

## The Inhibiting Factors Affecting the Start Time of “Rom” Rehabilitation Among adults Post-Stroke in Bukittinggi City, Indonesia

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### ABSTRACT

**Introduction:** A stroke has already reached epidemic proportions with is globally 1 in 4 adults over the age of 25 will have a stroke in their lifetime. 13.7 million people worldwide will have their first stroke this year and five and a half million will die as a result. In Indonesia, strokes are the highest cause of death in hospitals. The post-stroke can be regarded as the most difficult time for patients, they will experience a disability and inability to move as usual so that they will have difficulty in self care. Post-stroke sufferers need a long time to recover and gain maximum adjustment function. Therapy is needed immediately to reduce advanced cerebral injury, one of the rehabilitation programs that can be given to stroke patients is joint mobilization with range of motion (ROM) exercises. This research is aim to fine related between family support, patient motivation and patient knowledge with the start time of ROM Rehabilitation at home.

**Methods:** This research did with correlation description approach with cross sectional design. Sample of this research amount 96 patients and sampling technique used purposive sampling and data was analyzed used chi square test.

**Results:** Result was showing that family support with start time of ROM Rehabilitation (*p-value* 0,005<0,05), patient motivation with start time of ROM Rehabilitation (*p-value* 0,017<0,05), and patient knowledge with start time of ROM Rehabilitation (*p-value* 0,002<0,05).

**Conclusion:** The conclusion of this research there is correlation which significant between family support, patient motivation, and patient knowledge with start time of ROM Rehabilitation.

**Keyword:** Inhibiting Factors, Start time ROM Rehabilitation, post-stroke patient

### 1. Introduction

Stroke is the second major cause of death and disability worldwide. Stroke according to the World Health Organization are clinical signs that develop rapidly due to impaired focal brain function with symptoms lasting for 24 hours or more, can cause death without any other cause other than vascular (Ilmiah et al., 2020). Stroke has already reached epidemic proportions. Globally 1 in 4 adults over the age of 25 will have a stroke in their lifetime (WSO, 2019). In 2019, there were 6.6 million deaths attributable to cerebrovascular disease worldwide (3.3 million deaths from ischemic stroke, 2.9 million deaths from intracerebral hemorrhage, and 0.4 from subarachnoid hemorrhage) (American Heart Association, 2021). Ischemic stroke in younger adults is far less common than that among older adults, yet the underlying pathogenesis and risk factors are more diverse. Approximately 10% to 15% of all strokes occur in adults aged 18 to 50 years. The diagnosis of stroke in younger adults can be challenging to differentiate from stroke mimics and to identify the cause or underlying pathogenesis. Recent studies, both in the United States and Europe, have suggested that ischemic stroke in younger adults is increasing and have demonstrated increases in traditional stroke risk factors that are typically common among older adults (hypertension, dyslipidemia, diabetes mellitus, tobacco use, and obesity) to also be common among younger acute stroke patients (George, 2020). 13.7 million people worldwide will have their first stroke this year and five and a half million will die as a result (WSO 2019). In 2019, stroke remained the second-leading Level 3 cause of death and the third-leading Level 3 cause of death and disability combined in

the world, and its burden (in terms of the absolute number of cases) increased substantially from 1990 to 2019 (Bill & Foundation, 2021). In the United States, there are 800,000 new strokes every year. There is one new stroke every 40 seconds. Stroke is the 5th leading cause of death and the first leading cause of disability (Prasanna Tadi & Forshing Lui, 2021). In Indonesia, strokes are the highest cause of death in hospitals, with a mortality rate of 15.4%, and the prevalence of strokes has increased from 7 cases per 1,000 per capita in 2013, to 10.9 cases per 1,000 per capita in 2018 with a mortality rate of 15.4%, and the prevalence of strokes has increased from 7 cases per 1,000 per capita in 2013, to 10.9 cases per 1,000 per capita in 2018 (Riskesdas, 2018). There is a multitude of etiologies that can lead to a stroke. Some of the most common risk factors include hypertension, diabetes mellitus, hypercholesterolemia, physical inactivity, obesity, genetics, and smoking. Cerebral emboli commonly originate from the heart, especially in patients with preexisting heart arrhythmias (atrial fibrillation), valvular disease, structural defects (atrial and ventricular septal defects) and chronic rheumatic heart disease (Prasanna Tadi & Forshing Lui, 2021). Stroke in young adults is expected to cause an increasing public health problem in both developed and developing countries due to increasing incidence and high morbidity and mortality and longterm psychological, physical and social consequences. Differences in geography, ethnicity and sex, and in the exposure of vascular risk factors explain in part the wide variation of incidence of ischaemic stroke in young adults observed throughout the world (Boot et al., 2020). Young stroke patients have approximately twice as many risk factors compared with their peers. Furthermore, the prevalence of having multiple risk factors is increasing. The risk of future vascular events increases equally with the number of risk factors. The increase in vascular risk factors seems to be more pronounced in the population aged years and older than in the younger population. In recent years, the incidence of older adult patients with stroke has shown an increasing trend, which has brought a serious impact on the normal work and life of patients and posed a great threat to their life and health safety (Bill & Foundation, 2021). Young stroke patients have approximately twice as many risk factors compared with their peers. Furthermore, the prevalence of having multiple risk factors is increasing. The post-stroke can be regarded as the most difficult time for patients with post-stroke, they will experience a disability and inability to move as usual so that they will have difficulty in self care (Ismatika & Soleha, 2018). The inability to carry out daily activities is one of the challenges that stroke patients face due to weakness in their extremities. It leads to a decrease in mobility function, which prevents the fulfilment of activity. To improve their functional ability, patients undergo physiotherapy treatment. However, there is limited time for patients to exercise at the hospital. Yet, doing exercise is vital for post-stroke patients. Therefore, home programs are crucial for stroke patient rehabilitation. Family support is necessary to ensure that patients do their home program. It could increase enthusiasm and motivate patients to be consistent in their treatment, especially in their homes (Utami et al., 2023). The best time to start stroke rehabilitation is as soon as the patient is clinically stable as early as possible. Every stroke is different from one person to another because the impact of the damage to the brain is associated with the different functions of several parts of the brain making generalizability quite difficult (Mweshi et al., 2016). Rehabilitative therapy typically begins in the acute-care hospital once the condition has stabilized, often within 48 hours after the stroke. The first steps often involve promoting independent movement to overcome any paralysis or weakness (Whitehead & Baalbergen, 2019). Post-attack stroke sufferers need a long time to recover and gain maximum adjustment function. Therapy is needed immediately to reduce advanced cerebral injury, one of the rehabilitation programs that can be given to stroke patients is joint mobilization with range of motion (ROM) exercises. Hemiparesis is a common problem that can caused disability. ROM Exercise is an exercise that to performed evaluate and to improve the function of the musculoskeletal system and is one of therapies in stroke patients that aim to increase cerebral blood flow, minimize disability caused by stroke, so can refine sensory motoric function (Rhestifujayani et al., 2015). Prevention of complications from stroke can be done by performing regular or active passive ROM exercises appropriately according to the condition of the patient. Family support affects the motivation of stroke sufferers in doing the exercises also have a big effect in increasing muscle strength (Manurung, 2017). During the recovery phase, family plays an important role, they served as a source of support even during the healing and rehabilitation phase, as such, they are expected to be involved in the process of treatment since the very beginning. A family member is the primary support system of direct service providers in every situation (Windani & Sari, 2023). Treatment of stroke patients at home by the family is all the actions taken by the family in order to maintain the health of stroke sufferers, such as helping post-stroke physical activity, maintain

personal hygiene, overcome eating and drinking, adherence to home treatment programs (Husada et al., 2020). However, the current global state of rehabilitation is not promising, with systems for rehabilitation time, rehabilitation content, rehabilitation programs, and rehabilitation personnel not yet in place between different countries, resulting in a uniform normative standard of behavior for rehabilitation that has not yet been developed. Some studies have shown (Kwok et al., 2012; Bates et al., 2013; Lam Wai Shun et al., 2017) that factors such as medical personnel, family members, and patients themselves can influence the rehabilitation outcome, especially the patients' own cognitive and attitudinal factors are extremely important for the rehabilitation outcome (Maggio et al., 2019).

## 2. Methodes

Correlational research method with a Cross-Sectional Study approach with adult post-stroke patient research samples was taken in total sampling with 96 respondents. Sampling technique used purposive sampling and instrument consist of questionnaire. Data was analyzed used chi square test of statistic that is to find correlation. Inclusion criteria for our study were: Willing to be a respondent after discharge from hospital, Diagnosis by a doctor is a stroke with hemiplegic upper and lower extremity without complication, Age of respondent is 26-45 years old, Fully and not experiencing mental disorders, The longest post-stroke is less than 6 months, and can communicate well. Exclusion criteria in this study: Not continue to be a respondent more than 3 days, Undergoing other complementary therapies, there is no network around the house of respondent, Unstable physical condition.

## 3. Results

The results of bivariate analysis stated that showing: family support with start time of ROM Rehabilitation (p-value  $0,005 < 0,05$ ), patient motivation with start time of ROM Rehabilitation (p-value  $0,017 < 0,05$ ), and patient knowledge with start time of ROM Rehabilitation (p-value  $0,002 < 0,05$ ).

Table 4.5 The relationship between family Support in the Start Time of ROM rehabilitation

Family support	ROM Rehabilitation				Total		Pvalue
	good		Not good		f	%	
	f	%	f	%			
good	30	57,7	22	42,3	52	100	0,005
Not good	12	27,3	32	72,7	44	100	
amount	42	43,8	58	56,3	96	100	

Table 4.6 The relationship between Patient Motivation in the Start Time of ROM Rehabilitation

Patient Motivation	ROM Rehabilitation				Total		Pvalue
	Good		Not Good		f	%	
	f	%	f	%			
good	18	64,3	10	35,7	28	100	0,017
Not good	24	35,3	44	64,7	68	100	
Amount	42	43,8	54	56,3	96	100	

Tabel 4.7 The relationship between Patient Knowledge in the Start Time of ROM Rehabilitation

Patient Knowledge	ROM Rehabilitation				Total		Pvalue
	good		Not good		f	%	
	f	%	f	%			

high	36	55,4	29	44,6	65	100	0,002
low	6	19,4	25	80,6	31	100	
Amount	42	43,8	54	56,3	96	100	

#### 4. Discussions

Some researchers have reported that early initiation of rehabilitation following stroke promotes better long-term outcomes than delayed onset, emphasizing the importance of in-patient therapy although it has been disputed by other researchers. Generally, the concept of starting rehabilitation early has been well supported and a widely accepted principle of care for people affected by stroke. Even though there is limited evidence and it still remains unclear whether early mobilization is more effective than mobilization at a later stage, due to insufficient statistical power of the studies that have examined this practice, clinicians around the world are practicing this model to this day. However, as there were no reported indications disputing that early mobilization from the bed has any adverse consequences for patients provided the patient's neurological and cardiovascular status has been judged by a neurologist to be sufficiently stable, stroke guidelines are still recommended.

In this study there was a significantly strong relationship between the variable family support, patient knowledge, patient motivation about start time a range of motion rehabilitation and patient skills in doing a range of motion exercises. From the results of the analysis that has been carried out, it is known that most of the respondents have a good knowledge of start time the range of motion in rehabilitation. This is because most of the respondents have a relatively high educational background, whereas most of the respondents with a high school education background. Having a relatively high educational background gives respondents a better knowledge and understanding of something. Besides educational background, age is also a factor that influences the respondent's knowledge. This study showed that most respondents were 26-45 years. Increasing age has an effect on increasing maturity and maturity in thinking, which will affect one's knowledge. According to a previous study, several factors influence personal knowledge, including age and higher education. Apart from age and educational background, another thing that affects the respondents' knowledge is the experience of obtaining information. Experience getting information and range of motion exercises owned by respondents will increase respondent knowledge about a range of motion exercises. According to Forehand, based on Bloom's Knowledge Taxonomy, knowledge results from knowing and occurs after the individual senses through the five senses of a particular object. This shows that the information and experience that individuals get on something will significantly affect their level of personal knowledge and skills in doing something. From the results of the analysis that has been carried out, it is known that most respondents have high self-efficacy in doing a range of motion exercises. Increasing age affects the increase in maturity or maturity in reasoning about the benefits of doing something. According to Sousa et al, a positive relationship exists between increasing age and increasing a person's self-efficacy. Besides the age factor, the thing that also affects the respondent's self-efficacy is the experience of getting information. The experience of getting information and exercising the range of motion possessed by the respondent increases the respondent's confidence in doing a range of motion exercise. Shah et al stated that a person's experience positively influences one's self-efficacy. A person's knowledge also affects a person's self-efficacy. This study found that most respondents had good knowledge about a range of motion exercises. The knowledge that the respondent has positively influenced the respondent's skills in doing a range of motion (ROM) exercises for post-stroke clients treated at home. The results of this study indicate that families with good knowledge of a range of motion exercises have good skills in performing a range of motion exercises for post-stroke clients. This is supported by research by Ja, which states that there is a relationship between knowledge of ROM and family guidance in implementing ROM in stroke patients. Meanwhile, research states that there is a relationship between the family knowledge level and the family's ability to treat stroke patients at the Hospital. Another research conducted by Agonwardi stated that family knowledge significantly affected family skills in doing ROM exercises for family members with stroke. Drysdale & Mcbeath stated that individuals' knowledge could help achieve goals, anticipate events experienced and respond to changing needs. In families with health problems where there are family members with stroke, family knowledge is an essential factor in how the family can provide optimal care for family members with stroke,

especially in doing range of motion exercises to increase the client's physical activity ability. Many activities are considered a skill, consisting of several skills, and the degree of mastery achieved by a person describes the skill level. This occurs because it is a commonly accepted habit to state that one or more extended movement patterns or behaviours can be called skills. Thus, it can be concluded that to achieve a good skill, it is necessary to pay attention to the following: First, a person's factor, the willingness and seriousness of the person in the form of great motivation to master the skills being taught. Second, the learning process refers to how learning conditions are adjusted to a person's potential and environment, significantly affecting skill mastery. Third, situational factors refer to the exercises or practices' methods and techniques. Family role very important in the stages of treatment health, starting from the improvement stage health, prevention, treatment, up to with rehabilitation. One of support family that can be provided is by through emotional attention, expressed through the love and motivation of members sick families to keep trying achieve healing (Friedman, M, 2010). Good family support due to the close relationship between family members who are still well connected, awareness of a family that cares for each other between family members so that function the family can run as it should. Results of research showed more than half of post-patients stroke has good family support but there are still those who receive support sufficient family, this can happen because lack of concern between fellow members family or it could also happen because family limitations to always be take the time and pay attention family members of post-stroke patients for perform ROM therapy. According to Friedman, M (2010), stated that the family acted as a form of guidance and feedback, guide and mediate solutions problem, as a source and validator identity of family members. Form support it helps individuals in building self-esteem and competence with the environment and his family. The family has responsibilities primary responsibility in post patient care stroke after returning home from the hospital so family support is very important useful for the patient's recovery with mobilize joints with range of motion (ROM) exercises at home. Motivation in Doing ROM Motivation of post-stroke patients carrying out show to have good motivation in doing ROM. Motivation is drive, desire, desire, and energy other movements, which come from within himself, to do something. These results show that motivation post-stroke patients to perform ROM it is quite high reaching more than half have high motivation to do ROM. On the reality in the field of post-stroke patients do ROM motivated to be able to return to activities as usual and bored with the situation limited. Some post-stroke patients have enough motivation to admit know about ROM therapy for patients post-stroke but did not receive support full of families so they are lacking motivated towards ROM. They do not trying to do things that can support healing, limited information and counseling from personnel health from related agencies take part in decreasing post-patient motivation Stroke to get healing. This matter Of course, it must be addressed with awareness self and the intention to recover from post-patients stroke to try to find a cure with support from the family and health workers to motivate patients post-stroke to do ROM. The results of this study are in line with theory put forward by Suratun, et al(2018) which states that ROM exercises is a joint movement exercise allows contractions to occur and muscle stretching, where the client moves each joint corresponds to movement normal either actively or passively. Family support influences motivation post-stroke patient sufferers in doing exercise also has a big influence on improvement muscle strength. In this case, members the family or the patient themselves can do it independent ROM exercises outside of giving physiotherapy exercises. Family functions in member health care sick family can provide physical needs. According to Friedman, M (2010), stated that the family acted as a form of guidance and feedback, guide and mediate solutions problem, as a source and validator identity of family members. Research result This is in line with the theory put forward by Suratun which states that ROM exercises are joint movement exercises which allows contractions to occur and muscle stretching, where the client moves each joint corresponds to movement normal either actively or passively. ROM exercises are done for maintain or improve levels perfection of joint movement ability normally and completely for increases muscle mass and muscle tone (Potter & Perry, 2013). Family support influences motivation of stroke sufferers in carrying out Exercise also has a big influence increased muscle strength. It is very important that patients and their families/caregivers are seen as part of the interdisciplinary team from the start. They must receive education on the causes and consequences of and recovery from strokes. There should be constant interaction between the interdisciplinary team and the patient and their families/caregivers regarding the rehabilitation goals and progress (Whitehead & Baalbergen, 2019).

## 5. Conclusions

The conclusion of this research are: there is correlation which significant between family support, patient motivation, and patient knowledge with start time of ROM Rehabilitation. Family members' attitudes and patients' intention of independence are important factors influencing post-stroke patients' rehabilitation across different outcomes. Patients' intention of independence would promote motor recovery, while family members' positive attitudes toward such independence could enhance cognitive regains. Patients' intention of independence would influence the emotion outcome among the younger patients in contrast to the selfcare independence outcome among the older patients. The findings prompt the need for future research on developing strategies of enhancing positive attitudes toward functional independence among both patients and their family members for promoting better outcomes in post-stroke rehabilitation. There is limited knowledge about the mechanisms behind home-based rehabilitation facilitating improved functional outcomes compared to standard treatments. However, it is known that stroke survivors consider coming home to be an important part of recovery and rehabilitation, including the process of regaining control over his or her life, striving for re-personalisation and autonomy, and possibly no longer feeling as a depersonalized object for caring procedures. Future investigations may provide better answers, although it can be speculated that prolonged institutionalization limits patient autonomy and experienced quality of life, reduces motivation for daily activities and thereby could explain our current findings, while patients rehabilitated at home experienced both increased quality of life and improved functional outcomes. In the rehabilitation program for older adult patients with stroke, healthcare providers should specify targeted rehabilitation measures according to the different degrees of the patient's condition, so as to improve the effectiveness of rehabilitation medical implementation.

## 6. Study Limitations

Post-stroke rehabilitation is a patient-centred, goal-driven process that attempts to maximise the functional independence of patients who suffer from a variety of stroke-related disabilities. The main aim of post-stroke rehabilitation is to assist the stroke survivor to return to their premorbid functioning within their family environment, community environment and, where possible, work environment. Rehabilitation can be delivered in an inpatient or outpatient setting. Because of a lack of inpatient stroke rehabilitation resources in this sector, efforts have been made to improve the availability and quality of home-based care and rehabilitation, as well as community-based rehabilitation services.

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## 8. Disclosure

The authors report no conflicts of interest in this work

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