Patient Self-Care	Red	95% CI	t	df	Sig.
Before - After	-9,636	-11,608 to -7,665	10,166	21	0,000

Source: Processed program statistics, 2025

Based on Table 1, it can be seen that the results of the Paired Sample T-Test show a mean difference value of -9.636, t-value = -10.166 and p-value = 0.000 (p < 0.05). A negative mean value indicates an increase in the patient's self-care score after the Orem Model-based ALFON intervention. Thus, it can be concluded that there is a very significant difference between patient self-care before and after the Orem Model-based ALFON intervention.

The analysis of the effectiveness of ALFON based on the Orem Model in improving the functional status of Typhoid Fever patients was carried out by comparing the intervention group (ALFON method) and the control group (standard method). The data normality test using Shapiro-Wilk showed a value of Sig. = 0.000 (< 0.05), which means that the data was not normally distributed so the Mann Whitney U non-parametric test was used.

Table 2. Results of the Mann Whitney U Test on the Effectiveness of ALFON on Patient Functional Status

Nursing Care Methods	Mean Rank	Sum of Ranks	Test Results
ALFON Method	128,56	11.313,00	U = 347,000
Standard Method	48,44	4.263,00	Z = -10.474
	p = 0.000		

Source: Processed program statistics, 2025

Based on Table 2, it can be seen that the results of the Mann Whitney U test show a value of U = 347,000, Z = -10,474, and p-value = 0.000 (p < 0.05). The Mean Rank value in the ALFON method group (128.56) was higher than the standard method group (48.44). This shows that the application of ALFON based on the Orem Model is significantly more effective in improving the functional status of Typhoid Fever patients compared to standard nursing care methods.

Analysis of factors influencing the implementation of ALFON includes family support, nurse competence, and work environment. The frequency distribution of each factor is presented in the following table

Table 3. Distribution of Family Support Frequency, Nurse Competence, and Work Environment

Factors	Frequency (f)	Percentage (%)
Family Support		
Low	5	22,7
Height	17	77,3
Nurse Competencies		

Factors	Frequency (f)	Percentage (%)
Less	4	18,2
Good	18	81,8
Work Environment		
Bad	6	27,3
Good	16	72,7

Source: Processed program statistics, 2025

Based on Table 3, it can be seen that most of the respondents have high family support, namely 17 people (77.3%), nurse competence in the good category as many as 18 people (81.8%), and work environment in the good category as many as 16 people (72.7%).

Table 4. Logistic Regression Test Results

Variable	B	S.E.	Wald	Sig.	OR
Family Support	1,892	0,847	4,991	0,025	6,634
Nurse Competencies	4,150	1,124	13,639	**0,000**	**63,428**
Work Environment	3,358	0,982	11,694	**0,001**	**28,737**
Constant	-5,234	1,456	12,921	0,000	0,005

Source: Processed program statistics, 2025

Based on Table 4, the results of the logistics regression test showed that the most dominant factor influencing the success of the implementation of ALFON was the competence of nurses with an OR value = 63.428 (p-value = 0.000), followed by the work environment with OR = 28.737 (p-value = 0.001), and family support with OR = 6.634 (p-value = 0.025). This means that nurses with good competence have a 63.4 times greater chance of succeeding in implementing ALFON than nurses with less competence.

Discussion

The results showed that the average age of respondents in the intervention group was 44.77 years and the control group was 44.82 years. Both groups are dominated by women and the majority are high school educated. The homogeneity of respondent characteristics is important to ensure that the difference in intervention outcomes is not due to differences in demographic characteristics, but rather to the effect of the Orem Model-based ALFON intervention (7). The dominance of female respondents is in accordance with Typhoid Fever epidemiological data which shows that women have a higher susceptibility to gastrointestinal infections due to domestic activities involving contact with contaminated sources (15). The dominant characteristics of secondary education allowed respondents to understand the instruction and education provided during the ALFON intervention (7).

The results of the Paired Sample T-Test showed a very significant difference between the patient's self-care before and after the ALFON intervention, and these results showed that the Orem Model-based ALFON intervention was effective in improving the self-care capabilities of Typhoid Fever patients. These findings are in line with Dorothea Orem's Self-Care Deficit Nursing Theory which emphasizes the importance of an individual's ability to take care of himself or herself in order to maintain health. In this model, the role of the nurse is to help individuals who experience limitations in self-care so that they can achieve or recover their independence (8). The results of the Mann Whitney U test prove that the application of ALFON based on the Orem Model is significantly more effective in improving the functional status of Typhoid Fever patients compared to standard nursing care methods, which shows the superiority of the ALFON method. The results of this study are in line with the research (16) which suggests that Orem's self-care theory positively affects cognitive, neurological, and daily life functions in Traumatic Brain Injury patients during early rehabilitation treatment. Research (17) also showed that training based on the theory of Self-Care Deficit is beneficial in increasing nurses' awareness of patient individuality.

The results of the logistic regression analysis showed that nurse competence was the most dominant factor that affected the success of the implementation of ALFON, this means that nurses with good competence had a 63.4 times greater chance of succeeding in implementing ALFON than nurses with less competence. The findings explain the alignment of research from (7) that competent nurses are able to accurately assess patients' self-care abilities, identify self-care deficits, implement the right nursing system, provide effective education, and empower patients to achieve independence. The nursing environment also has a significant influence, and this is in line with research from (17) which revealed that a conducive nursing environment includes good room conditions, availability of medical facilities and equipment, harmonious relationships between health workers, support from superiors, and a sense of comfort and security in carrying out nursing duties. In addition, according to (7) a supportive nursing environment allows nurses to focus on the optimal implementation of ALFON interventions. The last factor in the form of family

support also has a significant effect, and according to (7) Family support plays an important role in motivating patients to actively participate in ALFON interventions and resume self-care practices after discharge from the hospital.

CONCLUSION

There was a significant difference between patient self-care before and after the Orem Model-based ALFON intervention. The application of ALFON based on the Orem Model was significantly effective in improving the functional status of Typhoid Fever patients compared to standard nursing care methods, and the most dominant factor influencing the successful implementation of ALFON was the competence of nurses. The implications of this study suggest that management develop a program to improve nurse competency in an ongoing manner through training, workshops, and certifications related to the implementation of evidence-based nursing models. This study was limited to measuring functional status and self-care was carried out over a relatively short period of time so it was not possible to assess the long-term effects of ALFON interventions, so it is recommended for further studies to examine the long-term effects of ALFON interventions on patients' quality of life and rehospitalization rates.

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