Memorizing Al Quran Improves Quality of Life Stroke Patients with Motoric Aphasia Disorders

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Abstract. 

Background and purpose. Empowering stroke patients with motor aphasia through memorizing the Al Quran to improve quality of life. Stroke causes neurological disorders that cause changes in quality of life. Quality of life is healthy physically, mentally, socially, environmentally and healthily, regardless of illness and can maintain health status. The purpose of the study was to determine the effect of memorizing the Al Quran and family support on stroke patients with motor aphasia disorder on functional communication skills, level of independence and quality of life. 

Materials and methods. The study was conducted at Ja'far Medika General Hospital Karanganyar, Central Java, Indonesia. The number of subjects was 102 stroke patients with motor aphasia, as evidenced by the results of head CT scan. Type of quantitative research, using experimental design, simple randomized the pretest-posttest control group design. 

Results. The effect of memorizing the Al Quran, family support, functional communication skills and the level of independence of the combined quality of life in stroke patients with motoric aphasia impairment got the value of $r^2 = 0.982$ with $p = 0.000$ ($p < 0.001$) which means that memorizing the Al Quran, support family, functional communication skills and level of independence affect the quality of life combined in stroke patients with motoric aphasia with very strong levels. Or it can be said that 98.2% of the quality of life is influenced by memorizing the Al Quran, family support, functional communication skills and level of independence. Partially it is known that the most influential effect on the quality of life in stroke patients with motoric aphasia is memorizing Al Quran ($r = 0.735; p = 0.000$) compared to family support ($r = 0.321; p = 0.000$), while functional communication skills ($r = 0.017; p = 0.618$) and independence ($r = 0.035; p = 0.305$) had no significant effect on quality of life.

Conclusion. That the direct influence of the variable memorizing the Al Quran and family support for the quality of life is better, without having to go through functional communication skills and the level of independence as mediation.

Keywords: stroke, functional communication, family support, independence, quality of life

1. Introduction

The incidence of stroke ranks third as a cause of death after heart disease and cancer. According to WHO [16], Indonesia has ranked 97th in the world for the highest number of stroke patients with the number of deaths reaching 138,268 people or 9.70% of the total deaths that occurred in 2011. The average number of stroke cases in Central Java reached 635.60 cases [17]. Stroke will result in several effects including: 80% partial or total reduction in arm and leg movements, 80-90% problem in thinking and remembering, 70% suffering from depression, and 30% having difficulty speaking (aphasia), swallowing, right and left differentiation [15]. Health problems that arise due to stroke vary...
widely, depending on the area of the brain that experiences infarction or death of the tissue and the affected location [8]. One symptom of stroke is aphasia, which is the loss of speech function, including interference in writing, communication, reading, listening and understanding language. Stroke is a common cause of aphasia and is estimated to be around 25% - 40% of stroke patients develop aphasia. During this time the handling of stroke with all its methods has not produced results as expected. Western medicine until now has not been able to cope well and perfectly, especially for stroke patients with motor aphasia. To overcome this crucial problem, a stroke prevention strategy is needed which includes proper promotion, preventive, curative and rehabilitation aspects. Through memorizing the Koran that is repeated is expected to improve the quality of life of stroke patients. Recurring memorizing the Koran will be recorded in memory in the subconscious brain that sends signals to the conscious brain, can increase brain flexibility that can improve the brain (neuroplasticity) after experiencing a disorder [3].

2. Materials and Methods

The sample inclusion criteria are as follows:
1. All stroke patients with both bleeding and non-bleeding strokes that have been proven by CT scan of the head. And diagnosed clinically by a radiologist with a lesion abnormality in the left hemisphere.
2. Patients diagnosed with bleeding and non-bleeding strokes who experience motor aphasia which routinely control for at least three months. Determination of motor aphasia is based on the format of Frenchay Aphasia Screening Test (FAST), which is characterized by the inability of sufferers to coordinate or compile thoughts, feelings and wishes to be symbols that are meaningful and understood by others, but sufferers still have good understanding.
3. All stroke sufferers who are Muslim, both male and female, used to pray 5 times and without age restrictions.
4. Compostment awareness is normal awareness, fully aware, can answer all questions about the surroundings.
5. Patients with stroke who are awaited by their families and involved in communication exercises.
6. Patients and families are willing to become respondents.

2.1. Exclusion criteria
Exclusion criteria are conditions that cause the subject to meet the inclusion criteria but cannot be included in the study. Exclusion criteria in this study are:
1. Patients with stroke both bleeding and non-bleeding with abnormalities in multiple lesions in the left and right hemispheres as indicated by the results of a head CT scan clinically diagnosed by a radiologist.
2. Patients with dysarthria, namely there is a disturbance of verbal communication before a stroke.
3. Patients who have a history of depression before stroke.
4. Patients who get anti-depression therapy.
5. Increased intracranial pressure (projectile vomiting, dizziness, unstable blood pressure, decreased consciousness).
6. Patients with stroke like syndrome are strokes caused not by blockage or bleeding, but due to other factors, most often for example intra-cranial tumors or intra-cranial infections as indicated by the results of CT scan or MRI of the head by a radiologist.

2.2. Dropout criteria
1. Stroke sufferers who die before 3 months at the time of the study.
2. Patients do not control the Ja'far Medika General Hospital Karanganyar Central Java, Indonesia and after the home visit turns out the address does not match or move the address and cannot be tracked.
3. Patients have recurrent stroke attacks within the first 3 months before the study is complete.
2.3. Instrument

1. FAST
   Aphasia screening observation sheet using the Frenchay Aphasia Screening Test (FAST) to
determine the type of aphasia, namely motoric, sensory or global aphasia.

2. Derby Functional Communication Scale (DFCS)
   Questionnaire on functional communication skills using Derby Functional Communication Scale
   (DFCS). Used to measure the development and progress of functional communication skills of
   stroke patients.

3. Family Support Instruments
   Family support is a support system given to families towards family members which includes
   information support, instrumentation, emotional support and appreciation.

4. Barthel Index
   Used to assess the level of independence (Activities of Daily Living / ADL). The Barthel index is a
   very simple, easy to work measuring tool and is useful for evaluating patient dependence, which is
   related to daily living activities (Activities of Daily Living: ADL[7, 11].

5. EuroQOL EQ-5D (EuroQOL-5 Dementions)
   The EuroQOL dimension is used to assess quality of life in stroke patients with motor affective
   disorders. The dimensions measured in EuroQOL EQ-5D cover 5 dimensions, namely physical
   health, psychological health, social relations, environment and spiritual well-being.

2.4. Statistic Analysis

The research method used is quantitative research, using experimental design, simple randomized The
Pretest-Posttest Control Group Design. Data were analyzed using a path analysis model with SPSS
version 17.

2.5. Research Result

2.5.1. Characteristics Research Subject

This study was conducted on 102 stroke patients both bleeding and non-bleeding strokes that have
been proven by CT scan of the head. And diagnosed clinically by a radiologist with a lesion disorder
in the left hemisphere, the patient was divided into 2 groups, the control group received standard
therapy with medical treatment, and the intervention group with additional therapy memorized the Al
Quran.

2.5.2. Effect of Memorizing the Al Quran on Ability Functional Communication in Stroke Sufferers
   with Motoric Aphasia Disorder

Table 1 Differences in Functional Functions of Communication Between the control group and the
intervention group

| Functional Communication (FC) | Group          | p^a |
|------------------------------|----------------|-----|
|                              | Control        | Intervention |
| Week I (FC 1)                | 7,20           | 7,47 | 0,704 |
| Week III (FC 2)              | 9,39           | 10,45 | 0,026 |
| Week VI (FC 3)               | 11,82          | 13,53 | 0,000 |
| Week IX (FC 4)               | 14,24          | 16,18 | 0,000 |
| Week XII (FC 5)              | 17,16          | 19,35 | 0,000 |
| Pb                           | 0,000          | 0,000 |  

Information
a. Mann whitney test (unpaired test for numeric data is not normally distributed)
b. Test friedman test (different test paired data for numeric is not normally distributed)
Based on table 1 in the control group it is known that based on the questionnaire functional communication scores at the first week assessment (FC 1) averaged 7.20 +3.79, then in the third week assessment (FC 2) questionnaire scores communication functional abilities increased on average to 9.39 +2.45, in the sixth week assessment (FC 3) questionnaire score communication functional abilities increased on average to 11.82 +1.74, in the ninth week assessment (FC 4) questionnaire scores communication functional abilities increased on average to 14.24 +1.88, and in the twelfth week assessment (FC 5) questionnaire functional communication skills score increased on average to 17.16 +1.80. the results of different test enhancements in the control group obtained p value = 0.000 (p <0.05) which means that there were significant changes in functional communication skills in the control group.

In the treatment group it was found that based on the communication functional questionnaire score at the first week assessment (FC 1) the average was 7.47 +3.62, then in the third week assessment (FC 2) questionnaire functional communication skills scores increased on average to 10.45 +2.41, in the sixth week assessment (FC 3) questionnaire score communication functional abilities increased on average to 13.53 +2.43, in the ninth week assessment (FC 4) questionnaire score functional communication skills increased on average to 16.18 +2.25, and at the twelfth week assessment (FC 5) score Communication functional ability questionnaire increased on average to 19.35 +2.27. the results of different test increases in the intervention group obtained p = 0.000 (p <0.05) which means that there were significant changes in functional communication skills in the intervention group.

Based on tables 4.8 and figure 4.1 it is known that the increase in functional ability of the intervenesia group has improved better than the control group which is known at first week (FC 1) does not show a significant difference (p = 0.704), starting from the third week to twelfth week shows significant (p <0.05), thus giving the Al Quran memorization training intervention effective in improving the functional communication skills of stroke patients with motoric aphasia disorder.

![Figure 1. Comparative Line Diagram of Functional Communication Capabilities Between Control Groups and Intervention Groups](image)

Based on tables 1 and figure 1 it is known that the increase in functional ability of the intervenesia group has improved better than the control group which is known at first week does not show a significant difference (p = 0.704), starting from the second to twelfth week shows significant (p <0.05), thus giving the Al Quran memorization training intervention effective in improving the functional communication skills of stroke patients with motoric aphasia disorder.
2.5.3. Effect of Memorizing the Al Quran on independence In Stroke Patients With Motoric Aphasia Disorder

Table 2. Differences in independence between the control group and the intervention group

| Group       | Control | Intervention | P    |
|-------------|---------|--------------|------|
| Week I      | 39.71   | 37.73        | 0.463|
| Week III    | 46.55   | 50.88        | 0.109|
| Week VI     | 56.16   | 62.39        | 0.002|
| Week IX     | 65.47   | 74.75        | 0.000|
| Week XII    | 74.31   | 85.04        | 0.000|
| P           | 0.000   | 0.000        |      |

Information
a. Mann whitney test (unpaired test for numeric data is not normally distributed)
b. Test Friedman test (different test paired data for numeric is not normally distributed)

Based on table 2 in the control group it is known that based on the independence questionnaire score in the first week assessment an average of 39.71 + 18.59, then in the third week assessment the independence questionnaire score increased on average to 46.55 +14.38, in the sixth week assessment the independence questionnaire score increased on average to 56.16 +11.60, in the ninth week assessment the independence questionnaire score increased on average to 65.47 +11.10, and in the twelfth week assessment the independence questionnaire score increased evenly to 74.31 +11.34. the results of different test increases in the control group obtained p = 0.000 (p <0.05) which means that there is a significant change in the independence of the control group.

In the treatment group it was found that based on the independence questionnaire score in the first week assessment on average 37.73 +18.47, then in the third week assessment the independence questionnaire score increased on average to 50.88 +12.41, in the sixth week assessment the independence questionnaire score increased on average to 62.39 +9.70, in the ninth week assessment the independence questionnaire score increased on average to 74.75 +9.78, and in the twelfth week assessment the independence questionnaire score increased on average to 85.04 +10.35. the results of different test improvement in the intervention group obtained p = 0.000 (p <0.05) which means that there was a significant change in the independence of the intervention group.
Based on Table 2 and Figure 2 it is known that the increase in the independence of the intervention group experienced a better increase compared to the control group where it was known that at the beginning the assessment at first week and third week did not show a significant difference (p > 0.05), starting at the sixth week until the twelfth week shows a significant difference (p < 0.05), thus giving intervention to the Al Quran memorization exercise is effective in increasing the independence of stroke patients with motoric aphasia.

2.5.4. Effect of Memorizing the Al Quran on Quality of Life in Stroke Sufferers with Motoric Aphasia Disorder

Table 3 Differences in Quality of Life Between control groups and intervention group

| Quality of Life (QoL) | Group           | p^a  |
|-----------------------|-----------------|------|
|                       | Control         | Intervention |  |
| Week I (QoL 1)        | 37.1            | 36.24        | 0.691 |
| Week III (QoL 2)      | 40.98           | 48.75        | 0.001 |
| Week VI (QoL 3)       | 53.49           | 68.16        | 0.000 |
| Week IX (QoL 4)       | 70.75           | 88.43        | 0.000 |
| Week XII (QoL 5)      | 88.43           | 102.24       | 0.000 |
| p^b                   | 0.000           | 0.000        |  |

Information

a. Mann Whitney test (unpaired test for numeric data is not normally distributed)
b. Friedman test (different test paired data for numeric is not normally distributed)

Based on table 3 in the control group it is known that based on questionnaire quality of life in the first week assessment (QoL 1) on average 37.10 +11.21, then in the third week assessment (QoL 2) questionnaire quality of life increased on average to 40.98 +9.86, in the assessment sixth week (QoL 3) questionnaire quality of life increased on average to 53.49 +14.09, in the ninth week assessment (QoL 4) questionnaire score of quality of life increased on average to 70.75 +19.83, and in the twelfth week assessment (QoL 5) questionnaire score quality of life increased on average to
88.43 +19.42. the results of different test increases in the control group obtained p = 0.000 (p <0.05) which means that there was a significant change in the quality of life in the control group.

In the intervention group it was found that based on the quality of life questionnaire score at the first week assessment (QoL 1) an average of 36.24 +11.49, then in the third week assessment (QoL 2) the questionnaire quality of life improved on average to 48.75 +13.43, in the sixth assessment (QoL 3) questionnaire score of quality of life increased on average to 68.16 +17.74, in the ninth week assessment (QoL 4) questionnaire score of quality of life increased on average to 88.43 +19.42, and in the twelfth week assessment (QoL 5) questionnaire quality of life increased average becomes 102.24 +14.48. the results of different test improvement in the intervention group obtained p = 0.000 (p <0.05) which means that there was a significant change in the quality of life in the intervention group.

![Line Diagram of the Comparison of Quality of Life Between Control Groups and Intervention Groups.](image)

Based on Table 3 and Figure 3 it is known that the increase in functional ability of the intervention group experienced a better improvement compared to the control group where it was known at first week did not show a significant difference (p = 0.691), starting from the third week to twelfth week shows the difference significant (p <0.05), thus giving the Al Quran memorization training intervention effective in improving the quality of life of stroke patients with motoric aphasia disorder.

2.5.5. Path Analysis: Memorizing Al Quran, Family Support, Functional Communication, Independence and Quality of Life

Path analysis in this study is to find out whether there is a relationship between Al Quran memorization training and family support with functional communication, and the effect of functional communication on independence and the effect of independence on improving quality of life in stroke patients with motoric aphasia.
Figure 4. Pathway Influence Analysis of Memorizing Al Quran and Family Support to Quality of Life with Functional Communication and Independence as Mediation

Based on Figure 4 can be described as follows.

1. The effect of Al Quran memorizing variables and family support on the improvement of combined functional communication both in stroke patients with motoric aphasia disorders get $r$ square = 0.579 with $p = 0.000$ ($p < 0.001$) which means that the variable memorizing the Al Quran and support the family has an effect on the improvement of joint functional communication in stroke patients with moderate motoric aphasia. Or it can be said that 57.9% of the variance in functional communication is influenced by the variable memorizing the Al Quran and family support.

2. Partially it is known that the variable that has the greatest influence on improving functional communication in stroke patients with motoric aphasia is memorizing the Al Quran ($r = 0.571; p = 0.000$) compared to family support ($r = 0.227; p = 0.018$)

3. The influence of Al Quran memorizing variables, family support and functional communication, on the combined independence of stroke patients with motoric aphasia disorders get the value of $r$ square = 0.659 with $p = 0.000$ ($p < 0.001$) which means that the variable memorizing the Al Quran, support family and functional communication have an effect on the improvement of joint functional communication in stroke patients with strong levels of motoric aphasia. Or it can be said that 65.9% of the independence variance is influenced by the variable memorizing the Al Quran and family support and functional communication.

4. Partially functional communication variables ($r = 0.478; p = 0.000$) have more influence on independence compared to memorizing the Al Quran ($r = 0.333; p = 0.009$) and family support ($r = 0.103; p = 0.332$) thus functional communication has the greatest influence on independence in stroke patients with motoric aphasia, while family support partially has no significant effect.

5. The effect of Al Quran memorizing variables, family support, improvement of functional communication and the level of independence of the combined quality of life in stroke patients with motoric aphasia disorders get $r$ square = 0.982 with $p = 0.000$ ($p < 0.001$) which means that the variable memorizes Al Quran, family support, improvement of functional communication and level of independence affect the quality of life combined in stroke patients with motoric aphasia disorders with very strong levels. Or it can be said that 98.2% of the variance in quality of life is influenced by the variable memorizing the Al Quran, family support, improvement of functional communication and level of independence.

6. Partially it is known that the variable that has the greatest influence on the quality of life in stroke patients with motoric aphasia is memorizing the Al Quran ($r = 0.735; p = 0.000$) compared to family support ($r = 0.321; p = 0.000$), whereas functional communication ($r = 0.017; p = 0.618$) and independence ($r = 0.035; p = 0.305$) had no significant effect on quality of life.

7. The influence of other variables outside the model that affect the improvement of functional communication by 42.1%, other variables outside the model that affect the independence of 34.1%
and other variables outside the model that affect the improvement of quality of life in stroke patients with Motoric aphasia disorder is 1.8%.

Based on the description above, it can be seen that the direct effect of the variable memorizing the Al Quran and family support for the quality of life is better, without having to go through functional communication and independence as mediation.

3. Conclusion

Memorizing the Al Qur’an, is an effective way to improve functional communication skills in stroke patients with motoric aphasia. Memorizing Al Quran which is carried out continuously with good family support will also increase the level of independence and quality of life. Shown by the improvement of psychological aspects, namely stable emotions, not irritable, the mind relaxes and increases the effect of coping on stroke patients with motoric aphasia. Further memorizing the Al Quran which is done istiqomah will also improve spiritual health, that is by marking an increase in the implementation of worship, in addition to performing worship which is also required to perform sunnah services, praying five times in congregation to the mosque, attending religious activities, often listening and seeing lectures religious, so that the understanding of his religion also increases. It will all contribute to improving the quality of life of stroke patients with motoric aphasia.

Significant Statement

Memorizing the Al Quran is done istiqomah, always repeated and good family support will improve functional communication skills, level of independence and quality of life in stroke patients with aphasia motoric disorders.

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