

ORIGINAL ARTICLE

Identification of Planned Stroke Awareness Behavior: A Structural Equation Modeling

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ABSTRACT

Introduction: Stroke is one of the most common neurological diseases, often causing death or gross physical impairment or disability. The associated risk factors such as hypertension, high cholesterol, diabetes, heart disease, and smoking should serve as warnings. However, most people are still not aware of these risks. The main aim of this study is to identify stroke awareness behavior using the construct variable from the Theory of Planned Behavior as the predictor (attitude factor, subjective norm factor, perceived behavioral factor, and intention to perform behavior). **Methods:** A cross-sectional study was conducted on 256 people who have a high risk of stroke at the Poncokusumo Health Center, Malang, Indonesia. The sampling technique used was purposive sampling. The authors used all the construct variables in the Theory of Planned Behavior. The stroke awareness behavior was measured using a questionnaire developed from the National Stroke Awareness Guide, while the attitude factor, subjective norm factor, perceived behavioral factor, and intention were measured using the instruments developed from standard instruments from the Theory of Planned Behavior. Structural Equation Modeling (SEM-PLS) was used to analyse the data. **Result:** This study found that 68.4% of respondent with high or low intention of preventing a stroke can be predicted by attitude factors, subjective norm factors, and perceived behavioral factors. While 96.1% of good or bad stroke awareness behavior can be predicted by the model used in this study, the rest (3.9%) is explained by other variables outside this research model. **Conclusion:** The hypothesis testing results showed that all construct variables in the Theory of Planned Behavior can be strong predictors of stroke awareness behavior. All variables in the Theory of Planned Behavior can be powerful predictors of stroke awareness behavior.

Malaysian Journal of Medicine and Health Sciences (2023) 19(3):98-105. doi:10.47836/mjmhs18.5.13

Keywords: Behavior, Stroke Awareness, Theory of Planned Behavior, High risk, Health awareness

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INTRODUCTION

Stroke has been the main cause of premature death in the world for the last two decades (1). The global scale shows that stroke is not only the leading cause of disability worldwide but also the second leading cause of death and dementia, either due to the first stroke or recurrent attacks (2). Stroke has several risk factors such as hypertension, high cholesterol, diabetes, heart disease, and smoking, which should serve as warnings, but most people at risk of stroke are not aware of these risks (3). On average, stroke patients in developing

countries seek health care after 3 days of the stroke attack (2). The prevalence of strokes in Indonesia has increased drastically in the last 5 years. The island of Java (the island with the most population) occupies the first position in increasing the prevalence of stroke.

So far, the Indonesian government has taken many preventive actions to raise awareness that stroke symptoms need to be treated as a medical emergency, as it has recently been done in several countries. The initiative uses different kinds of media, like flyers, posters, and digital tools, but the problem of getting people to change their behavior about stroke hasn't been solved yet. It may be because the promotional actions that have been carried out are only limited to providing knowledge without building belief, so that it makes a person less aware, and the person has no intention of behaving in

accordance with what has been promoted. According to a study, the formation of behavior based on belief will show lasting behavior. So, to reduce stroke-related deaths and disabilities, a better way to raise awareness among people who are at high risk is necessary (4). Efforts to prevent death or disability due to stroke, must include stroke self-awareness. Stroke self-awareness is a condition in which one's thoughts and actions reflect the awareness of stroke risk factors. Thus, it is necessary to modify the risk factors in patients prone to strokes in hopes of avoiding a stroke. But it is not an easy matter to instill or build stroke self-awareness in someone. This requires a massive action by using the belief approach so that one is truly convinced of the importance of stroke self-awareness. An action or behavior that is based on belief will last longer than actions or behaviors that are only based on advice or coercion.

The Theory of Planned Behavior (TPB) is aimed to improve the skills of the general population in recognizing the first signs of acute stroke (5). The TPB is based on a basic set of beliefs that creates an intention and causes someone to perform a specific behavior. Attitude toward behavior, subjective norms, and perceived behavior control are the primary factors in developing an individual's behavioral intention (4). A study on the TPB stated that people's views of behavioral control, attitudes toward objective and subjective norms, and intentions all have an impact on the behavior (6).

The objective of the study is to investigate the factors that can predict stroke awareness behavior using the TPB approach. With the results of this study, it is expected that it can be used as a first step in developing a method of promoting stroke awareness. This study aims to identify stroke awareness behavior using construct variables from the TPB as predictors (attitude factor, subjective norm factor, perceived behavioral factor, and intention).

MATERIALS AND METHODS

A cross-sectional study was conducted on 256 people who have a high risk of stroke at Poncokusumo Health Center, Malang, Indonesia. The sampling technique is purposive sampling. The inclusion criteria for respondents in this study was limited by several criteria, namely adults, having stroke risk factors (measured using NSA's Calculation of Stroke Risk Score) (7), The National Stroke Awareness Guide is a validated tool as reported by Kleindorfer et al. (2022) (8). Indonesians, people who live in Poncokusumo, and people who speak Indonesian as their mother tongue. Exclusion criteria included non-Indonesian, the respondents who withdrew from the study. This study uses the Theory of Planned Behavior approach as a framework of thought. In other words, the authors used all the construct variables in the theory. The attitude factor (indicator: strength belief and outcome evaluation), subjective

norm factor (indicator: Normative Belief and Motivation to Comply), and perceived behavioral factor (indicator: control belief and power belief) are the independent variables in this study. Intention (indicators: Intention Content and Intention Strength) acts as a mediating variable, and the dependent variable is stroke awareness behavior (indicator: healthy lifestyle, exercising regularly, limiting the consumption of cholesterol, not smoking, maintaining an ideal body weight).

The stroke awareness behavior was measured using a questionnaire developed from the National Stroke Awareness Guide (NSAG) (using the Likert scale). This questionnaire was built by several indicators, including healthy lifestyle, exercising regularly, limiting the consumption of cholesterol, not smoking, and maintaining an ideal body weight. While attitude factor, subjective norm factor, perceived behavioral factor, and intention were measured using instruments developed from standard instruments of the Theory of Planned Behavior. There were 10 items in each domain, and it was divided into 2 paired sections. Respondents were asked to tick (✓) on the appropriate scale, that is, on a 7-point scale (1-7) range of scores for each item = 1-7 (Semantic Differential Scale). Every domain was scored by multiplying every item pair in the first and second parts, then every result multiplied by the whole items was calculated (6). Before the data collection process is carried out, permission was taken from public health service of Poncokusumo Malang and the research work was coordinated with the Poncokusumo health workers. After the selection of the respondents based on the inclusion criteria the data was collected by a trained research team. Researchers were assisted by nurses and midwives who were responsible for each region. Previously, the researcher provided an explanation regarding the research instrument used and how to fill in the instrument. The next step was that respondents answered the questionnaire starting from attitude toward behavioral, subjective norm, perceived behavior control, intention, and attitude toward stroke awareness. The researcher and team would verify and check the questionnaire answers to make sure that all questions in the questionnaire were answered. Next, the data collected was processed and analysed statistically. This study uses Structural Equation Modeling (SEM) to perform data analysis. This analysis is carried out with the assistance of Smart-PLS software. The steps taken in this analysis are designing a measurement model (outer model), designing a structural model (inner model), constructing a path diagram, converting a path diagram to a system of equations, estimating path coefficients, outer loading and weights, evaluating goodness of fit, and hypothesis testing. According to the hypothesis, all construct variables in the Theory of Planned Behavior can be a strong predictor in explaining stroke awareness behavior. This research obtained ethical clearance from the Health Research Ethics Committee, Institute of Health Science STRADA Indonesia (No: 2377/KEPK/

RESULTS

The detailed data regarding the socio-demographic of respondents can be seen in Table I. The age of the respondents with the largest portion is in the age range of 21–40 years (51.6%). Most of the respondents (54.7%) are women, and most of the respondents (64.8%) have a job (working). The respondents in this study had a fairly good education; almost half of the respondents (34.8%) had junior high school education, and 8.2% of the respondents had undergraduate education.

Table I: Data Socio-demographic Respondent at Puskesmas Poncokusumo, Malang, Indonesia Year 2022 (n=256)

Characteristics of Respondents		f	%
Age	21-40 years old	132	51.6
	41-60 years old	124	48.4
Total		256	100
Sex	Male	116	45.3
	Female	140	54.7
Total		256	100
Occupation	Not working	90	35.2
	Working	166	64.8
Total		256	100
Education	Primary school	80	31.2
	Junior high school	89	34.8
	Senior high school	66	25.8
	Undergraduate	21	8.2
Total		256	100

The data for the Attitude Factor Variables, Objective Norm Factor, Perceived Behavioral Factor, Intention to Perform Behavior, and Stroke Awareness Behavior in detail can be seen in Table II. The results showed that the mean value of the attitude factor variable is 69.88 from a score range of 5–125, the mean value of the subjective norm factor variable is 72.01 from a score range of 5–125, the mean value of the behavioral factor variable is 71.46 from the score range 5–125, the mean value of the intention to perform behavior variable is 53.31 from the score range 10–70, and the last is the mean value. The stroke awareness behavior variable is 15.59 out of a score range of 10–20 (The higher the score obtained, the better the situation is).

Outer Model Evaluation

Measurement of indicators (outer model) is carried out using convergent validity, construct reliability, average variance extracted-AVE, discriminant validity, and model undimensionality. Convergent validity tests were conducted to measure the validity of the indicators as a measure of the latent variables in this study, which can be seen from the outer loading of each variable indicator. An indicator is said to have good reliability if the outer loading value for each indicator is > 0.70 , and if the loading value below 0.70 is removed from the model.

Table II: Data Variable Attitude Factor, Subjective Norm Factor, Perceived Behavioral Factor, Intention, and Stroke Awareness Behavior in Puskesmas Poncokusumo, Malang, Indonesia Year 2022 (n = 256).

Variable	Mean	Median	Mode	SD
Attitude Factor	69,88	60	60	20.79
Subjective Norm Factor	72,01	75	60	21.10
Perceived Behavioral Factor	71,46	60	60	22.71
Intention to Perform Behavior	53,31	53	53	14.26
Stroke Awareness Behavior	15,59	16	16	16.70

Construct Reliability measures the reliability of the latent variable construct. The value that is considered reliable must be above 0.70. Construct reliability is the same as Cronbach's alpha. Average Variance Extracted-AVE is used to determine the achievement of discriminant validity requirements. The minimum value to declare that reliability has been achieved is 0.50. Discriminant validity aims to test to what extent the latent construct is really different from other constructs. A high discriminant validity value indicates that a construct is unique and capable of explaining the phenomenon being measured. A construct is said to be valid by comparing the root value of the AVE with the correlation value between latent variables. The AVE root value must be greater than the correlation between latent variables. An undimensionality test is carried out to ensure that there are no problems in the measurement. The undimensionality test was carried out using composite reliability indicators and Cronbach's alpha. For these two indicators, the cut-value is 0.7.

Referring to Figure 1, it is recognised that each variable indicator has an outer loading value of > 0.7 , which means that all indicators are declared feasible or valid to predict each of the latent variables. They do not need to be eliminated from the model and can be used for further analysis. The results of the cross-loading calculation (discriminant validity) as in Table III indicate that all variables have the highest correlation within their own group compared to the correlations in other variables. Thus, the discriminant validity requirements in this study are met. Table IV shows that the composite reliability value for all variables in this study is > 0.70 and the AVE value for all variables is > 0.50 , which means that each variable has met composite reliability, so it can be concluded that all variables have a high

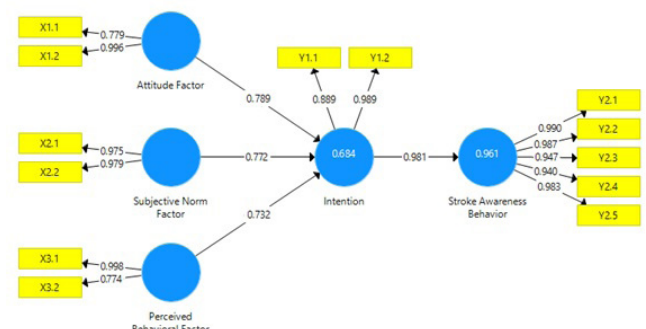


Figure 1: Outer Model

Table III: Cross Loading

Indicator	Attitude Factor	Subjective Factor	Norm	Perceived Factor	Behavioral	Intention	Stroke Awareness Behavior
	X1	X2		X3		Y1	Y2
X1.1	0.779	0.206		0.536		0.617	0.583
X1.2	0.996	0.175		0.507		0.598	0.675
X2.1	0.493	0.975		0.606		0.545	0.613
X2.2	0.461	0.979		0.175		0.575	0.599
X3.1	0.230	0.527		0.998		0.598	0.689
X3.2	0.529	0.545		0.774		0.639	0.427
Y1.1	0.648	0.539		0.690		0.889	0.671
Y1.2	0.509	0.497		0.366		0.989	0.657
Y2.1	0.467	0.273		0.407		0.669	0.990
Y2.2	0.545	0.393		0.145		0.321	0.987
Y2.3	0.448	0.230		0.148		0.307	0.947
Y2.4	0.409	0.129		0.109		0.206	0.940
Y2.5	0.555	0.665		0.543		0.243	0.983

Table IV: Reliability and Average Variance Extracted (AVE)

Variable	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
X1 <- Attitude Factor	0.769	0.868	0.688
X2 <- Subjective Norm Factor	0.719	0.872	0.773
X3 <- Perceived Behavioral Factor	0.859	0.898	0.639
Y1 <- Intention to Perform Behavior	0.857	0.904	0.704
Y2 <- Stroke Awareness Behavior	0.839	0.892	0.674

level of reliability.

Inner Model Evaluation

Referring to Figure 2, the R-square value for the intention variable (Y1) is 0.684, and the stroke awareness behavior (Y2) variable is 0.961. It can be interpreted that 68.4% of high or low intention (Y1) can be explained by three factors: attitude (X1), subjective norm factor (X2), and perceived behavioral factor (X3). Meanwhile, 96.1% of high or low stroke awareness behavior can be explained by the model used in this study (attitude factor, subjective norm factor, perceived behavioral factor, and intention to perform behavior), and the rest (3.9%) is explained by other variables outside this research model. The Q-Square value generated in the SEM analysis is 0.959. It indicates that the model used in this study is capable and relevant if it is applied in other settings or in other research locations. Its ability reaches 95.9%. The hypothesis testing demonstrates that all construct variables in the Theory of Planned Behavior can be powerful predictors of stroke awareness behavior. The results of the hypothesis testing in detail can be seen in Table V.

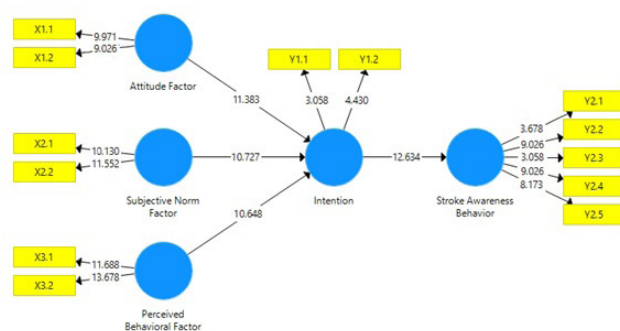


Figure 2: Inner Model

DISCUSSION

The discussion of the results of this study is divided into 5 parts, namely attitude factor, subjective norm factor, perceived behavioral factor, intention, and stroke awareness behavior.

Attitude Factor

The results showed that the Attitude Factor can be a strong construct to be a predictor of intention to perform

Table V: Path Coefficiencies – Bootstrap

Variable	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T-Statistics	P-Values
Attitude Factor -> Intention	0.719	0.734	0.165	11.383	0.009
Subjective Norm Factor -> Intention	0.906	0.904	0.160	10.727	0.012
Perceived Behavioral Factor -> Intention	0.954	0.933	0.188	10.648	0.014
Intention -> Stroke Awareness Behavior	0.480	0.489	0.125	12.634	0.007

stroke awareness behavior. The results of the outer model analysis also showed that strength belief and outcome evaluation are strong indicators in predicting attitude factors. The research findings proved that the construct of the Theory of Planned Behavior, namely the Attitude Factor, can explain the Intention variable well. The results of this study are in line with a study conducted on 680 respondents in Barcelona. The study revealed that belief-based attitudes are very effective in building compliance behavior (9). A meta-analysis of chronic disease treatment interventions concludes that interventions based on building attitudes and beliefs have a more positive impact on adherence behavior (10). Another study done in Rio de Janeiro about counselling during treatment shows that attitudes based on beliefs last longer than those based on recommendations (11).

The attitude that is formed through the indicator of belief (Strength Belief and Outcome Evaluation) is proven to be able to lead to a positive attitude regarding stroke awareness behavior. The central concept that determines attitudes is belief. It represents the knowledge that a person has of an object, where belief connects an object with several attributes (6). The Theory of Planned Behavior states that the attitude factor is built from strength beliefs and evaluation outcomes (6). Attitude is the number of positive feelings towards an object (favourable) or negative feelings towards an object (unfavourable). An attitude is defined as a psychological tendency that is expressed by evaluating an entity in terms of likes and dislikes. Attitude is perceived as something affective or evaluative. The central concept that determines attitudes is belief. According to a study, belief represents a person's knowledge of an object, where belief connects an object with several attributes. This relationship's strength is measured by a method that puts a person in a subjective probability dimension with objects that have similar qualities (6).

The results of the model evaluation in this study indicated that a person's attitude towards a behavior is based on one's belief in the consequences that will result if the behavior is carried out (outcome evaluation) and the strength of that belief (belief strength). Associated with attitudes, beliefs have different levels or strengths, which

are called belief strengths. This strength is different for each person, and the strength of belief is determined based on one's perception of the frequency with which an object has certain attributes. The authors argued that an attitude toward behavior can be well formed because a person has the belief that stroke awareness behavior is a must and must be done (strength belief), and also believes that by complying with this behavior, he/she can guarantee that he/she will avoid a stroke (evaluation outcomes).

Subjective Norm Factor

The results showed that the Subjective Norm Factor can be a strong construct to be a predictor of intention to perform stroke awareness behavior. The results of the analysis of the outer model in this study also show that normative belief and motivation to comply are strong indicators in predicting the subjective norm factor. The research findings prove that the construct of the Theory of Planned Behavior, namely the Subjective Norm Factor, can explain the Intention variable well. The results of another study conducted on 680 people in Barcelona confirmed that belief-based education (Normative belief and Motivation to Comply) is effective in building subjective norms that support compliance behavior (9). Similar studies on adherence concluded that interventions based on subjective, social, and psychological norms should be optimised to improve a person's compliance behavior (12). This may be accomplished by using social influence to educate family members on how to encourage compliance behavior itself. (13).

Another study on patient compliance conducted in South Africa confirmed that good social support was proven to increase adherence behavior (14). Subjective norms are a person's beliefs about the approval of others for an action or an individual's perception of whether or not other people will support the action. Subjective norms are the parties who are considered to play a role in a person's behavior and have expectations of the person and the extent to which the person desires to meet these expectations. So, in other words, subjective norms are the product of individual perceptions of the beliefs of others. That person is called a referent and can

be a parent, friend, or someone who is considered an expert or important person. There are two factors that influence subjective norms: normative belief; the first is the individual's belief that the referent thinks he should or should not perform a behavior; and the second is motivation to comply, which is the individual's motivation to meet the norms of the referent (6).

Perceived Behavioral Factor

The results showed that perceived behavioral factors can be strong constructs to be predictors of intention to perform stroke awareness behavior. The results of the outer model analysis also show that control belief and power belief are strong indicators in predicting perceived behavioral factors. The research findings prove that the construct of the Theory of Planned Behavior, namely the Perceived Behavioral Factor, can explain the Intention variable well. This research is supported by another study which states that education based on perceived behavior control can improve the adherence of chronic disease patients to completing treatment (9). The perceived behavior factor in this study is about the individual's perception of whether or not the individual is able to perform the behavior and is a reflection of previous experiences and obstacles that can be anticipated. The authors contend that when there is a person who he thinks has power over them, he will be seen as significant in determining whether particular behaviours will be carried out or not. Perception is determined by one's belief, which is also called control belief to control the factors that inhibit or encourage the emergence of a behavior (6).

Perceived behavior control is the perception of how easy or difficult it is for a behavior to be implemented. This variable is assumed to reflect past experience and anticipate possible obstacles. A perceived behavioral factor is a person's perception of the ease or difficulty of certain behaviors. There are two assumptions regarding perceived behavioral factors. First, perceived behavioral factors are assumed to have a motivational influence on intentions. People who believe that they do not have the opportunity to behave will not have strong intentions even if they have a positive attitude and are supported by referents (people around them) (6). Second, because it is a partial substitution of measurement for actual control (6), perceived behavioral factors have the potential to influence behavior directly without going through the intention.

In the same way that belief affects the first two factors, perception of behavioral factors (control belief) affects whether or not there are factors that limit or improve behavioral performance. Perceived behavioral factors can be formed from beliefs about factors that support and discard perceptions about factors that hinder displaying an expected behavior. These beliefs are also called control beliefs. In addition, the subject also has the belief that there are many things that support obedient

behavior by believing that the subject is able to bring up or identify as many things as possible that can support the subject to behave obediently. This is also called "power belief. The higher the subject's appreciation and belief of the supporting factors, the more the perceived behavior factor will move in a more positive direction.

Intention to Perform Behavior

The results showed that Intention to Perform Behavior can be a strong construct to be a predictor of Stroke Awareness Behavior. Furthermore, this study discovered that Attitude Factor, Subjective Norm Factor, and Perceived Behavioral Factor can be powerful predictors of Intention to Perform Behavior. The findings of this study prove that the construct of the Theory of Planned Behavior, namely Attitude Factor, Subjective Norm Factor, and Perceived Behavioral Factor can explain the Intention to Perform Behavior Variable, and the intention variable itself can explain the stroke awareness behavior variable well. According to prior research on the Theory of Planned Behavior's effect on intention and behavior, the intention and obedient behavior of a person in avoiding stroke may be described. Along with the patient's own personal orientation, it also affects how well they follow their treatment plan. To better comprehend a person's health goals and behavior, a cognitive education model mediated by the TPB construct has been shown to be successful (15). There is a fundamental belief approach to behavior that shapes intentions and motivates people to engage in certain behaviors. Attitudes, subjective norms, and perceived behavior control are the major components that shape intentions (6).

According to a research (6), intention is measured by a procedure that places the subject in a subjective probability dimension that involves a relationship between himself and the action. According to the Theory of Planned Behavior, intentions have 3 determinants, namely: attitude, subjective norms, and perceived behavioral control. Measurement of intention can be classified into measurement of belief. As with the measurement of belief, the measurement of intention consists of 2 things, namely the measurement of content and strength. As Ajzen (2005)(6) explained, intention (intention) is an indicator of how strong an individual's belief is in attempting behavior and how much effort to act Behavior is impacted by a person's desire, intentionality, or premeditation. In this case, the plan or wish can't be called behavior because it's just a plan or wish.

It is the desire of someone who plans to avoid a stroke to act in a certain way in order to do so. It is believed that a person's intention is great because of the strong individual's conviction to do the behavior, the degree of support from the closest people, and the person's view that the behavior can be done. On the other hand, a person's intentions may be poor if they

lack the confidence to undertake behavior, do not have support from those closest to them, or believe that the behavior will be impossible to carry through. We argue that intention is an indication of how strongly a person believes he or she will try a behavior and how much effort will be used to perform that behavior. Intention is a motivational factor that has an influence on behavior, so people can expect others to do something based on their intentions. In general, intention has a high correlation with behavior, so it can be used to predict behavior.

Stroke Awareness Behavior

The results showed that stroke awareness behavior can be explained well by the constructs of the Theory of Planned Behavior, namely Attitude Factor, Subjective Norm Factor, Perceived Behavioral Factor, and Intention to Perform Behavior. Outer model evaluation results show that the Stroke Awareness Behavior variable has several strong indicators, including healthy lifestyle, exercising regularly, limiting the consumption of cholesterol, not smoking, and maintaining an ideal body weight.

Researchers found that health promotion using behavioural counselling approaches grounded in the Theory of Planned Behavior was effective in increasing future display and settlement of the desired behavior (16). Another statement shows that the Theory of Planned Behavior is able to explain the compliance behavior of chronic disease patients well (17). Cerebrovascular disease, or stroke, has become the main cause of premature death in the last two decades (1). On a global scale, stroke is the second greatest cause of death and disability, whether it is the result of a first stroke or repeated episodes (2). The second stroke is considered to be more dangerous (18). Yet up to 80% of second strokes may be prevented with a combination of medication and healthy habits (7). Recurrence is 3–10% likely 30 days after the first assault, 5–14% likely 1 year after the initial attack, and 25–40% likely 5 years after the initial attack (8). The biggest problem in preventing stroke is the patient's own compliance. While showing obedient behavior requires strong and consistent intentions (3), In general, the stronger the intention to engage in a behavior, the more likely it is that the behavior will be carried out (19).

Behavioral counselling may help people stick to their good habits by focusing on their intentions. According to the Theory of Planned Behavior, a person's attitude toward behavior, subjective norms, and perceived behavioral control are all factors in the formation of an individual's intentions. (6). Another study said that the main constructs of the Theory of Planned Behavior (attitude, subjective norm, and perceived behavioral control) were able to explain more than 96% of the compliance behavior of chronic disease patients (19). We think that the Theory of Planned Behavior is a good way to predict how people will act when they are aware

of a stroke. Based on the findings, theoretical guidelines on stroke self-awareness arrangement, such as the factors used in the theory of planned behavior, can provide an understanding of the importance of awareness on stroke risk. Therefore, people are able to change their high-risk lifestyle to a healthy lifestyle. For further research, researchers are advised to conduct research on self-stroke awareness using a mixed method to dig deeper into the aspects that can affect self-stroke awareness behavior. The mixed method research is expected to be able to explore the elements of respondents' subjectivity regarding self-stroke awareness behavior. It is also recommended to conduct research on educational intervention designs based on the theory of planned behavior to increase someone's awareness of stroke. The limitation of the study is that the study only looks at how people who are at high risk for stroke act when they are aware of the risk by using the theory of planned behavior as predictors.

CONCLUSION

High or low intention in preventing a stroke can be explained by attitude factors, subjective norm factors, and perceived behavioral factors, while good or bad stroke awareness behavior can be explained by the model used in this study. The model used in this study is also capable and relevant if it is applied in other settings or in other research locations depending on other associated factors namely, genetic, environmental etc. The hypothesis testing results showed that all construct variables in the Theory of Planned Behavior can be strong predictors of stroke awareness behavior.

ACKNOWLEDGEMENTS

We acknowledge the facilities and support received from the Faculty of Nursing, Lincoln University College, Malaysia, and Institut Ilmu Kesehatan STRADA Indonesia.

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