



HOSPITAL HEALTH PROMOTION PROGRAM INFLUENCE ON STROKE PATIENTS' MOTIVATION FOR MEDICAL REHABILITATION

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ABSTRACT

Stroke is the second leading cause of death and the third leading cause of disability. World Health Organization in 2021 found that around 70% of disability and 87% of deaths due to stroke occur in low- and middle-income countries. One of Indonesia's efforts to minimize disability in post-stroke patients is medical rehabilitation. In an effort to maintain the patients' motivation to adhere to medical rehabilitation, hospitals employ the hospital health promotion program. The purpose of this study is to analyze the effect of the hospital health promotion program on stroke patients' motivation for medical rehabilitation. This quantitative analytic study with a cross-sectional approach was conducted at Haji Adam Malik Central General Hospital and Medan Haji General Hospital. The research population was 124 post-stroke patients (48 patients from Haji Adam Malik Central General Hospital and 76 patients from Medan Haji General Hospital) and all of them were used as samples (total sampling). Data collection was conducted using a valid and reliable questionnaire (validity and reliability test carried out). Analysis was carried out using frequency distribution, chi-square, and double-log regression analysis. This study found that 90 out of 124 participants had high motivation for medical rehabilitation, while the rest had low motivation. The results showed that the hospital health promotion program had a significant effect on the motivation of stroke patients for medical rehabilitation, namely empowerment (OR=2.842), atmosphere building (OR=2.937), advocacy (OR=3.028), and partnerships (OR=2.738). Advocacy has the most impact on the patient's motivation with OR=3.028. It can be concluded that hospital health promotion program has a positive influence on stroke patients' motivation to undergo medical rehabilitation. Hence, implementation of similar health promotion program on other hospitals are highly encouraged to influence stroke patients' motivation for medical rehabilitation.

Keywords: health promotion, medical rehabilitation, motivation, stroke

Introduction

Stroke is the leading cause of disability in the world and the third most common disease after cardiovascular disease and cancer.^{1,2} Patients who have been diagnosed with stroke are more likely to have another stroke in the future.³ Aside from being the second leading cause of death and the third leading cause of disability worldwide, stroke also become a concern because many stroke patients also suffer from post-stroke depression and dementia.⁴

A post-stroke patient generally suffers from hemiplegia, facial paralysis, aphasia, deterioration of vision and hearing, dementia, sexual dysfunction, and incontinence.⁵ All of these post-stroke disabilities can be minimized through medical rehabilitation. Medical rehabilitation consists of physiotherapy, speech therapy, occupation, and psychotherapy to improve patients' cognitive, motoric, speech, and other bodily functions, in turn, improving patients' quality of life.⁶⁻⁸ Yao *et al.* found that stroke patients who received medical rehabilitation had better improvement in physical function recovery, depressive symptoms, and quality of life compared to those who did not.⁹ Despite the large multitude of benefits of medical rehabilitation, studies have shown that adherence to the treatment regimen was only 50%, and patients tend to give up their treatment after six months.¹⁰ This effort to improve patients' quality of life through medical rehabilitation is greatly influenced by the knowledge, sex, education, and motivation of the patients and their families.^{11,12} World Health Organization (WHO) Rehabilitation Agenda 2030 recognize the importance of rehabilitation in improving patients' quality of life.¹³ The Rehabilitation Agenda 2030 also directed future programs to improve patients' motivation to increase behavior in patients that support their recovery.¹³ American Heart Association found that many unmet needs persist in many domains regarding post-stroke patients' daily life, from social integration, quality of life, maintaining activity, and self-efficacy.¹⁴ More than 50% of stroke survivors suffer from apathy a year post-stroke, while more than 30% of the survivors persistently have participation restrictions.¹⁴

Motivation is the most important factor in the success of medical rehabilitation because it determines patients' adherence to the rehabilitation program.¹⁵⁻¹⁷ Rehabilitation programs generally take months to complete, depending on the improvement of the patients, which patient can lose their motivation along the way.¹⁸ Health Promotion Program is an effort by the healthcare facility to maintain and increase the motivation of stroke patients and their families to adhere to their medical rehabilitation program.¹⁹

There are four main strategies of the health promotion program: 1) Empowerment, through counseling for the patients; 2) Atmosphere Building, through sharing education leaflets with patients' caretakers, installing educational posters and banners in hospital, and by become role models in healthy life by hospital staffs; 3) Advocation; and 4) Partnership.²⁰⁻²²

Haji Adam Malik Central General Hospital and Medan Haji General Hospital are government-owned hospitals located in Medan and Deli Serdang, North Sumatra, accordingly. Haji

Adam Malik Central General Hospital is an A-Class general hospital owned by The Indonesian Health Ministry, while Medan Haji General Hospital is B-Class general hospital owned by the North Sumatera Provincial Government. As such, both hospitals adhere to hospital health promotion technical guidance issued by The Indonesian Health Ministry.

This study tries to ascertain the impact of health promotion programs on post-stroke patients' motivation for medical rehabilitation and makes both hospitals' health promotion programs a model for others.

Methods

This study was a quantitative analytic study with a cross-sectional approach conducted at Haji Adam Malik Central General Hospital and Medan Haji General Hospital. This study aims to analyze the influence of the hospital health promotion program on stroke patients' motivation for medical rehabilitation. The population of this study was all the post-stroke patients who underwent medical rehabilitation at the Medical Rehabilitation Unit of each hospital between March and April 2023 which consisted of 48 patients in Haji Adam Malik Central General Hospital and 76 patients in Medan Haji General Hospital. Due to the small population size in both hospitals, total sampling was used as the sampling method.

To collect the necessary data for this study, a questionnaire consists of 65 questions which 10 questions each related to empowerment, atmosphere building, advocacy, and partnership; and 25 questions related to motivation. All of the questions in the questionnaire are answerable in Likert scale, with a total score between 10 to 30 for empowerment, atmosphere building, advocacy, and partnership component, and between 25 to 100 for motivation component. As for the interpretation, for empowerment, atmosphere building, advocacy, and partnership, a total score between 10 to 20 is considered inadequate, while a score above 20 is considered adequate. Meanwhile, for motivation, total scores between 25 to 63 are considered low motivation, and total scores above 63 are considered high motivation. This questionnaire validity and reliability test was carried out on 30 post-stroke patients who undergo medical rehabilitation at Royal Prima General Hospital. The r value (correlation coefficient) of all items in the questionnaire is greater than the critical value (0.361 for 0.05 significance for 30 samples), and above the 0.400 cut off point. The reliability test also shows that the Cronbach's alpha of all items on each sub-scales is greater than 0.600 (empowerment's α :0.879; atmosphere building's α :0.884; advocacy's α :0.760; and partnership's α :0.889; and motivation's α :0.918). Hence, all items in the questionnaire are valid and reliable.

Each patient in both hospitals receives information regarding this study and if they give their consent to participate, the patient receives the questionnaire and the guidance to fill the questionnaire. They had to fill out their identity and the questionnaire to their fullest knowledge

and ability. For patients with physical limitations due to the stroke, the questionnaire is filled out by their primary caretaker.

Multiple analyses were carried out on all the data gathered in this study. Univariate, bivariate, and multivariate analysis was carried out using IBM SPSS Statistics (licensed to Prima Indonesia University) with $p < 0.05$ considered significant. This study method and protocols have been approved by the Health Research Ethics Committee of Prima Indonesia University (Ethical Clearance Letter No. 010/KEPK/UNPRI/I/2023).

Results

Basic Characteristics

This study found that most of the participants were aged less than 60 years. At Haji Adam Malik Central General Hospital most patients (70.8%) were aged less than 60 years, while at Medan Haji General Hospital patients aged less than 60 years and more than 60 years were almost equal. Most participants were male (58.1%), most participants' education level was senior high school (59.7%), and most participants were not employed (70.2%) during the data collection period (Table 1).

Table 1. Demographic Characteristics of Participants

Characteristic	General Hospital				Total	
	HAM Central		Medan Haji		N	%
	n	%	n	%		
Age:						
<60 years old	34	70.8	39	51.3	73	58.9
>60 years old	14	29.2	37	48.7	51	41.1
Total	48	100.0	76	100.0	124	100.0
Sex:						
Male	31	64.6	41	53.9	72	58.1
Female	17	35.4	35	46.1	52	41.9
Total	48	100.0	76	100.0	124	100.0
Education Level:						
Elementary/Junior High School	9	18.7	11	14.5	20	16.1
Senior High School	26	54.2	48	63.1	74	59.7
University	13	27.1	17	22.4	30	24.2
Total	48	100.0	76	100.0	124	100.0
Employment:						
Employed	19	39.6	18	23.7	37	29.8
Not Employed	29	60.4	58	76.3	87	70.2
Total	48	100.0	76	100.0	124	100.0

Factors Influencing Patients' Motivation for Medical Rehabilitation

In this study, four strategies of the hospital health promotion program were measured as factors influencing patients' motivation for medical rehabilitation. Those four strategies are empowerment, atmosphere building, advocacy, and partnership. The level of these strategies is categorized into adequate and inadequate. The result is presented in Table 2. Meanwhile, this study

found that most of the participants of this study have high motivation for medical rehabilitation (72.6%), while 27.4% of participants have low motivation for medical rehabilitation (Table 2).

Table 2. Participants' Response Toward the Hospital Health Promotion Program Strategy

Hospital Health Promotion Program Strategy	General Hospital				Total	
	HAM Central		Medan Haji		N	%
	n	%	n	%		
Empowerment:						
Adequate	34	70.8	51	67.1	85	68.5
Inadequate	14	29.2	25	32.9	39	31.5
Total	48	100.0	76	100.0	124	100.0
Atmosphere Building:						
Adequate	39	81.2	48	63.1	87	70.2
Inadequate	9	18.8	28	36.9	37	29.8
Total	48	100.0	76	100.0	124	100.0
Advocacy:						
Adequate	38	79.2	46	60.5	84	67.8
Inadequate	10	20.8	30	39.5	40	32.2
Total	48	100.0	76	100.0	124	100.0
Partnership:						
Adequate	30	62.5	52	68.4	82	66.1
Inadequate	18	37.5	24	31.6	42	33.9
Total	48	100.0	76	100.0	124	100.0
Motivation:						
High	35	72.9	55	72.4	90	72.6
Low	13	27.1	21	27.6	34	27.4
Total	48	100.0	76	100.0	124	100.0

Statistical analysis between each strategy and patients' motivation for medical rehabilitation using chi-square found that all four strategies significantly influenced patients' motivation for medical rehabilitation (Table 3).

Table 3. Relationship Between Hospital Health Promotion Program Strategy and Patients' Motivation for Medical Rehabilitation

Hospital Health Promotion Program Strategy	Motivation for Medical Rehabilitation (n=124)				PR	PR CI 95%		P-value
	High		Low			Lower Bound	Upper Bound	
	A (%)	IA (%)	A (%)	IA (%)				
Empowerment	54.8	13.7	17.8	13.7	1.511	1.058	2.157	0.008 [†]
Atmosphere Building	55.6	17.0	14.5	12.9	1.448	1.034	2.028	0.016 [†]
Advocacy	54.0	18.6	13.7	13.7	1.489	1.042	2.128	0.016 [†]
Partnership	52.4	20.2	13.7	13.7	1.444	1.008	2.070	0.032 [†]

[†]Significant difference between groups with high and low motivation for medical rehabilitation. A= Adequate; IA= Inadequate

Further analysis using double-logistic regression also found that all strategies in hospital health promotion programs influenced patients' motivation for medical rehabilitation ($P < 0.05$), where advocacy was the biggest influence on patients' motivation (OR=3.028) followed by atmosphere building (OR=2.937), empowerment (OR=2.842), and partnership (OR=2.738) (Table 4).

Table 4. Multivariate Analysis of Empowerment, Atmosphere Building, Advocacy, and Partnership with Patients' Motivation for Medical Rehabilitation

Variable	B	Sig.	Exp(B)/ OR	95%CI for Exp(B)
Empowerment	1.044	0.023	2.842	1.152-7.007
Atmosphere Building	1.077	0.020	2.937	1.182-7.296
Advocacy	1.108	0.016	3.028	1.225-7.488
Partnership	1.007	0.028	2.738	1.115-6.724
Constant	-1.754	0.000		

Discussion

Empowerment is an important concept in health promotion. Empowerment encompasses an effort to improve an individual or group's ability to take control of their health, turning them into agents of change to achieve their optimal health condition. In this study, empowerment can help to maintain and improve patients' motivation for medical rehabilitation in hospitals. Empowerment embodies ways to improve their health, the ability to make decisions regarding their health, the ability to control behavioral change, and social support to achieve health goals.

This study found that empowerment significantly affected post-stroke patients' motivation for medical rehabilitation in both hospitals ($P < 0.05$) with OR=2.8 (95%CI: 1.152-7.007). This finding parallels the findings of multiple studies which found that empowerment has a positive effect on post-stroke patients' motivation for medical rehabilitation.^{23,24} Hwang *et al.*²³ also found that empowerment such as *tai chi* activities positively improves the quality of medical rehabilitation services for post-stroke patients. Empowerment, not only to the patients but also to the caregivers found to positively improve the patient's quality of life.²⁵ In this case-control study, they found that 6 months after the caregiver empowerment program, nine out of ten domains of patients' ability increased in the case group with patients' feeding and dressing abilities increased significantly.²⁵ Patients' empowerment through involvement with the physiotherapist also significantly improves the patients' motivation and coping mechanisms during rehabilitation.²⁶

Atmosphere building also known as community/social support is one of the dimensions of health promotion and is necessary to create a supportive environment to be healthy and to improve healthy behavior. Availability of adequate healthcare facility (in this case medical rehabilitation unit), safety and comfort of the facility, social support, and other factors influenced patients' health and health perception, hence in post-stroke patients, the adherence to medical rehabilitation program. This aspect also makes a notable contribution to the recovery and well-being of stroke survivors and their caregivers.²⁷

This study found that atmosphere building also significantly affected post-stroke patients' motivation for medical rehabilitation in both hospitals ($P < 0.05$) with OR=2.9 (95%CI: 1.182-7.296). These findings are in accordance with other studies which found that atmosphere building has a positive effect on patients' motivation for medical rehabilitation.²⁸⁻³⁰ Verrienti *et al.*'s²⁸

studies found that the atmosphere around the ward greatly affects the patients' motivation for medical rehabilitation in the hospital. A bright, comfortable, informative, and caring atmosphere improves patients' general condition, and behavior is improved.³¹ Providing posters with information on the importance of stroke rehabilitation also enhances the visual learning chance for the patient or their caregiver.³² This visual enhancement is essential for rehabilitation success.³² Unfortunately, the current hospital environment setting does not support a positive learning environment.³³ Another form of community/social support is a stroke survivor group, which is a space where stroke survivor interacts, support, and learn from each other.²⁷ A literature review by Longley *et al.* found that social support is considered to affect stroke patients' decision to access rehabilitation.³⁴

A study by Yoshida *et al.*³⁵ found that motivation is very important for sub-acute stroke patients to undergo intensive medical rehabilitation. This study also identified seven main factors determining patients' motivation to undergo medical rehabilitation: 1) patients' goal; 2) previous success/failure experience; 3) physical condition and cognitive function; 4) resilience; 5) professionals' influence; 6) relationship with healthcare providers; and 7) advocacy.³⁵ This supports the findings of this study which found that advocacy affected patients' motivation to undergo medical rehabilitation ($P < 0.05$). A study in Accra, Ghana also found that holistic advocacy, including physical, occupational, social, work, and psychological management greatly affected patients' outcomes 6 months after rehabilitation.³⁶ Hospital staff advocacy for post-stroke patients' right to adequate care, information, and alternatives greatly improves patients' motivation.²⁰ This study also found that patients who experienced greater advocacy had higher motivation for medical rehabilitation care (OR=3.02; 95%CI: 1.225-7.488). A recent study also found that almost 90% of all disability caused by stroke are preventable and treatable if taken care of immediately and received great advocacy.³⁷

This study found that partnership as a health promotion strategy also significantly influenced post-stroke patients' motivation for medical rehabilitation ($P < 0.05$). Compared to those who experienced less partnership, those who experienced better partnership had better motivation for medical rehabilitation (OR=2.74). This study finding is supported by multiple studies which found that the influence of partnership on patients' motivation is positively correlated.^{30,38} A randomized single-blind trial with stroke survivors also found that partnership between nurse and patient may improve continuity of care, and produce more effective rehabilitation.³⁹

Health promotion in the context of partnership refers to the effort to improve patients' participation and planning of their medical rehabilitation program. In this scheme, patients' families and themselves work as partners of medical staff, involved together in decision-making and medical rehabilitation programming.²⁰ In a partnership relationship between the patient, their family, and medical staff building a relationship with trust greatly maintain patients' motivation to

adhere to their medical rehabilitation program. Although building a partnership with the patient and their family took time it will improve patients' outcomes.³² Through this partnership, post-stroke patients and their families could actively be involved in the medical rehabilitation process, such as setting the goal, observing the development, and in the end achieving the goal. Aside from giving information related to medical rehabilitation, medical staff also can give emotional support and help the patient solve the problem that might arise along the rehabilitation process.

However, this study also had its limitation. Some of the participants in this study have physical limitations (aphasia, hemiplegia, etc.) and can't fill the questionnaire by themselves, and had their questionnaire filled by their primary caretaker. This situation can distort the answer on the questionnaire as perceived by the caretaker rather than perceived by the patient.

Conclusion

This study concludes that hospital health promotion programs through empowerment, atmosphere building, advocacy, and partnership tremendously influenced post-stroke patients' motivation for medical rehabilitation. Adequate empowerment, atmosphere building, advocacy, and partnership positively maintain and improve post-stroke patients' motivation for medical rehabilitation.

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Conflict of Interest

The authors declare that they have no conflict of interest.

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