

# Identification of Family Adaptive Behavior in The Dayak Tribe in An Effort to Prevent Stroke

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## ABSTRACT

The Dayak tribe inhabits a large part of West Kutai Regency, East Kalimantan Province. Hypertension is a major health problem in the West Kutai region. The family plays a role as a facilitator in reducing hypertension and preventing the risk of Stroke in family members. The purpose of this study was to identify the adaptive behavior of Dayak families in an effort to prevent Stroke. This research method is qualitative research with in-depth interviews and FGD (focus group discussion). FGDs were conducted on 7 participants with tingkat 1 and tingkat 2 hypertension patients and 3 people from traditional leaders/culturalists. This study obtained four main themes, namely 1) Understanding health problems, 2) Utilization of medicinal plants, 3) Disease control, 4) Driving factors in reducing Stroke risk. Suggestions for health workers to be able to improve educational methods and digital health promotion not only using print media.

**Key words:** The Dayak Tribe, Stroke, FGD, Family Adaptive Behavior.

## INTRODUCTION

Based on health workers' diagnosis, the prevalence of stroke in Indonesia is 12.1 per mil in the population aged 15 years and over. Further, the prevalence of stroke in rural areas based on health workers' diagnoses is 11.4 per mile.<sup>1</sup> Data from Basic Health Research in 2018 shows that the highest prevalence of Stroke (per mile) based on a doctor's diagnosis is in East Kalimantan Province of 14.7 per mile.

Burden of disease due to stroke increases substantially because recurrence rate remains high. The American National Stroke Association shows that the number of recurrent strokes one month after the first stroke attack ranges from 3-10%. After one year it increases to 5-14%, and after 5 years it becomes 25-40%.<sup>2</sup> In Indonesia, recurrence of stroke one year after the first stroke attack is around 19.9%. After five years it increases 24% in women and 42% in men for all age groups. The increase in the number of stroke patients and their long-term care is causing a significant economic burden on the health care system.

Stroke care and treatment requires direct and indirect costs. Health financing prepared by the government through BPJS Health Insurance will not be sufficient if non-communicable diseases such as stroke are not controlled. The number of National Health Insurance-Indonesian Health Card (JKN-KIS) participants has increased, otherwise BPJS Health Insurance has experienced a deficit in financing public treatment.

The Dayak tribe inhabits a large part of West Kutai Regency, East Kalimantan Province which consists of 19 sub-districts. Data on Noncommunicable Diseases (NCDs) in West Kutai Regency recorded that hypertension sufferers ranked at the first place

with 5,121 cases.<sup>3</sup> The number of hypertension sufferers in 2020 was 243 cases and in 2021 it increased to 451 cases.

A stroke is a life-threatening condition that happens when hypertension occurs together with lack of understanding and public awareness about prevention of stroke due to that hypertension. The results of a preliminary study that researchers conducted in the work area of the Sekolaq Darat Health Center, West Kutai Regency, through interviewing seven people, namely three people with hypertension level one, two with hypertension level two, and two stroke sufferers in January 2022, obtained information that cassava is the main food for most sufferers besides rice. This typical carbohydrate is consumed with vegetables obtained from concocting cassava leaves, jereng leaves, vinegar leaves, rumidang leaves. Meat consumption is obtained from hunting or raising animals.

Health office in West Kutai Regency, especially the Sekolaq Darat Health Center, has carried out a program to treat stroke risk factors through integrated development posts. In practice, this activity has not been maximized in increasing public awareness. This is because many people do not control their blood pressure regularly at the Integrated Development Post (Posbindu) or at the Public Health Center. People who have been diagnosed with hypertension do not feel the need to go for a check-up because they do not feel any symptoms of hypertension and consider themselves healthy. Based on these problems, it is necessary to take a different approach to increase awareness of healthy living in people with high risk of stroke. The appropriate approach is through their family (the family approach).

Kurniawati, *et al* (2020)<sup>4</sup> said that appropriate support is needed as the main support source, namely

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the family support. The family acts as a facilitator in preventing the risk of stroke in family members, ensuring that anti-hypertensive drugs are taken regularly and providing emotional support.<sup>4</sup> Families need to be optimally empowered in preventing and guiding family members to adapt to their health conditions, so high quality of life can be achieved. To reach that goal, family knowledge about stroke and skills in helping patients adapt must be improved. Family empowerment-based adaptation model intervention is a strategy to improve the adaptability and quality of life of post-stroke patients through family empowerment efforts.<sup>5</sup> Therefore, this study aims to identify the adaptive behavior of the Dayak family in an effort to prevent stroke.

## RESEARCH METHOD

This research was conducted in the area of West Kutai Regency. Based on data from the West Kutai Regency Health Office, it was recorded that hypertension sufferers ranked at the first place in East Kalimantan in 2021 with 5,121 cases. This research was conducted qualitatively with in-depth interviews and FGD (focus group discussion). Focus Group Discussion (FGD) is a data collection technique in qualitative research which is frequently used to find the meaning of a theme and gain an in-depth understanding of social issues.

The Focus Group Discussion (FGD) was conducted on seven participants, consisting of level one and level two hypertension sufferers as well as two people from traditional leaders/culturalists. The FGD was conducted once. The researchers organized in depth-interviews for participants who were not present during the FGD to obtain information related to hypertension prevention in patients with hypertension levels one and two. In-depth interviews were also conducted with two health workers holding Noncommunicable Diseases (NCDs) programs.

Equipment used during the study are stationary (books and pen), recorder, and digital camera. The research results were analyzed using NVivo 12 plus. This research has received research ethics approval from the Faculty of Public Health, Hasanuddin University with ethical number 9297/UN4.14.1/TP.01.02/2022.

## RESULTS

The results of the study identified the adaptive behavior of the Dayak family as an effort to prevent stroke, which can be seen in the table 1.

### Understanding health problems

**Prevention:** The results of the interviews showed that the informants understood and knew about the concept of stroke prevention, including: routinely checking blood pressure, managing diet, not smoking, drinking less coffee. Following are the excerpts related to these findings:

*“Stroke prevention can be done by checking blood pressure every month, managing food, reducing fatty and salty foods” (Informant)*

**Table 1: Theme matrix.**

Theme	Sub-Theme
Understanding Health Problems	Prevention
	Risk Habits
	Disease Distribution
Utilization of Medicinal Plants	Herbs Consumption
	Local Wisdom
Disease Control	Health Education and Promotion
	Family Support
Driving Factors in Reducing Stroke Risk	Utilization of Health Facilities
	Social Support

*“The way to prevent stroke is by reducing drinking coffee and smoking, reducing fatty and salty foods” (Culture Practitioners and Traditional Leaders)*

**Risky habits:** The results of the interviews revealed that the informants can understand habits which increase the risk of stroke. Those are the habit of consuming salty and fatty foods such as salted pork, not checking health condition regularly at the Public Health Center, consuming coffee in the morning as a substitute for having breakfast, smoking, drinking alcohol at every traditional event. The following are the excerpts related to these findings:

*“Here, we have a habit of consuming dried pork and then salted food like salted fish, then we rarely go to the health center for checking our health condition if we are not sick” (Informant)*

This excerpt is reinforced by statements from NCDs program holders at the Barong Tongkok Public Health Center and Sekolaq Darat Public Health Center, the following is the statement:

*“People here like to eat high-fat and salty foods, such as salted fish and beef jerky. In addition, they have high smoking habits and they usually do it along with drinking coffee. In fact, drinking coffee and smoking is used as a morning habit as a substitute for breakfast. They also rarely control their health at the health center if they are not already feeling sick (Barong Tongkok Public Health Center)*

*“Yes Sir, here the Dayak people really like to eat salted pork. This dish is usually used as the main menu for several days. Sometimes the processed salted pork is burned, made into chili sauce, or so on” (Sekolaq Darat Public Health Center)*

Furthermore, traditional leaders also conveyed that the Dayak people often consume alcohol at traditional events

*“...When there is a traditional event, we usually drink alcohol, sir” (Culture Practitioners and Traditional Leader)*

**Disease distribution:** In relation to disease distribution, the results of the interviews showed that the informants acknowledged and recognized health conditions in their area. The most common health problems in the Kutai area are hypertension, stroke, gout, cholesterol, diabetes mellitus (DM). The following are excerpts related to these findings:

*“In my opinion, many people here suffer from high blood pressure; some have strokes, high cholesterol, and gout” (Informant).*

*“Here, there are many people endure strokes, diabetes mellitus (DM), high blood pressure too, Sir” (Cultural Practitioner and Traditional Leaders).*

NCDs program holders from the Barong Tongkok Public Health Center and Sekolaq Darat Public Health Center also stated the same opinion, the exact statement is shown as follows:

*“Here the highest NCDs cases are hypertension, maybe because of their habit of liking salty food. Then the second case is high cholesterol, DM and stroke respectively” (Barong Tongkok Public Health Center and Sekolaq Darat Public Health Center).*

### Utilization of medicinal plants

**Herbs consumption:** From the interviews, the researchers got the insight that the Dayak people took preventive measures of stroke by consuming herbal medicines from plants such as bay leaves, red ginger, *sembung* leaves, celery leaves, *bajaka* roots, and Dayak onions. The following are excerpts related to these findings:

*“I usually consume boiled water from bay leaves or *sembung* leaves. Sometimes I also drink red ginger, *bajaka* root water, and Dayak onions” (Informant).*

"We here tend to take indigenous herbal drink of the Dayak tribe such as Dayak onions, bajaka root water collected from the forest" (Cultural Practitioners and Traditional Leaders).

"People like to consume herbal medicines such as Dayak onions, water from Bajaka root, decoction of the leaves (salam, sembung etc.)" (Barong Tongkok Public Health Center and Sekolaq Darat Public Health Center).

**Local wisdom:** The results of the interviews revealed that the Dayak people had local wisdom as their effort to maintain their health, namely the use of herbal plants by drinking boiled water from the leaves such as bay leaves. In addition, they use to take a walk when they are going to the garden. The following are excerpts related to these findings:

"Yes, we take herbal medicine. We boiled bay leaves and then we drink the water. We do it the same thing to red ginger and Dayak onions. However, for bajaka root water, we usually drink it directly. We collect water from bajaka roots in the forest. We usually practice sport by taking a walk to the forest or to the garden." (Informant, Cultural Practitioners, and Traditional Leaders).

### Disease control

**Health education and promotion:** From the interviews, the researchers interpreted the result and found that the efforts carried out for stroke control are education and health promotion. The following are excerpts related to these findings:

"The public health center has provided directions or counseling to the community and remind people to check health condition consistently at Integrated Development Post (Posbindu) every month" (Informant, Cultural Practitioners, and Traditional Leaders).

"We usually conduct direct education to patients, families, and the community, distributing leaflets and educational materials related to diet, eating less salty food, cassava shoots accompanied by salted fish" (Barong Tongkok Public Health Center and Sekolaq Darat Public Health Center).

### Driving factors in reducing stroke risk

**Family support:** From the interview session, the researchers concluded that the first driving factor in reducing the risk of stroke is family support. One of Dayak people's behavior is very supportive when their family member gets sick. The following are excerpts related to these findings:

"Families like to remind them to eat less fatty meat including pork, remind them to take regular medicine and have regular check of their health condition at the health center." (Informant, Cultural Practitioners, and Traditional Leaders).

"Here, if someone gets sick, his or her family usually really cares. They will accompany him or her to check his or her health to the health center. So if we want to give education, we also have to give the education directly to the family. Further, the family will help to remind them to take medicine and encourage patients to be enthusiastic to recover." (Barong Tongkok Public Health Center and Sekolaq Darat Public Health Center).

**Utilization of health facilities:** The interview results showed that the second driving factor in reducing the risk of stroke is utilizing health facilities for health control. The following are excerpts related to these findings:

"We go to the health center if we have some symptoms such as dizziness, or feeling high blood pressure with pain in the head" (Informant, Cultural Practitioners, and Traditional Leaders).

"People usually will go to the health center, if they have complaints; otherwise, it is rare situation where people go to public health center

without any complaints. We like to give directions and guidance to come regularly to the Integrated Development Post (Posbindu) if they cannot reach public health center to check their health condition. Even though there are not many of them, there are some people who regularly come to the Integrated Development Post (Posbindu) to check their blood pressure" (Barong Tongkok Public Health Center and Sekolaq Darat Public Health Center).

**Social support:** According to the interview session, the last driving factor in reducing the risk of stroke is social support. The Dayak people have a high sense of caring for others, both neighbors and relatives. The following are excerpts related to these findings:

"Suggesting our neighbors/relatives to check their health if there are complaints, inviting them to come to Integrated Guidance Post (Posbindu) regularly. Give encouragement to people who suffer from hypertension or stroke so that they are eager to recover. We sometimes like to remind them to watch their diet, forbid them from eating salty and fatty foods" (Informant, Cultural Practitioners, and Traditional Leader).

## DISCUSSION

This study aims to identify the adaptive behavior of the Dayak family in an attempt to prevent stroke. Based on the results of the study, four major themes were identified, namely understanding health problems, utilization medicinal plants, disease control, and driving factors in reducing stroke risk.

### Understanding health problems

It is important that families with hypertension patient understand clearly related to stroke prevention, risky behavior and health problems. Families have an important role in preventing stroke risk behavior through lifestyle modifications.

The results of this study indicate that although families with hypertension patient understand health problems, the Dayak people still practice stroke-risk habits. These habits include consuming alcohol during traditional events, not regularly checking their health condition at the public health center, often consuming salted pork, drinking coffee in the morning as a substitute for breakfast, often consuming salted fish, and smoking habits. Therefore, many Dayak people suffer from hypertension, stroke and diabetes mellitus (DM).

Understanding in preventing stroke must be followed by appropriate behavior. Theory of HBM (Health Belief Model) stated that to change public health behavior, it is necessary firstly to change the perceptions which exist in society.<sup>6</sup> There are 6 perceptions in the theory, namely perceived susceptibility, perceived severity, perceived benefits, perceived barriers, perceived cues to action and perceived self-efficacy.<sup>7</sup>

The important perceptions to know are the perceptions of benefits and barriers. The perceived benefits that a person feels by doing a healthy lifestyle refer to a person's judgment about the value involved in behavior to reduce the risk of a disease.<sup>8</sup> Further, based on Azadi, et al (2021)<sup>6</sup> research, perceived barriers means that the barriers a person feels in obtaining health can reduce that person's adherence to prevent his or her disease. If these two perceptions are not changed, it will lead to unhealthy behavior for hypertension people. Individuals who feel vulnerable to their disease they are suffering from will take an action and the action taken depends on the benefits and ease of carrying out the action.<sup>7</sup>

### Utilization medical plants

Indonesia is a country which has many nutritious plants and they are used to treat various diseases. Until now, many studies have been conducted to see local plants used as antihypertensive drugs.<sup>9</sup> The

results of this study indicate that the Dayak people have local wisdom and habits to use plants as herbal medicines to prevent high blood pressure. This has been carried out to reduce the risk of stroke. Herbal medicinal plants commonly used by the Dayak tribe are bay leaves, red ginger, *sembung*, celery leaves, *bajaka* roots, and Dayak onions.

Bay leaves, *Bajakah* root water, *sembung*, and Dayak onions contain high levels of flavonoid compounds which are efficacious as antihypertensives and can reduce System Vascular Resistance (SVR).<sup>10-13</sup> *Sembung* leaves also contain ingredients to cure headaches.<sup>13</sup> For red ginger, apart from containing flavonoid compounds, it also contains oleoresin compounds which can improve blood vessel circulation and can ease the work of the heart.<sup>14</sup> Celery leaves contain 3-nbutylphthalide or phthalides which play a role in relaxing the smooth muscles of blood vessels.<sup>15</sup>

Research by Azzahra *et al.*,<sup>16</sup> showed that the leaves were the part of the medicinal plant which most often used by the Dayak tribe.<sup>16</sup> The processing method used for consuming medicinal plants by the Dayak tribe is by boiling the plant and then drinking the boiled water. This process is the most widely used method because it is easy and economical. Ingredients processing by repeated boiling will reduce the benefits produced by that herbal medicine.<sup>17</sup>

### Disease control

The control of hypertension and stroke which has been carried out by Dayak health workers is education and health promotion. The health workers provide direct information to patients, give counseling to the public and distribute leaflets. Education can improve people's knowledge.<sup>18</sup> Health education and promotion can be carried out using the media of leaflets, videos, lecture methods.<sup>19</sup>

Health education and promotion carried out by health workers at the Dayak Health Center only use leaflet media or printed media. Digital media such as mobile applications or utilizing social media have not been used whereas health promotion through social media or digital media is effective in increasing public understanding of disease prevention. Research conducted by Li & Liu (2020)<sup>20</sup> shows that social media is an effective tool in promoting disease prevention behavior among the public.

Health education and promotion in disease control is very important to increase self-awareness for early detection.<sup>21</sup> People who are at risk to get stroke will realize the importance of early detection as a form of basic protection to prevent stroke. The more frequently and easily health education is given, the better the understanding of individuals to prevent disease.<sup>18</sup>

### Driving factors in reducing stroke risk

The driving factors in reducing the risk of stroke are family support, utilization of health facilities, and social support. The results of this current study revealed that Dayak families whose family members suffer from hypertension show positive behavior. They fully support sufferers to always check their health condition, remind them to take medicine, accompany them to check their health, and remind them to reduce consumption of foods which trigger high blood pressure.

Active family support and social support from neighbors and relatives are needed in motivating people with hypertension to control their blood pressure. Families have high emotional bonds and intense family interactions carried out at home play a role in preventing stroke.<sup>22</sup> Research by Sari *et al.*, (2019)<sup>23</sup> stated that social support from family and other people has a major influence on a person's decision making to improve his health.

The Dayak tribe utilizes health service facilities by routinely controlling their health through Integrated Guidance Post (*Posbindu*). This is

carried out after they feel the hypertension symptoms such as dizziness and headaches. Someone uses health services usually because they feel sick and need medication.<sup>6</sup> This is in line with HBM theory mainly in the perception of benefits, where a person will take an action because they perceive benefits; in this case, they are visiting a health service when they feel sick to get medicine.<sup>7</sup> However, it is not in accordance with an understanding (motto), which is stated that it is better to prevent a disease rather than to try to find cures for diseases after they occur. Therefore, it is important to have family and social support in motivating people to improve the individuals perception who are at risk to diligently check their health.<sup>24,25</sup>

## CONCLUSION

Families with hypertension sufferers in the Dayak tribe have adaptive behavior in an attempt to prevent stroke. This is applied with local wisdom in utilizing medicinal plants. The Dayak people use medicinal plants as a form of independence in their attempt to prevent health problems. Stroke disease control has been carried out by providing health education and managing the promotion, while the methods used are giving direct information, counseling and distributing leaflets. The role of the family is very important in motivating sufferers to carry out routine health checks. Families in the Dayak tribe have done this; however, this was carried out after hypertension was diagnosed.

## SUGGESTIONS

Researchers suggest for families whose family members are at risk of hypertension to always provide motivation and pay attention to their lifestyle. For health workers, it is suggested to improve health education and promotion methods. They can use digital media so that they do not only use print media.

## CONFLICTS OF INTEREST

The author declares no conflicts of interest among all authors.

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