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Analysis of Sociodemographic Factors on Deprresion Levels in Stroke Patients Using *Structural Equating Modelling* (SEM)

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ABSTRACT

Purpose: The purpose of this study is to analyze the sociodemographic factors that affect the level of depression in stroke patients. **Methods:** This research method employs a Prospective Cohort approach conducted over approximately 3 months. The population and sample in this study consist of 40 respondent stroke patients in the Mawar Ward of RSUD Ciamis. Sampling was carried out using the Purposive Sampling technique. Data collection was conducted using a questionnaire assessing the level of depression using the HDRS assessment with the Structural Equating Modelling (SEM) method. **Results:** This research was conducted from March to May 2023. The research results from 40 respondents revealed that 12 individuals experienced depression, with 8 having mild depression, 3 with moderate depression, and 1 with severe depression. The most dominant sociodemographic factors were age and educational level, with education obtaining an R-square value of 0.198 and age 0.032. **Conclusions:** The conclusion drawn from this research is that sociodemographic factors influencing the level of depression in stroke patients are age and educational level.

Keywords: Depression, stroke, sociodemographic factors

Introduction

Stroke is a neurological condition that results in impaired brain function due to bleeding (hemorrhage) or blockage (ischemia). The symptoms and signs of stroke that occur depend on which part of the brain is affected. Stroke can cause disability or even death (Setiawan, 2021). Stroke is the third leading cause of death after coronary heart disease (13%) and cancer (12%). The incidence of stroke in the United States is around 7 million (3.0%), while in China the prevalence of stroke ranges from 1.8% (rural) to 9.4% (urban). China has the highest stroke mortality rate in the world (19.9% of all stroke deaths in China). The worldwide stroke rate is around 15 million people each year. Approximately 795,000 new or recurrent strokes are recorded each year, 610,000 first strokes and 185,000 recurrent strokes(Nurhikmah, 2021). The results of medical records from the Ciamis Regional General Hospital in 2021 showed that

there were 355 individuals who received treatment in the Mawar room due to stroke, with the details consisting of 177 individuals with infarction stroke and hemorrhagic stroke .

Depression is a mood disorder characterized by loss of control over moods or emotions, and changes in activity level, thinking capacity, and communication. The main clinical symptoms include feelings of deep sadness, loss of interest and pleasure, easy fatigue, and significant decline in activity. Depression can be triggered by various factors, including diseases such as stroke (Asmila & Septiawantary, 2021).

The decline in cognitive and motor skills in individuals who have had a stroke causes challenges that push them to rely on the help of others. This impact also plays a role in triggering depression in stroke patients, which can come from changes in mental and cognitive status, as well as disorders in speech ability. This condition often causes anxiety about the changes that occur in the patient (Purba & Utama, 2019)

To evaluate the level of depression in individuals who have had a stroke, a measurement tool known as the Hamilton Depression Rating Scale (HDRS) is used. This tool functions to assess the severity of depression. The HDRS scale is the primary choice for medical practitioners in the context of clinical practice. There are several variants of the HDRS, including an early version consisting of 17 elements, as well as a recent adaptation containing 24 elements to assess the level of depression. Based on research Sasmita, (2020)There are several sociodemographic factors that can influence the level of depression, sociodemographic factors include age, gender, education level, employment status and marital status.

Based on a preliminary study of 5 respondents in the Mawar Room of Ciamis Regional Hospital for stroke patients in December, when conducting a survey interviewing the respondent's family, they said that family members who were being treated with a stroke diagnosis often looked gloomy to the point of crying. According to the respondent's family, they often cried at night, when asked about the disease they were currently suffering from, they liked to cry as if those who had a stroke thought that if they had a stroke, they couldn't do anything anymore, they were helpless, many thought they would not be able to recover so that their life expectancy decreased. This strengthens the researcher's reason for conducting a sociodemographic factor analysis study on the level of depression in stroke patients.

Methods

The method used in this study is a quantitative approach using a Cohort study design. The subjects of the study included all individual patients who had a stroke and were treated in the rose room, with a total population of 40 respondents. The sample selection process was carried out purposively by considering certain criteria. This study was conducted at the Ciamis Regional General Hospital (RSUD) in the period January to June 2023.

This research began by conducting a preliminary survey.in Decemberto obtain data obtained in research. Data collection in this study involved the use of primary data sources obtained directly from participants as well as secondary data obtained from medical records. The collection of information to measure the level of depression in stroke patients relied on filling out a questionnaire with the HDRS assessment method, where participants were asked to answer a series of questions contained in the sheet. Before the start of the interview stage, an informed consent procedure will be carried out first to the patient's family to ensure their agreement in answering the questionnaire. After the interaction takes place, data on the level of depression will be assessed using a questionnaire, the results of which will later help identify the level of depression experienced by each participant.

The instrument used was a questionnaire to assess the level of depression in post-stroke patients, which was adopted from the Hamilton Depression Rating Scale theoretical

framework. The researcher had previously obtained permission through a direct statement letter from Ciamis Regional Hospital, especially from the Mawar room. This questionnaire includes 21 questions. The scale applied in this study is dichotomous, with "yes" and "no" answer options.

For the HDRS 21, a score between 0 and 7 is generally considered to be in the normal range or clinical remission, while a score of 20 or higher indicates moderate severity and usually warrants further consideration for clinical testing. It takes approximately 20 minutes to complete each item on the Hamilton Depression Rating Scale.

Results

Univariate Analysis

The univariate analysis in this study describes the characteristics of respondents including gender, age, education level, marital status, employment status, using a frequency distribution formula with a computerized system and obtained the following description:

Respondent Characteristics

Table 1.Age Frequency Distribution

No	Age	Frequency	%
1	35-51 years	7	17.5
2	52-67 years	19	47.5
3	68-87 years	14	35
Total		**40**	**100**

Based on table 1. it can be seen that from 40 respondents with stroke in the Mawar Room of Ciamis Regional Hospital. The respondents who had the most strokes were aged 52-67 years, as many as 19 people (47.5%).

Table 2. Frequency distribution of educational status

No	Education	Frequency	%
1	Elementary School	24	60
2	Junior High School	12	30
3	Senior High School	1	2.5
4	PT	3	7.5
Total		**40**	**100**

Based on table 2. it can be seen that the most people who experienced stroke were at the elementary school level, namely 24 people (60%) out of a total of 40 respondents.

Table 3. Frequency Distribution of Job Types

No	Work	Frequency	%
1	Not working	11	27.5
2	Housewife	9	22.5
3	Self-employed	8	20
4	civil servant	4	10
5	Other	8	20
Total		**40**	**100**

Based on table 3. it can be seen that from the total of 40 respondents in stroke patients in the rose room. The type of work that most often experiences stroke is in the status of not working or unemployed, amounting to 11 people (27.5%).

Table 4. Frequency Distribution of Marital Status

No	Marriage	Frequency	%
1	Not married	0	0
2	Marry	30	75
3	Widow	5	12.5
4	Widower	5	12.5
	Total	**40**	**100**

Based on table 1.4, it can be seen that of the total 40 respondents obtained, the most marital status was 30 people (75%).

Table 5. Gender Frequency Distribution

No	Age	Frequency	%
1	Man	23	57.5
2	Woman	17	42.5
	Total	**40**	**100**

Based on table 5. it can be seen that the gender with the highest frequency of strokes is male, as many as 23 people (57.5%).

Table 5. Frequency distribution of depression status in stroke patients

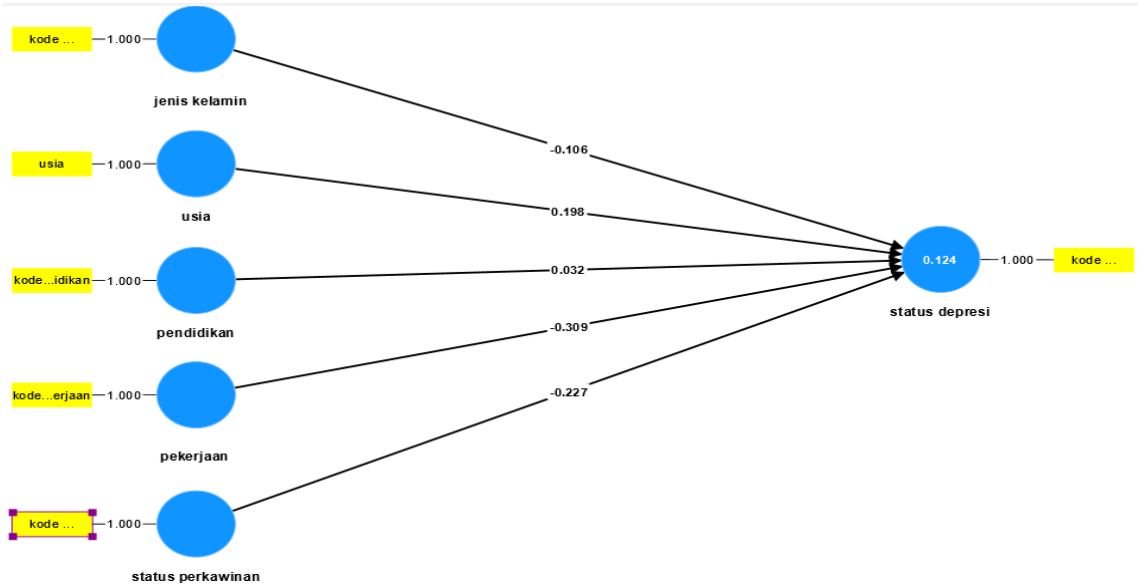
No	Depression status	Frequency	%
1	Normal	28	70
2	Light	8	20
3	Currently	3	7.5
4	Heavy	1	2.5
	Total	**40**	**100**

Based on table 5. it can be seen that from 40 respondents of stroke patients in the Mawar Room of Ciamis Regional Hospital. Respondents with normal status were 28 people (70%), mild depression status was 8 people (20%), moderate depression was 3 people (7.5%) and severe depression status was 1 person (2.5%).

Bivariate Analysis

1. The relationship between sociodemographic factors and depression levelsin the rose room of Ciamis Regional Hospital

Figure 4.1 The influence of sociodemographic factors on the level of depression in stroke patients using the SEM method.



Based on Figure 4. the results of the sociodemographic factors that affect the level of depression in patients with data calculations using the SEM method with the smart-pls application are obtained. By connecting one by one the latent variables of sociodemographic factors to depression, the R-square value of each education variable (0.032), marriage (-0.227), employment (-0.309), age (0.198) and gender (-0.106). In this study, the R-square value of the SEM test from the total of all independent variables was only 2 variables that had a relationship with depression in stroke patients, the education factor got 0.032 and the age factor got 0.198 which means the R-square value is less than 0.25 which is included in the weak category and the remaining 3 get negative values.

Discussion

1. Respondent characteristics

a. Age

In this study, the age of stroke patients ranged from 35 years to >68 years, with the results of respondent characteristics based on data aged 35-51 years there were 7 people (17.5%) who had stroke, aged 52-67 years 19 people (47.5%), 68-87 years there were 14 people (35%) who had stroke. The results of this study are in line with the results of research from (Basit & Mahmudah, 2019) the age group that experiences stroke is more common at the age of 35 - 70 years due to decreased body function.

b. Educational status

The results of this study indicate that the characteristics of respondents based on educational status at elementary school level are 24 people (60%), junior high school level is 12 people (30%), high school level is 1 person (2.5%), and college level is 3

people (7.5%). The results of this study are in line with research(Vika et al., 2018)stated that the level of education will affect the level of health because the lower the level of education, the easier it is to fall into poor health conditions.

c. Type of work

This study shows that the characteristics of the type of work based on not working are 11 people (27.5%), housewives 9 people (22.5%), self-employed 8 people (20%), civil servants 4 people (10%), and others there are 8 people (20%). Where the results of this study are in line with the study (Oktarianita et al., 2021). Employment status is a type of position of a person in doing work in a business unit. This employment status can affect health because where someone already has a good place or employment status, their income will be good so that access to health services can be fulfilled.

d. Marital status

The results of this study show that the characteristics of marital status based on not being married (0%) are none, 30 people (75%) are married, 5 people are widows (12.5%), and 5 people are widowers (12.5%).

e. Gender

In this study, there were 23 male people (57.5%) and 17 female people (42.5%). The results of this study are in line with research(Sasmita, 2020)revealed that stroke is more common in men than women.

f. Depression Status

This study shows that the characteristics of depression status in stroke patients based on normal are 28 people (70%), mild depression is 8 people (20%), moderate depression is 3 people (7.5%), and severe depression is 1 person (2.5%). The results of this study are in line with(Maurer et al. 2018.)People who experience strokes can become depressed due to impaired bodily functions, which previously allowed them to carry out their own activities. Since the stroke, they have not been able to do any activities and can only lie down.

2. The relationship between sociodemographic factors and depression levels in the rose room of Ciamis Regional Hospital

Based on the results of the study on sociodemographic factors that influence the level of depression in stroke patients at Ciamis Regional Hospital in the Mawar Room. It is known that the results of the calculation using the structural model method in this study obtained the R-square value of the structural model test for each variable, namely for the age variable the r-square value was 0.198, for gender the R-square value was -0.106, education the R-square value was 0.032, from work the R-square value was -0.309 and for marital status the R-square value was -227. This study shows that the relationship between sociodemographic factors and the level of depression in stroke patients does not have a significant relationship because the r-square value in each variable is less than the R-square value of 0.25 which indicates that the relationship between these variables is very weak and there are only age and education variables that affect the level of depression.

The results obtained from this study are the same as the study conducted by (Basit & Mahmudah, 2019) which stated that age is a factor that influences depression in stroke patients, where the average age of stroke-prone patients is 35-70 years. Because the older the age of the stroke sufferer, the greater the sufferer experiences depression.

Conclusion

According to the data results, the most age is between 52-67 years (47.5%), the most gender is male 23 people (57.5%), the most educational status is elementary school 24 people (60%), for the most employment status is not working 11 people (27.5%), and for the most marital status is married 30 people (75%). The level of depression in stroke patients in the Mawar Room of Ciamis Hospital, out of a total of 40 respondents, there was 1 person who experienced severe depression (2.5%), 3 people experienced moderate depression (7.5%), 8 people experienced mild depression and the rest mostly did not experience depression as many as 28 people (70%). The results showed that there was no influence between sociodemographic factors on the level of depression because the R-square determination value from the SEM test of each variable had a value of less than 0.25 so that the influence between sociodemographic factors and the level of depression was too weak and not too strong.

Suggestion

For Muhammadiyah Ciamis Health College Can create a better media land fund learning materials so that graduates in the field of nursing have a better level of knowledge in the development of nursing science, especially in the field of nursing services, especially about the level of depression in stroke patients. And more literature in the library regarding depression in stroke patients so that it can make it easier to search for data and materials.

For Ciamis Regional Hospital In order to create maximum work quality as a manifestation of the provision of quality health services, it is hoped that the quality of nursing services will be improved by providing counseling to patients' families and patients regarding symptoms of depression in stroke patients so that the level of depression in stroke patients can be prevented so that the incidence of depression in stroke patients does not occur.

For respondents It is hoped that this will increase insight into the factors causing depression in stroke patients by looking at information from print and digital media about handling depression in stroke patients so that it can reduce the level of depression.

For Respondents' Families It is hoped that this will increase the source of insight for families to know the level of depression experienced by patients.

For Further Researchers The results of this study are to determine the relationship between sociodemographic factors and the level of depression in stroke patients as additional information so that in the future it can be studied further with the hope of being better than previous research.

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