

## Conference Paper

# Relationship of Depression in Post Iskemic Stroke Patients with Basic Activity Daily Living (ADL) Disorders in Dr Soekandar Mojosari Kabupaten Mojokerto

Luluk Widarti

Poltekkes Surabaya

## Abstract

**Introduction:** Stroke is a disease that needs attention, considering its prevalence is increasing and results in patient morbidity and mortality. More than 250,000 people live with disabilities caused by strokes which result in not being able to fulfill basic Activity Daily Living (ADL). This study aims to explain the depressive level with the level of dependence on basic Activity Daily Living (ADL) fulfillment in post-stroke patients after being treated at the RSUD Prof. Dr. Soekandar, Mojokerto Regency. **Method:** The design of this study is analytic to analyze the relationship of dependent variables with independent variables. The population in the study were all post-stroke patients who had been hospitalized at the RSUD DR Soekandar Mojosari, Mojokerto Regency, with a total sample of 25 patients. **Result:** The results of the Chi-Square test produce a significance value of 0.001 where the value is less than 0.05 and thus  $H_0$  is rejected so that there is a significant relationship between depression and the level of dependence on Stroke Patients after hospitalization at the RSUD Prof. Dr. Soekandar, Mojokerto Regency. **Discussion:** The conclusion of this study is that there is a relationship between depression and the level of dependence on stroke patients after hospitalization at the RSUD Prof. Dr. Soekandar, Mojokerto Regency. Ischemic stroke patients experience severe and prolonged depression due to a disturbance in the function of the device (parese) which affects the level of dependence of the patient in meeting basic Activity Daily (ADL)

**Keywords:** level of depression, level of dependence on compliance with basic ADL, Ischemic stroke

Corresponding Author:

Luluk Widarti

Received: 23 September 2019

Accepted: 18 November 2019

Published: 22 December 2019

Publishing services provided by  
Knowledge E

© Luluk Widarti. This article is distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use and redistribution provided that the original author and source are credited.

Selection and Peer-review under the responsibility of the ICHP Conference Committee.

## 1. Preliminary

### 1.1. Background

Stroke is one of the major health problems in modern life today. Stroke is a disease that needs attention, considering its increasing prevalence and resulting in morbidity and mortality of patients. This is also the single most common cause of disability. More than

 OPEN ACCESS

250,000 people live with disabilities caused by strokes. From a study conducted for 7 years on more than 20,000 people found 452 stroke sufferers and more than 100,000 experienced stress in their lives (The stroke association). In Indonesia, the incidence of stroke has increased sharply. In fact, Indonesia is currently the country with the largest number of stroke sufferers in Asia, due to various reasons besides degenerative diseases, the most due to stress is very alarming considering that post-stroke patients feel inferior and their emotions are out of control and always want to be noticed.

The incidence of stroke based on counts from the United States and China is estimated at 300,000 sufferers per year (Hermanto Nurya, 2013) stroke is the number three deadly disease after heart disease and cancer. Even according to a 2004 survey, stroke is the number 1 killer in hospitals. Governments throughout Indonesia. It is estimated that the number of stroke sufferers continues to increase every year, not only attacking the elderly population, but also experienced by those who are young and productive. About 2.5% of the population suffered a stroke or 125,000 people died and the rest were mildly or severely disabled. The disability they bear due to a stroke, is not only a burden on the family, but also the burden of society in general (Yastroki, 2007).

The condition of the disability that causes stroke sufferers experience psychological disorders in the form of anxiety which is characterized by feelings of fear or deep concern about helplessness and feelings of no longer useful. As for the manifestations of stroke caused by disease in the form of weakness of the motion or paralysis that can limit patients to be independent in fulfilling basic ADL. As for what relates to basic ADL in the form of eating / drinking, bathing, personal hygiene, dressing, defecation, micturition, toilet use, and mobility abilities, such conditions further aggravate the patient's condition so that he experiences depression. In a depressed condition the patient experiences a natural disturbance of feeling which is characterized by a deep and ongoing moodiness and sadness so that the loss of excitement of life.

Patients who experience prolonged stress based on the concept of psychoneuroimmunology, through astrocyte cells in the cortical and amygdala in the limbic system have an effect on the hypothalamus. Then the pituitary will produce CRF, which is in basophilic cells. Basophilic cells will express ACTH (adrenal cortico tropic hormone) which can ultimately affect the adrenal cortex glands in the fascial zone cells, this gland will produce cortisol which is immunosuppressive. If the stress experienced by the patient is very high, then the adrenal glands will produce cortisol in large quantities so that it can suppress the immune system (Apasou & sitkorsy, 1999). Which includes the activities of

APC (macrophages); Th-1, CD-4; and IFN- $\gamma$ , IL-2, TNF- $\alpha$  plasma cells; IgM and IgG and antibodies.

Stroke patients need palliative medicine and care, there is no time limit until when to be hospitalized, so it needs to be treated at home (home care). Meanwhile, if we do an analysis in Indonesia the facts show that the approach to nursing care in stroke patients is still focused on physiological (physical) treatment, in this case the services provided are only for the welfare of physical health. Thus the model of nursing care provided to stroke patients is not optimal. The situation will get worse if there is no holistic response effort by involving several parties and better care models (MOH, 2003).

Based on the description above, the researcher wants to know the relationship of depression experienced by post stroke patients with the level of dependence in ADL compliance if the level of depression of stroke patients is known, it can be utilized for the benefit of ischemic stroke patients in terms of controlling cerebral infarction development so that disability due to ischemic stroke can be suppressed. This in general will certainly increase the ability of resources so that in the end post-stroke sufferers are still useful and can be productive.

## 1.2. Problem Formulation

1. What is the description of characteristics based on age, sex, marital status, level of education, occupation and socioeconomic in post-ischemic stroke patients after being treated by RSUD Prof. Dr. Soekandar Mojokerto Regency.
2. How to describe the level of depression in ischemic post stroke patients after being treated by Prof. Dr. Soekandar Mojokerto Regency.
3. How to describe the level of dependence in the fulfillment of basic Activity Daily Living (ADL) in patients with ischemic post stroke after being treated after being treated by Prof. RSUD Dr. Soekandar Mojokerto Regency.
4. How is the level of depression related to the level of dependence in the fulfillment of basic Activity Daily Living (ADL) in ischemic post stroke patients after being treated after being treated by Prof. RSUD Dr. Soekandar Mojokerto Regency.

## 1.3. Research Objectives

### 1.3.1. General Purpose

To determine the relationship of depression level with the level of dependence in fulfilling the Basic Activity of Daily Living (ADL) in ischemic post stroke patients after being treated at Prof. Hospital Dr. Soekandar Mojokerto Regency.

### 1.3.2. Special Purpose

1. Identifying characteristics based on age, sex, marital status, level of education, employment and socioeconomic in post-ischemic stroke patients after being treated by RSUD Prof. Dr. Soekandar Mojokerto Regency.

2. Identifying the level of depression in ischemic post stroke patients after being treated by Prof. Dr. Soekandar Mojokerto Regency.

3. Identifying the level of dependence in fulfilling the basic Activity Daily Living (ADL) in ischemic post stroke patients after being treated after being treated by Prof. RSUD Dr. Soekandar Mojokerto Regency.

4. Analyzing the relationship between the level of depression and the level of dependence in the fulfillment of the basic Activity Daily Living (ADL) in ischemic post stroke patients after being treated after being treated by RSUD Prof. Dr. Soekandar Mojokerto Regency.

## 1.4. Research Benefits

It is known that the relationship between depression level and dependency level in fulfilling basic Activity Daily Living (ADL) in ischemic post stroke patients after being treated after being treated by Prof. RSUD Dr. Soekandar Mojokerto Regency.

### Benefits of the theory

1. As a scientific basis for psychological treatment (depression) of ischemic post stroke patients

2. As scientific information that psychological conditions are very influential on the level of dependence or independence of ischemic post stroke patients

## 1.5. Practical Benefits

1. Develop and advance the way of handling ischemic post stroke patients not only with a pharmacological approach but also important with a psychological approach

2. Develop a method of approach or treatment of ischemic post stroke patients with due regard to predisposing factors and the patient's condition in a bio - psycho - social – spiritual

## 1.6. Research Design

In this study using the type of analytical research conducted to analyze the relationship of dependent variables with independent variables. In this study, I want to answer the questions "How is the Relationship of Depression in Ischemic Post Stroke Patients with Basic Daily Living (ADL) Disorders in Rsud Dr Soekandar Mojosari Mojokerto Regency" and "How high is the level of depression of ischemic post stroke patients who experience Activity Daily Living (ADL) Disorders) at RSUD DR Soekandar Mojosari, Mojokerto Regency "

Population, Samples, Sampling Techniques and sample size.

### 1.6.1. Population

In this study the population was all post-stroke patients who had been hospitalized in RSUD Dr. Soekandar Mojosari, Mojokerto Regency

### 1.6.2. Samples

In this study, the sample to be taken is ischemic stroke patients with ADL compliance disorder that is considered to meet the inclusion criteria set by researchers

The sample inclusion criteria are as follows:

1. respondent of stroke patient after being treated at RSUD Dr. Soekandar Mojosari, Mojokerto Regency

2. The patient states that he is willing to be a research respondent by signing an informed consent

3. can be invited to communication

4. ages 37 - 65 years

5. limitations in basic ADL
6. the state of stable patients do not experience complications

The exclusion criteria are as follows

1. Patients are not willing to be respondents
2. Patients are not cooperative and cannot be invited to communicate
3. There are other diseases that interfere with measurement or interpretation

### Sampling Taking Techniques

The sampling technique in this study is to use random sampling, which is a sampling technique by selecting random samples among populations that fit the researchers' inclusion criteria.

### Determination of sample size

Samples are objects that are studied and are considered to represent the entire population (Notoatmodjo, 2012). Determination of the sample in this study using a large sample formula:

$$n = N$$

$$1 + N (d^2)$$

Information:

N: large population

N: Large sample

d: desired level of confidence (10%)

$$n = 33$$

$$1 + 33 (0.1^2)$$

$$n = 33 = 24.8 \text{ rounded up to } 25 \text{ patients}$$

$$1.33$$

research variables and operational definitions

research variables

The variables of this study are:

1. The independent variable is depression
  2. Dependent variable is the level of dependence in basic Activity Daily Living (ADL)
- murder

### Operational definitions

To measure the operational variables, the variables are defined as follows:

1. Depression levels of ischemic post stroke patients who have Activity Daily Living (ADL) disorders. Measured by a list of questions or questionnaires that have been tested for validity and reliability and conducted observations using an ordinal data scale with 40 questions with the lowest score of 40 and the highest score of 160. with mild depression categories 40-80, moderate depression 81-120, severe depression 121- 160

2. The level of dependency in fulfilling the basic Activity Daily Living (ADL) in post stroke patients is how the level of dependence in fulfilling daily ADL is measured by IB with categories 0 - 20 total dependent, 21 - 60 heavily dependent, 61 - 90 moderate dependent, 91 - 99 light dependent, 100 independent

## 1.7. Research Instruments

The instrument used in this study was a questionnaire and observation about the level of dependence in meeting the needs of ADL and the level of depression in post stroke patients

## 1.8. Research Location and Time

### 1.8.1. Location

This research was conducted in the area of Prof. Hospital Dr. Soekandar Mojokerto Regency

### 1.8.2. Research time

Research on the level of independence of Activity Daily Living (ADL) of post stroke patients at home in the area of RSUD Dr. Soekandar Mojosari, Mojokerto Regency. The time of the study began from the initial data collection at the DR Soekandar Mojosari Hospital in Mojokerto Regency until the completion of the study for 2 weeks.

## 2. Methods and Techniques of Data Collection Instruments

### 2.1. Data collection techniques

The first step in collecting data is to find out the prospective subjects after getting the desired research subjects, namely post stroke clients with the problem of the level of independence of Activity Daily Living (ADL). by giving informed consent. Researchers conduct studies including observation, interviews.

### 2.2. Data collection instruments

#### 2.2.1. Demographic data questionnaire

The study used a demographic data questionnaire that included patient demographic data. In the patient demographic data questionnaire, the data to be obtained include, sex, age, occupation, education, marital status, stroke attack - stroke name, stroke risk factor. The data was obtained from the results of interviews and filled out questionnaires.

#### 2.2.2. Activity Daily Living (ADL) data questionnaire

The study used the Activity Daily Living (ADL) data questionnaire which included stroke patients doing rehabilitation or not. This questionnaire knows the level of independence of stroke patients at home. The data was obtained from the results of interviews and filled out questionnaires.

#### 2.2.3. Barthel index observation sheet

This study uses the Barthel index observation sheet which serves as a research guideline for conducting patient observations and interviews with patients to determine the level of assistance of stroke patients in conducting Activity Daily Living (ADL). Barthel index has a complete ordinal scale with a total score ranging from 0 (total dependent) to 100 (independent); consists of 10 items, eating, bathing, self-care, controlling bowel movements, controlling toilet, going in and out of the bathroom, transferring to a chair / bed, going up and down the stairs, dressing, walking at work.



## 2.3. Data Collection Procedure

The study begins with a choice of cases or problems that will be used as research topics. The study chose a case of the level of independence of post stroke patients at home. After the final assignment is completed, a thesis examination is conducted. The study began with the processing of a permit. After obtaining the permission letter, the next stage looked for 25 patients to be the subjects of the study. After 25 patients have been selected and then seek approval from the study sub-project by filling in the informed consent, only then can the assessment include observation and interviews.

## 2.4. Data Analysis

### 2.4.1. Data Processing

#### 1. Editing

Editing is an attempt to recheck the truth of data obtained or collected (Hidayat, 2009). The researcher checks the contents of the demographic data questionnaire, the ADL data questionnaire and the Barthel index observation sheet whether the answers on the observation sheet are complete, clear, relevant and consistent.

#### 2. Coding

Coding is an activity of giving numeric code (numbers) to data consisting of several categories. Providing this code is very important when processing data analysis using a computer.

#### 3. Data entry

Data entry is the activity of entering data that has been collected into a master table or computer database, then making a simple frequency distribution or can also be made by contingency tables.

## 4. cleaning

If all data from each data source or respondent is finished entering, it needs to be checked again to see the possibility of code errors, incompleteness, and so on, then corrected or corrected.

### 2.4.2. Data analysis

Data analysis was carried out since researching in the field, when data was collected until all data was collected. Then the data is written in descriptive form. The data is then analyzed to conclude the results of data obtained from several subjects so that it can be concluded whether there are similarities or differences between several subjects.

The statistical test using SPSS used was the Chi Square test, to determine the relationship of depression levels with the level of dependency in fulfilling basic Activity Daily Living (ADL) in post stroke patients who had been treated at Prof. Hospital Dr. Soekandar Mojokerto Regency.

## 3. Research Result

### 3.1. Research Results

The study was conducted on post-ischemic stroke patients who returned after hospitalization at the RSUD Prof. Dr. Soekandar Mojokerto Regency. Research time for 2 weeks.

### 3.2. Description of characteristics of research subjects

Based on the results of data collection or data recapitulation obtained for 2 weeks from 25 respondents who fit the inclusion criteria include:

Based on table 1 above, of the 25 respondents who were the highest at the age of 45-51 years (30%), then based on sex, most of the men were 74%, while women were 26%. Based on the marital status all patients get married. Based on the highest level of education is secondary education 64%. Most respondents work as farmers / fishermen / private sector 57%. And socioeconomic under 54% UMR.

TABLE 1: characteristics of ischemic post stroke patients based on age, sex, marital status, level of education, occupation, socioeconomic in Prof. Hospital area Dr. Soekandar Mojokerto district Stroke sufferers (n = 25).

NO	Characteristic	Total	Presentation
1	Age		
	• 37 – 44 years	7	27%
	• 45 – 51 years	8	30%
	• 52 – 58 years	6	20%
	• 59 – 65 years	4	23%
2	sex		
	• Male	17	74%
	• Female	8	26%
3	Marital Status		
	• Marry	25	100%
	• Not marry	0	0%
4	Level of education		
	• Elementary	5	20%
	• Middle	18	64%
	• College	2	16%
5	Occupation		
	• Farmer /fisherman /private employee	14	57%
	• Housewife	3	10%
	• Government employee / Army	8	33%
6	Economic Social		
	• Government rate –	14	54%
	• Government rate +	11	46%

### 3.2.1. Depression in Stroke Patients after hospitalization from in Prof. Hospital Dr. Soekandar Mojokerto Regency.

TABLE 2: Depression rates in stroke patients after hospitalization from in Prof. Dr. Soekandar Mojokerto Regency Stroke sufferers (n = 25).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Depresi Sedang	13	52.0	52.0	52.0
	Depresi Ringan	12	48.0	48.0	100.0
	Total	25	100.0	100.0	

Based on table 2 above, out of 25 patients with moderate depression, 13 respondents were 52%. And mild depression 12 respondents 48%.

### 3.2.2. The level of dependency in fulfilling Activity Daily Living (ADL) based on the Barthel Index in Stroke Patients after hospitalization than in Prof. Hospital Dr. Soekandar Mojokerto Regency.

TABLE 3: Dependence level on the fulfillment of Activity Daily Living (ADL) based on the Barthel Index in Stroke Patients after hospitalization than in Prof. Hospital Dr. Soekandar Mojokerto Regency Stroke sufferers (n = 25).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Ketergantungan Parah	13	52.0	52.0	52.0
	Ketergantungan Sedang	12	48.0	48.0	100.0
	Total	25	100.0	100.0	

Based on table 3 above of the 25 patients who experienced severe dependence, 13 respondents were 52%. And dependence is currently 12 respondents 48%.

### 3.2.3. Analyze the relationship of depression level with the level of dependence in fulfilling the basic Activity Daily Living (ADL) in Stroke Patients after hospitalization from in Prof. Hospital Dr. Soekandar Mojokerto Regency.

TABLE 4: Depressive crosstab on the level of dependence on stroke patients after hospitalization from at the RSUD Prof. Dr. Soekandar Mojokerto Regency.

Variabel		Level of Total Dependency		Total
		Severe Addiction	Moderate Addiction	Addiction
Depression level	Moderate depression	11	2	13
	Light depression	2	10	12
Total		13	12	25

From table 4, it is obtained from 13 respondents who have moderate depression and 11 respondents with moderate dependence. While for mild depression, there are 12 respondents who have 2 people with moderate dependence and 10 people with moderate dependency.

a Computed only for a 2x2 table

b 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.76.

From table 5 above, it states that the number of patients in this study was 30 patients. Chi-Square test results produce a significance value of 0.001 where the value is less than 0.05, thus H0 is rejected and concluded that there is a significant relationship between

TABLE 5: The results of the Chi-Square Test statistic correlate the level of depression with the level of dependence in the fulfillment of the Basic Activity Daily Living (ADL) in Stroke Patients after hospitalization from at the RSUD Prof. Dr. Soekandar Mojokerto Regency.

	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	11.543(b)	1	.001		
Continuity Correction(a)	8.981	1	.003		
Likelihood Ratio	12.641	1	.000		
Fisher's Exact Test				.001	.001
Linear-by-Linear Association	11.081	1	.001		
N of Valid Cases	25				
	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	11.543(b)	1	.001		
Continuity Correction(a)	8.981	1	.003		
Likelihood Ratio	12.641	1	.000		
Fisher's Exact Test				.001	.001
Linear-by-Linear Association	11.081	1	.001		
N of Valid Cases	25				

depression and the level of dependence on stroke patients after hospitalization from the hospital in Prof. Dr. Soekandar Mojokerto Regency.

## 4. Discussion

### 4.1. Characteristics of Respondents

The results of this study indicate that the majority of stroke respondents are at the age of 45-51 years by 30% according to the AHA 2015 stroke can occur in all age ranges but the older the age increases, the higher the risk of stroke which is often caused due to cardiac abnormalities resulting in embolization or arterisclerosis. In Indonesia, stroke sufferers generally range in age from 45 years and over, a modern lifestyle and an all-round high chance for someone to have a stroke (Pudiastutik 2011).

The sex of a man - the risk of having a stroke is 1 / 4x higher than having a stroke. This is consistent with the statement of Burhanudin (2012) who said men have a greater risk for stroke in early adulthood compared to women in a ratio of 2: 1 although men

are more vulnerable than women at younger ages, but women will overtake after age they reach menopause.

Based on the marital status of all respondents married, based on the level of their most recent education most of the most recent secondary education is 64% (high school) education related to knowledge. This is in accordance with Sofwan's statement (2010) that a stroke can occur suddenly, generally because the patient does not know and the patient lacks knowledge about the symptoms of a stroke and does not make an effort to reduce the occurrence of a stroke. Farm / fishermen / private sector jobs 57% so that socio-economic related to income is below the minimum wage.

Relationship between the level of depression and the level of dependency in fulfilling the Basic Activity of Daily Living (ADL) in Stroke Patients after hospitalization from Prof. Dr. Soekandar Mojokerto Regency.

From the statistical test results obtained a significance value of 0.001 which means there is a relationship between depression and the level of dependence. In this study it was found that ischemic stroke patients experience severe and prolonged depression. Social stigmatization will exacerbate feelings of depression and low self-esteem (Stuart, 2000). Prolonged depression will have an impact on physical condition. Maramis (2003) defines depression is a prolonged sadness that is marked by despair to do any activity. Spiritual distress in the form of excessive expectations, impatient and can not take wisdom from his illness, exacerbating the condition of his illness. According to Tarwoto and Wartona (2006) patients with terminal illness who undergo long-term treatment experience severe spiritual distress.

Depression after a stroke is due to a disturbance in the functioning of the locomotion, to the mental emotional state, the nature of his feelings is unstable, sometimes angry, depressed and sad or otherwise feels happy and excited. Mental emotional disorders are very unnatural (Hawari, 2008). These conditions affect the level of patient dependence because the patient lacks motivation besides neurological disorders. The Barthel Index is more often used because it is sensitive enough to measure changes in function as well as the success of stroke patients. The first indicator on the measurement of the level of dependence is the transfer in bed or chair, in this study most of the patients were still assisted. Indicators running in a flat place still need help. In this study nearly half of the patients needed minimal assistance and some also needed total help. Indicators up and down stairs in this study patients still need help. Indicators in and out of the bathroom also still need help, indicators of dressing and undressing need minimal assistance, indicators BAB and BAK all patients can control so that no BAB or BAK in place, indicators of self care, washing your face, combing also still need minimal

assistance. For bathing and eating, for bathing it still needs help, to eat it still needs help to prepare.

## 5. Conclusions and Suggestions

### 5.1. Conclusions

1. From 25 respondents based on age obtained 45-51 years 30%. Most of the sexes in male respondents were 74%. Marital status, all respondents were married. The level of education is almost half 64% is high school. Almost half of the respondents work as farmers / fishermen / private and are related to the socio-economy of 54% of respondents whose income is below the UMR.

2. Respondents experiencing moderate depression 52% and mild depression 48%

3. Respondents who experienced a severe dependency rate of 52% and moderate dependence of 48%

4. From the statistical test results obtained a significance value of 0.001 which means there is a relationship between depression and the level of dependence.

### 5.2. Suggestions

Based on these results it can be suggested as follows:

1. Need to support families in stroke patients holistically whether physical, psycho, social, economic, or spiritual.

2. Need to support policy makers in the field of health services in implementing holistic treatment interventions, this can be determined by the leadership of the service agency in making SOP (standard operating procedures) to be implemented by all health workers.

3. To medical staff, especially neurologists, for post-stroke treatment so that it is not only physical rehabilitation, although it is already full of activity, it is desirable that the pleasure of providing services in the aspect of bio-psycho-social-spiritual to improve mental health, due to mental health related to physical health. This supports the idea of healthy according to WHO (1974), namely physical, mental and social health. The beneficial research results should be implemented, because until now health workers have not been optimal in taking a holistic treatment approach in treating patients.

## References

- [1] Batticaca, Fransisca B. (2012). *Asuhan Keperawatan Pada Klien Gangguan Sistem Persarafan*. Jakarta: Salemba Medika
- [2] Brashers, Valentina L. (2007). *Aplikasi Klinis Patofisiologi: Pemeriksaan & Manajemen Edisi 2*. Jakarta: EGC
- [3] Chang, Ester, dkk. (2009) *Patofisiologi: Aplikasi Pada Praktik Keperawatan*. Jakarta: EGC
- [4] Fuller, Geraint. (2006). *Panduan Praktis Pemeriksaan Neurologis*. Jakarta: EGC
- [5] Gofir, Abdul. (2009). *Manajemen Stroke Evidence Based Medicine*. Yogyakarta: Pustaka Cendekia Press
- [6] Irfan, Muhammad. (2010). *Fisioterapi Bagi Insan Stroke*. Yogyakarta: Graha Ilmu
- [7] Lumbangtobing. (2011). *Pemeriksaan Neurologi*. Jakarta: FKUI
- [8] Morton, Patricia Gonce, dkk. (2012). *Keperawatan Kritis Pendekatan Asuhan Holistik Volume 2 Edisi 8*. Jakarta: EGC
- [9] Nursalam. (2003) *Konsep dan Penerapan Metodologi Penelitian Ilmu Keperawatan*. Edisi 1. Jakarta: Salemba Medika.
- [10] Nursalam. (2008) *Konsep dan Penerapan Metodologi Penelitian Ilmu Keperawatan*. Edisi 2. Jakarta: Salemba Medika.
- [11] Price, Sylvia A, dkk. (2005). *Patofisiologi Konsep Klinik Proses-Proses Penyakit Edisi 6*. Jakarta: EGC.
- [12] Sugiarto, Andi. (2005). *Penilaian Keseimbangan Dengan Aktivitas Kehidupan Sehari-Hari Pada Lansia Dip Anti Werdha Pelkris Elim Semarang Dengan Menggunakan Berg Balance Scale Dan Indeks Barthel*. Semarang: UNDIP
- [13] Ade, R. Fellen, D.L & Cohen N. 1991. *Psyconeuro Immunology* . 2<sup>nd</sup>. Edn. San Diago;Academic Press Inc.
- [14] Akopov SE, Simonian NA, Grigorian GS, 1996, *Dynamics of polymorphonuclear leukocyte Accumulation in Acute Cerebral Infarction and their Correlation With brain Tissue Damage*, Stroke 27: 1739 – 1743.
- [15] Andrews, H.A & Roy, C (1991) *Esential Of The Roy Adaptation Model* Nortwalk CT:Aplenton\_Centuri-Crofts. PP 85-92
- [16] Azwar S (2007) *Sikap Manusia: Teori dan Pengukurannya*, Yogyakarta: Pustaka Pelajar Offset
- [17] Berne R.M *Principles of physiologi to Health and Illness*, Boulder. Co:wertivied Press, 1998



- [18] Burns DK, 1997. *The Nervous System*. In (Kumar V, Cotran RS, Robbins SL, eds). *Basic Pathology 6<sup>th</sup> edition*. Philadelphia: WB. Saunders Co, pp 713-744
- [19] Carlson NR, 1997. *Stress and Health. Psychology he Science of Behavior*. Allyn & Bacon, pp. 539-577.
- [20] Charmaz K. 1991. *Good Days, bad Days. The Self In Cronic lless and Time*. New Brunswick:Rutgers University Press. Hal 73 – 99.
- [21] Constantinides P, 1993. *General Pathology*. Norwalk:Appleton & Lange, pp 1-23.
- [22] Cotran RS, Kumar V, Collin T, 1999. *Robbins Pathologic Basis od Disease 6<sup>th</sup> edition*. Philadelphia: WB. Saunders Co, pp 1-30.
- [23] De Graba TJ, 1998. *The Role of Inflammation after acute stroke: utility of pursuing antiadhesionmolecule theraphy*. *Neurology*52(3suppl 3):S62-8.
- [24] Del Zoppo GJ, Becker K and Hallenbeck JM, 2000. *The inflammation in ischemic stroke*. Wold stroke Congres. Melbourne.
- [25] Gofir A. 2007. *Manajemen Stroke Komprehensif Jogjakarta*: Pustaka Cedekia Press.
- [26] Himawan Sutisno, 1973. *Patologi*. Jakarta: *Bagian Patologi Anatomik Fakultas Kedokteran Universitas Indonesia*, hal:394-395.
- [27] Keliat BA. 1999. *Konsep Diri*. Buku Saku. Jakarta: EGC. Hal 7 -12.
- [28] Kozier B & Erb S. 2000. *Fundametal of Nursing. 4 th. Ed*. Philadelphia: Mosby Coompany.
- [29] Kresno B. 2002. *Imunologi*. Edisi IV. Jakarta: Fak Kedokteran UI
- [30] Kuntoro, 1998, *Metodologi Penelitian*. Surabaya: Fakultas Pasca Sarjana Unair.
- [31] Love BB, 1999. *Ischemic Stroke*. In (Gilman S, Goldstein GW, Waxman SG, eds). *Neurobase, 2<sup>nd</sup>1999 ed*. San Diego:Arbor Publishing.
- [32] Maramis, WF. 2003. *Catatan Ilmu Kedokteran Jiwa*. Surabaya: Airlangga University Press.
- [33] Mayo NE, Cote Robert, Carlton J, Buttery J (2000) *There's No Place Like Home: An Evaluatione of Early Supported Discharge For Stroke*. [Http://www.strokeaha.org](http://www.strokeaha.org)
- [34] McCance KL. Shelby J, 1994. *Stress and Disease*. In (McCance KL, Heuther SE, eds). *Pathophysiology. The Biologic Basis for Desiase in Adulth and Children*. St. Louis, Missouri: Mosby-Years Book Inc., PP299-317
- [35] Notoesoedirdjo M, 1999. *Perkembangan Sains Kedokteran Menuju Konsep Holistik. Makalah*. Gramik FK UNAIR. Surabaya, hal. 1-3.
- [36] Nowak Jr, 1998. *The Heat Shock / Respons after Ischemic*. In (Welch KMA, Cplan LR, Reis D) *primer on Cerebrovasculair Disease*. San Diego. Academic Press, 234-236

- [37] Pearlin, L & Schooler, C (1978) *The Structure Of Coping. Journal of Health and Social Behavior.* 19:2-21
- [38] Pearlin, L & Aneshensel (1986). *Coping and Social Support. Their Functions and applications.* Pp. 417-437.
- [39] Putra ST, 1999. *Konsep psikoneuroimunologi dan kontribusinya pada pengembangan IPTEKDOK.* Makalah. Surabaya: GRAMIK FK UNAIR PP. 3-5
- [40] Schneck MJ, 1998. *Acute Stroke: An Aggressive Approach to Intervention and Prevention.* Hospital Medicine 34(1): 11-28.
- [41] Schwamm LH, Boston MA, 1999. *Canada: Education Program Syllabus, American Academy of Neurology, 51<sup>st</sup> Annual Meeting.*
- [42] Selye H. 1983. *Selye's Guide to Stress Research.* Vol. 3. New York; Publishing Company.
- [43] Supratiknya ed (2003). *Teori-teori Holistik (Organismik – Feno. Menologis)* Yogyakarta: Kanisins.
- [44] Suharnan (2005). *Psikologi Kognitif.* Surabaya: Srikandi
- [45] Snell RS (2007). *Nevroanatomi Klinik.* Jakarta: EGC
- [46] Weiss, GL & Loquist. (1989). *The Sociology of Health Healing and Illness.* PP 82105
- [47] Weitin. W. 2004; *Psikology.* Themes & variations. 6<sup>th</sup>. Las Vegas. Thomson Wasdworth. Hal 520-559.
- [48] Wood AJ (2000). *Drug Therapy: Treatment of Acute Ischemic Stroke:* The New England Journal of Medicine. [Http://www.nejm.org](http://www.nejm.org)