NURSES' PERCEPTION OF CARING-BASED NURSING CARE FOR STROKE PATIENTS WITH THROMBOLYSIS AND INFLUENCING FACTORS

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ABSTRACT

Background: Nursing care based on caring can improve the outcomes of post-stroke patients. However, many nurses tend to prioritize technical tasks over caring behaviors. The factors causing the lack of caring attitudes among nurses in providing care to stroke patients in hospitals are not yet known.

Objective: To determine nurses' perceptions of caring-based nursing care for stroke patients with thrombolysis and the influencing factors.

Methods: A quantitative research design using descriptive analysis with a cross-sectional approach was employed. Inclusion criteria included practicing nurses aged 20-50 with at least one year of work experience. Exclusion criteria were nurses who were sick, on leave, or engaged in educational assignments. Sample selection was done using proportional stratified random sampling over two weeks in September 2022.

Results: A total of 158 respondents from three hospitals completed the questionnaire. Most nurses had good knowledge about assessment, nursing diagnosis, intervention, implementation, and evaluation (80.4%, 69.6%, 63.3%, 58.9%, and 69.6%, respectively). The ability to assess the NIHSS was also good (72.2%), but the ability to measure mRS was less satisfactory (52.5%). The results of the Coefficient of Determination (R2) test showed that the contribution of the factors of nurses, information, organization, and job to the nursing care of stroke patients was 50.3%. The direct hypothesis results also showed a significant influence of nurses, information, and job factors on caring-based nursing care for stroke patients (t-statistic value > 1.96 and p-value < 0.05). The better the nurse, information, and job factors, the more likely it is to improve nurses' caring attitudes (positive coefficient values).

Conclusion: Nurses' knowledge about caring-based nursing care for stroke patients still needs improvement. Nurse, information, and job factors significantly influence caring-based nursing care for stroke patients with thrombolysis.

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PERCEPÇÃO DOS ENFERMEIROS SOBRE CUIDADOS DE ENFERMAGEM BASEADOS EM CUIDADOS PARA PACIENTES COM AVC COM TROMBÔLISE E FATORES INFLUENCIADORES

RESUMO

Histórico: Cuidados de enfermagem baseados em cuidados podem melhorar os resultados de pacientes pós-acidente vascular cerebral. No entanto, muitos enfermeiros tendem a priorizar tarefas técnicas em detrimento de comportamentos de cuidado. Ainda não se conhecem os fatores que causam a falta de atitudes assistenciais entre os enfermeiros no atendimento aos pacientes com AVC nos hospitais.

Objetivo: Determinar as percepções dos enfermeiros quanto ao cuidado de enfermagem baseado em cuidados para pacientes com AVC com trombólise e os fatores influenciadores.

Métodos: Foi empregado um projeto de pesquisa quantitativa utilizando análise descritiva com abordagem transversal. Os critérios de inclusão incluíam enfermeiros em exercício com idades compreendidas entre os 20 e os 50 anos, com pelo menos um ano de experiência profissional. Os critérios de exclusão eram os enfermeiros que estavam doentes, em licença ou envolvidos em tarefas educacionais. A seleção de amostras foi feita usando amostragem aleatória estratificada proporcional durante duas semanas em setembro de 2022.

Resultados: Um total de 158 entrevistados de três hospitais preencheram o questionário. A maioria dos enfermeiros tinha bom conhecimento sobre avaliação, diagnóstico de enfermagem, intervenção, implementação e avaliação (80,4%, 69,6%, 63,3%, 58,9% e 69,6%, respectivamente). A capacidade de avaliar o NIHSS também foi boa (72,2%), mas a capacidade de medir mRS foi menos satisfatória (52,5%). Os resultados do teste do Coeficiente de Determinação (R2) mostraram que a contribuição dos fatores de enfermagem, informação, organização e trabalho para o cuidado de enfermagem de pacientes com AVC foi de 50,3%. Os resultados da hipótese direta também mostraram uma influência significativa de enfermeiros, informação e fatores de trabalho no cuidado de enfermagem baseado em cuidado para pacientes com AVC (valor da estatística t > 1,96 e valor p < 0,05). Quanto melhor os fatores de enfermagem, informação e emprego, maior a probabilidade de melhorar as atitudes cuidadoras dos enfermeiros (valores de coeficiente positivo).

Conclusão: O conhecimento dos enfermeiros sobre cuidados de enfermagem baseados em cuidados para pacientes com AVC ainda precisa de melhorias. Enfermeiro, informação e fatores de trabalho influenciam significativamente cuidados de enfermagem baseados em cuidados para pacientes com trombólise.

Palavras-chave: cuidar, enfermagem, resultado, percepção, acidente vascular cerebral.

1 INTRODUCTION

Stroke is the second leading cause of death worldwide (Rexrode et al., 2022). Thrombolysis therapy has been proven to reduce the mortality and morbidity rates in
ischemic stroke patients when administered within a 4.5-hour window (Powers et al., 2019). Nurse competency in thrombolysis therapy can significantly enhance post-stroke patient outcomes (Baatiema et al., 2017). Nurses' caring attitudes and behavior have been demonstrated to enhance the quality of nursing care (Cheruiyot & Brysiewicz, 2019) (Droegemueller et al., 2020).

One of the challenges hindering nurses from practicing caring attitudes in the emergency room is the high workload (Johansen, 2014). Studies on nurses' caring attitudes in Croatia indicate that most nurses prioritize skill-based tasks over caring behaviors (Vujanić et al., 2020). There exists a perceptual gap regarding caring between nurses and patients or their families, where nurses believe they have demonstrated caring attitudes. In contrast, patients perceive them as lacking in caring behaviors (Calong & Soriano, 2018). Other dimensions of caring attitudes in the Emergency Department (ED) include how nurses administer treatment and the sincerity of their demeanor (Alexandrov et al., 2019). High-quality, professional nursing care has enhanced patient and family satisfaction (Mobolaji-Olajide et al., 2020). Various factors, including individual factors, experience, information, organizational aspects, and job-related factors, influence the attitudes and behaviors of nurses.

2 THEORITICAL FRAMEWORK

Nursing assessment of acute ischemic stroke patients can begin with pre-hospital patients in the ambulance, at the time of triage in the emergency room, the behavior or work productivity of nurses is strongly influenced by organizational characteristics, individual characteristics, and overall worker characteristics. This factor will affect the success of a nurse in handling acute stroke patients.

3 METHODS

This study employed a descriptive analysis method with a cross-sectional approach. The respondents were nurses in the emergency room, stroke unit, and Intensive Care Unit (ICU) at three hospitals: Prof. Dr. dr. Mahar Mardjono National Brain Center Hospital in Jakarta, H. Adam Malik Regional Hospital in Medan, North Sumatra, and Dr. Wahidin Soedirohusodo Regional Hospital in Makassar, South Sulawesi. Inclusion criteria encompassed registered nurses aged 20 to 50 years old, actively working in the emergency room, stroke unit, ICU, or stroke ward, with a minimum of one year
experience in their respective units. Exclusion criteria included nurses on sick leave, maternity leave, or currently engaged in educational assignments.

Sample selection employed the proportional stratified random sampling method in September 2022, with respondents completing a questionnaire through a Google Form. A total of 158 respondents participated in the survey. The questionnaire comprised 82 questions covering various aspects, including individual factors, information factors, job-related factors, nursing assessment, nursing diagnosis, interventions, implementation, nursing evaluation, and eight outcome-related questions.

3.1 DATA ANALYSIS

Data analysis used Structural Equation Modeling (SEM) with smartPLS version 3.0 for Windows software. Model evaluation using PLS is a non-parametric predictive model. Path analysis included outer model measurement to test indicator validity and reliability, assessment of the inner structural model for goodness of fit ($R^2$), predictive relevance ($Q^2$), and hypothesis testing.

3.2 OUTER MODEL MEASUREMENT

3.2.1 Convergent Validity

The Convergent Validity test results indicated that individual factors (gender, education, personality, and attitude), information factors (experience), and job-related factors (job design) produced factor loading values less than 0.5. This suggests that the indicators were not valid in measuring their respective variables, necessitating a reduction in these indicators. After reduction, all indicators yielded values greater than 0.5, and all variables produced Average Variance Extracted (AVE) values greater than 0.5. Thus, it can be concluded that all indicators are considered valid for measuring their respective variables.

3.2.2 Discriminant Validity

The Discriminant Validity test results demonstrated that the indicators produced higher loading values than loading values on other variables. This indicates that each indicator can measure the latent variable corresponding to its indicator.
3.2.3 Construct Reliability

The construct reliability test results using Cronbach's alpha and composite reliability showed that all Cronbach's alpha values were more significant than 0.6, and composite reliability values were greater than 0.7. It can be concluded that all indicators are considered reliable in measuring their respective variables.

4 RESULTS

4.1 CHARACTERISTIC OF RESPONDENTS

In general, the majority of respondents within the 31-40 age group (57%), were predominantly female (77.8%), and most had a Nursing education background (52.5%). Less than half of the respondents (43%) exhibited a phlegmatic personality. The majority of nurses displayed good knowledge in assessment (80.4%), nursing diagnosis (69.6%), interventions (63.3%), implementation (58.9%), and nursing evaluation (69.6%). Nurses' ability to assess stroke severity using the NIHSS scale was good (72.2%), while their ability to assess functional status using the mRS scale was still less satisfactory (52.5%).

4.2 INNER MODEL MEASUREMENT

4.2.1 Coefficient of Determination ($R^2$)

The Coefficient of Determination ($R^2$) test was conducted to determine the contribution of exogenous variables to endogenous variables. The results are as follows in table 1.

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>$R^2$</th>
<th>$R^2$ Adjusted</th>
</tr>
</thead>
<tbody>
<tr>
<td>X5 Nursing Care for Stroke Patients with Thrombolysis Based on Caring</td>
<td>0.503</td>
<td>0.490</td>
</tr>
<tr>
<td>Y1 Patient Outcomes</td>
<td>0.373</td>
<td>0.352</td>
</tr>
</tbody>
</table>

Table 1 shows that the contribution of the factors of nurses, information, organization, and job-related factors to the nursing care of stroke patients with thrombolysis based on caring variables is 50.3%. The remaining 49.7% represents the contribution of other variables not discussed in this study.

The contribution of nurses, information, organization, job-related factors, and nursing care for stroke patients with thrombolysis based on caring variables to patient
outcomes is 37.3%. The remaining 66.7% represents the contribution of other variables not discussed in this study.

4.2.2 Predictive Relevance (Q2)

Predictive Relevance (Q²) testing measures how well the model's parameter estimates generate observed values. A Q² value greater than 0 (zero) indicates the model is considered reasonably good, while a Q² value less than 0 (zero) indicates that the model lacks predictive relevance. Here are the results of the Predictive Relevance (Q²) testing:

<table>
<thead>
<tr>
<th>Variable</th>
<th>SSO</th>
<th>SSE</th>
<th>Q² (=1 - SSE/SSO)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursing Care for Stroke Patients with Caring-Based Thrombolysis (X5)</td>
<td>790.000</td>
<td>548,340</td>
<td>0.306</td>
</tr>
<tr>
<td>Patient Outcome (Y1)</td>
<td>316.000</td>
<td>244,459</td>
<td>0.226</td>
</tr>
</tbody>
</table>

Source: Primary Data (2022)

The results in Table 2 indicate that all variables yield Predictive Relevance (Q²) values greater than 0 (zero), signifying that the nursing care model for stroke patients based on caring is predicted to have good relevance to post-stroke patient outcomes. This model would also perform exceptionally well when applied in different settings or areas.

4.2.3 Hypothesis testing

Hypothesis testing is employed to examine the presence or absence of an influence of exogenous variables on endogenous variables, which are the various factors influencing nurses' caring attitudes in delivering nursing care. The results are presented in the following table 3.

| Influence | Path Coefficients | T Statistics (|O/STDEV|) | P Values | Remark |
|-----------|------------------|----------------|----------|--------|
| Nurse Factor (X1) → Nursing Care for Stroke Patients with Caring-Based Thrombolysis (X5) | 0.381 | 5.725 | 0.000 | Significant |
| Nurse Factor (X1) → Patient Outcome (Y1) | 0.044 | 0.507 | 0.613 | Not significant |
| Information Factor (X2) → Nursing Care for Stroke Patients with Caring-Based Thrombolysis (X5) | 0.365 | 5.502 | 0.000 | Significant |

The hypothesis testing results indicate that Nurse Factor (X1) has a significant influence on Nursing Care for Stroke Patients with Caring-Based Thrombolysis (X5) and Patient Outcome (Y1). Information Factor (X2) also has a significant influence on Nursing Care for Stroke Patients with Caring-Based Thrombolysis (X5).
Based on Table 3, the findings can be summarized as follows: the Nurse Factor's significant influence on Nursing Care for Stroke Patients with Thrombolysis based on Caring (with a t-statistic value of 5.725 and a p-value of 0.000). A better nurse factor tends to increase the caring attitude of nurses in providing nursing care to stroke patients with thrombolysis (coefficient value of 0.381). However, the Nurse Factor has no significant influence on Patient Outcomes after stroke (with a t-statistic value of 0.507 and a p-value of 0.613). The Information Factor's significant influence on Nursing Care for Stroke Patients with Thrombolysis based on Caring (with a t-statistic value of 5.502 and a p-value of 0.000). A better information factor tends to increase Nursing Care for Stroke Patients with Thrombolysis based on Caring (coefficient value of 0.365).

Additionally, there is a significant influence of the Information Factor on Patient Outcomes (with a t-statistic value of 2.501 and a p-value of 0.013), indicating that a better information factor tends to enhance Patient Outcomes (coefficient value of 0.217). There is no significant influence of the Organizational Factor on Nursing Care for Stroke Patients with Thrombolysis based on Caring (with a t-statistic value of 0.396 and a p-value of 0.692). Likewise, the Organizational Factor has no significant influence on Patient Outcomes (with a t-statistic value of 1.333 and a p-value of 0.183). The Job Factor's significant influence on Nursing Care for Stroke Patients with Thrombolysis based on Caring (with a t-statistic value of 2.114 and a p-value of 0.035). A better job factor tends to increase Nursing Care for Stroke Patients with Thrombolysis based on...
Caring (coefficient value of 0.180). However, the Job Factor has no significant influence on Patient Outcomes (with a t-statistic value of 1.453 and a p-value of 0.147). Based on the hypothesis testing results, it can be concluded that the new construct containing only the significant pathways is as follows:

![Figure 1 Inner Model Constructs - Only Final Path in the Caring-Based Nursing Care Model for Stroke Patients with Thrombolysis](image)

Figure 1 illustrates the constructs, with significant pathways between variables. The values in the indicator constructs represent T-values. The latent variable values indicate path coefficients and T-values. The bolded arrows represent the best pathways based on the path analysis results (indirect effect), which will be explained at the end of this chapter.

### 4.3 RESULTS OF INDIRECT HYPOTHESIS TESTING

Indirect hypothesis testing is used to examine whether there is an influence of exogenous variables on endogenous variables through intervening variables. Below are the results of indirect hypothesis testing.
Table 4. Results of Indirect Hypothesis Testing

<table>
<thead>
<tr>
<th>Effect</th>
<th>Coefficient</th>
<th>Coefficient</th>
<th>P Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurse Factor (X1) → Nursing Care for Stroke Patients with Caring-Based Thrombolysis (X5) → Patient Outcome (Y1)</td>
<td>0.177</td>
<td>3.744</td>
<td>0.000</td>
</tr>
<tr>
<td>Information Factor (X2) → Nursing Care for Stroke Patients with Caring-Based Thrombolysis (X5) → Patient Outcome (Y1)</td>
<td>0.172</td>
<td>4.473</td>
<td>0.000</td>
</tr>
<tr>
<td>Job Factor (X4) → Nursing Care for Stroke Patients with Caring-Based Thrombolysis (X5) → Patient Outcome (Y1)</td>
<td>0.094</td>
<td>2.710</td>
<td>0.007</td>
</tr>
</tbody>
</table>

Source: Primary Data (2022)

Table 4 indicates a significant influence of the Nurse Factor, Information Factor, and Job Factor on patient outcomes through Nursing Care for Stroke Patients with Thrombolysis based on Caring. In other words, the variable Nursing Care for Stroke Patients with Thrombolysis based on Caring can significantly mediate the influence of the Nurse Factor, Information Factor, and Job Factor on patient outcomes.

5 DISCUSSION

The average age of the respondents is within the 31-40 years age range (57%). This is consistent with research findings in five hospitals in Jakarta, where the average age of nurses was 33.11 years (Mulyatsih et al., 2021). Slightly different findings were observed in Ethiopia, where the average age of nurses was 15-24 years (Oluma & Abadiga, 2020).

The majority of respondents were female and had a Nursing education background. Less than half of the respondents (43%) exhibited a phlegmatic personality. A phlegmatic personality is described as being calm, wise, simple, empathetic, attentive, and often serving as a mediator. Such a phlegmatic personality is highly suitable for nursing (Rakhmanina, Martina and Jayadi, 2020).

5.1 NURSING CARE FOR STROKE PATIENTS WITH THROMBOLYSIS BASED ON CARING

Most respondents have good knowledge about the caring attitudes that should be applied during the assessment, implementation, and nursing evaluation, accounting for approximately [percentage]. This aligns with research findings in Ethiopia that state (Oluma & Abadiga, 2020) that stroke patient assessments include measuring vital signs, checking the Glasgow Coma Scale (GCS), assessing the NIH Stroke Scale (NIHSS),
weighing the patient, facilitating CT scan examinations, conducting patient and family interviews, and completing specific thrombolysis therapy forms (Li and Hongxia, 2020). The assessment of stroke patients from their arrival in the Emergency Department (ED) until a head CT scan is performed should take less than 25 minutes, and the time to receive thrombolysis therapy (door-to-needle) should be less than 60 minutes (Joseph, Sean, and Tennyson, 2019). During the assessment, nurses should exhibit caring behavior by applying appropriate elements from Swanson's five caring elements: maintaining belief, knowing, being with, doing for, and enabling (Alligood, 2014). When conducting patient and family interviews, nurses should demonstrate warmth, readiness to assist, use a low tone of voice, and be good listeners to patient complaints. During physical examinations, nurses should respect patient privacy, avoid causing harm to the patient, and conduct a holistic assessment, including bio-psycho-social and spiritual aspects. The following are the caring attitudes and behaviors that patients and families in the ED expect from nurses: direct engagement with patients upon arrival in the ED, providing explanations and education to patients and families, and creating a calm environment for patients to rest (Salinas et al., 2020).

Nursing diagnoses encompass the risk of cerebral perfusion disorders, decreased intracranial adaptive capacity, ineffective airway clearance, physical mobility impairment, and psychological disorders (PPNI, 2016). Another caring attitude of nurses in implementing care for stroke patients with thrombolysis is monitoring vital signs and neurological status, showing concern and readiness to help, ensuring the patient is in a comfortable position, carefully ambulating the patient, accurately assessing swallowing function, involving the family in bladder training, providing education to patients and families in easy-to-understand language, and collaborating effectively with the healthcare team (Wang et al., 2018).

The results of this study also indicate that most respondents can evaluate nursing care effectively. Nursing evaluation includes assessing the patient's psychological response, monitoring vital signs, examining the patient's neurological status, measuring NIHSS scores, assessing patient outcomes, and carefully monitoring signs and symptoms of complications during thrombolysis therapy.

The first factor influencing nurses' caring attitudes in providing nursing care to stroke patients is the individual factor or the nurse. The better the nurse factor, the more likely it is to enhance the caring attitude of nurses in providing nursing care. Nurses'
caring attitudes can be monitored and evaluated through questionnaires distributed to patients. Often, these caring attitudes are not visible but can be felt by patients (Huércanos-Esparza et al., 2021). One factor that can improve nurses' caring attitudes is work experience. Findings in Croatia illustrate that nurses with more extended work experience provide more spiritual support to patients (Vujanić et al., 2020). They anticipate patient needs even without being asked by the patient (Akansel et al., 2021).

Other caring attitudes that are not explicitly mentioned but can be felt by patients include nurses taking the time to talk to patients, sitting beside patients, using language that patients can easily understand, and showing a willingness to help patients (Huércanos-Esparza et al., 2021). Nurses often treat patients as friends (Salinas et al., 2020).

The second influencing factor is the information factor. The better the information factor, the more likely it is to enhance the caring attitude of nurses in providing nursing care to stroke patients. Nurses can acquire caring knowledge and skills through training (Bakar et al., 2022), reading the latest journals, or other scientific activities such as journal reading or case studies (Pajnkihar et al., 2017). From the patient's perspective, a caring nurse is seen as competent and skilled (Pajnkihar et al., 2017).

Similarly, the job factor indirectly affects nurses' attitudes in nursing care to stroke patients. The work environment, feedback and correction from leaders, and job design from leaders influence nurses' caring attitudes. An environment that fosters safety and comfort is compassionate (Subke et al., 2020; Padmavathi, 2023), promotes mutual respect and empathy (Fernandez & Zahavi, 2020), and support from leaders or mentors can enhance nurses' caring attitudes (Huércanos-Esparza et al., 2021). Nurses' caring attitudes can also be transmitted to other healthcare team members and have been shown to improve service quality (Wei et al., 2017).

6 CONCLUSION

Nurses' knowledge about nursing care for stroke patients based on caring still needs improvement. Various factors can influence nurses' caring attitudes. Several factors affecting nurses' caring attitudes in nursing care to stroke patients include individual nurses, information, and job factors.
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