The Influence Risk Factors of Hypertension at the Community Coverage with the 35-54 years old: A mini study in the Meuraxa Health Community Center, Banda Aceh, Indonesia

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Abstract
Through a preliminary study, data obtained that the number of hypertensive patients at the Meuraxa Health Center in Banda Aceh City for 2 (two) years in hypertensive patients in 2014 there were 542 visits and in 2015 there were 787 visits and ranked 1 (first) out of twenty one distributions. disease at the Meuraxa Health Center Banda Aceh. And at the beginning of 2016, January, February and March it was found that the number of visits increased to 249 visits. This study uses an analytical method, using a "cross sectional" method. The population in this study is all people aged 35-54 years who are also at risk of hypertension, amounting to The purpose of this study was to find out what factors were associated with the incidence of hypertension at the age of 35 - 54 years in the working area of the Meuraxa Health Center in Banda Aceh City in 2016. The results showed that there was a relationship between family history and the incidence of hypertension at the age of 35 - 54, years in the working area of the Meuraxa Health Center in 2016. (p-value = 0.010 ≤ 0.05), there is a relationship between smoking habits and the incidence of hypertension at the age of 35 - 54 years in the working area of the Meuraxa Health Center in 2016 (p-Value = 0.022 ≤ 0.05). There is a relationship between activity and the incidence of hypertension at the age of 35 - 54 years in the working area of the Meuraxa Health Center in 2016. (p- Value = 0.001 ≤ 0.05). For the Meuraxa Health Center to provide information to the surrounding community about the factors that can cause hypertension and provide counseling about negative impacts and how to prevent them.

Keywords: Hypertension, Age, Smoking, Physical Activity

1. Introduction
Hypertension is a non-communicable disease which is one of the important health problems in Indonesia, worldwide due to its high and increasing prevalence. Hypertension causes 9.4 million deaths every year. Hypertension is responsible for about 45% of deaths from ischemic heart disease and 51% due to stroke. In 2008, 40% worldwide of adults aged over 25 had been diagnosed with hypertension (WHO, 2013).

Based on the 2013 WHO report, South Africa actually has the highest hypertension rate in the world, which is 78% in adults over 50 years of age. Only 1 in 10 people with hypertension receive proper treatment for their hypertension. The research team formed by WHO named SAGE or (Strategic Advisory Group of Experts) found the prevalence of hypertension in almost 72% of adults in Russia. Lower prevalence rates are found in several countries such as 58% in Mexico, 57% in Ghana, 53% in China, and
32% in India (Masyudi, 2018).

The World Health Organization (WHO) noted that in 2012 there were at least 839 million cases of hypertension, it is estimated that in 2025 around 29% of the world's total population, where sufferers are more in women than men. About 80% of the increase in hypertension cases occurs mainly in countries develop. The prevalence of hypertension has decreased from 27% to 32% in 2013. But on the other hand, there is an increase in developing countries such as Africa and Southeast Asia, the National Health and Nutrition Examination Survey (NHANES) shows the prevalence of hypertension is 31% in America. Union. Then a survey conducted in Taiwan reported that 34% of adults have hypertension (Rafsanjani et al, 2019; World Health Organization, 2013).

The epidemiological transition of hypertension is associated with the urban lifestyle that is associated with the risk of hypertension such as stress, obesity (overweight), lack of exercise, smoking, alcohol, and eating foods high in fat content. Lifestyle changes such as changes in diet that switch to ready-to-eat dishes that contain lots of fat, protein, and high salt but low in dietary fiber, have consequences as one of the factors for the development of degenerative diseases such as hypertension (Sugiharto, 2007). In Indonesia, there is a change in diet, which leads to fast food and preserved foods, which are high in salt, saturated fat, and low in fiber, starting to spread, especially in big cities in Indonesia (Hermawan, 2016 and Arni, 2015).

Hypertension is a unit of disease caused by various risk factors, namely genetics, age, ethnicity, urban/rural, geographic, gender, diet, obesity, stress, lifestyle, and use of hormonal contraceptives. The term disease unit means that the two events are basically the same because hypertension is an increase from more severe and dangerous hypertension (WHO, 2013 in Aripin, 2015). Hypertension is still a big challenge in Indonesia. Effective drugs are widely available, but the number of sufferers continues to increase. Whereas hypertension is a major factor in brain, kidney and heart damage if not detected early. Data from the Indonesian Hypertension Doctors Association stated that the death rate in Indonesia reached 56 million people from 2000-2013. It is known that the highest mortality factor is hypertension, causing death in about 7 million Indonesians (Masyudi, 2018; Kiki, 2013).

The results of the 2013 Basic Health Research (Riskesdas) show that most cases of hypertension in the community have not been diagnosed. This can be seen from the results of measuring blood pressure at the age of 18 years and over, it was found that the prevalence of hypertension in Indonesia was 31.7%, where only 7.2% of the population already knew they had hypertension and only 0.4% of cases took hypertension medication. This shows that 76% of hypertension cases in the community have not been diagnosed or 76% of the community do not know that they suffer from hypertension. Hypertension has become a public health problem and will become a bigger problem if it is not addressed early on (Hermawan, 2016; Merlisa, 2013).

The prevalence of hypertension based on the results of blood pressure measurements is 30.2%, which is based on a diagnosis by a health worker 10.1%. Based on a diagnosis by a health worker or symptoms, the prevalence of hypertension in Aceh is 16.6 per 1000 population.‰ and Nagan Raya has a higher prevalence than other regions, both based on diagnosis and symptoms (Provincial Health Office Aceh, 2017).

-49.0ranks fourth in the disease suffered by the people of Aceh with the number of cases around 3,474 cases and the incidence of hypertension in the world and in Indonesia is quite high. Data taken by researchers from the Banda Aceh City Health Office in 2013 showed the incidence of hypertension in all health centers in Banda Aceh was very high reaching 9040 cases in 2014 (Ferdiyus, 2018; Banda Aceh Health Office, 2015)

According to the National Basic Health Survey In 2013, the prevalence of hypertension in Indonesia in the age group 15-24 years was 8.7%, in the age group 25-34
years was 14.7%, 35-44 years was 24.8%, 45-54 years was 35.6%, 55-64 years 45.9%, 65-74 years 57.6%, and over 75 years are 63.8%. With such a high prevalence, the unnoticed hypertension may be even higher. This is because hypertension and complications are much less in number than asymptomatic hypertension. Based on the 2007 Basic Health Research, the prevalence of prehypertension in Indonesia young adults (18-29 years) is 48.4% (Wahyuningsih and Astuti, 2016; Marieska, 2014).

Through a preliminary study, data was obtained that the number of hypertensive patients at the Meuraxa Health Center in Banda Aceh City for two years in hypertensive patients in 2014 there were 542 visits and in 2015 there were 787 visits and ranked first out of twenty-one disease distributions at the Meuraxa Health Center Banda Aceh. (Medical Record of Meuraxa Health Center, 2015). And at the beginning of 2016, January, February and March it was found that the number of visits increased to 249 visits. In addition, the number of visits by hypertension patients at the Meuraxa Health Center in Banda Aceh City, based on information from secondary data, explained that the proportion of hypertension sufferers aged 35-54 years compared to the previous year showed an increasing number of visits. The author feels the need to conduct research on factors related to the incidence of hypertension at the age of 35-54 years at the Meuraxa Health Center Banda Aceh City in 2016.

2. Method

This research was conducted with design, using a cross-sectional is a study where measurements or observations are carried out at the same time on the data of the independent and dependent variables at one time. The population in this study were all people aged 35-54 years who were also at risk of hypertension, amounting to 69 people and residing in the working area of the Meuraxa Health Center, Banda Aceh City in 2016. This research was carried out for 10 days from November 2 to 10 in the region. Meuraxa Health Center in Banda Aceh City in 2016.

Primary data is data obtained through distributing questionnaires to respondents based on questionnaires adopted from previous studies that have been tested validity and reliability. Secondary research data was obtained from reports and official documents from the Meuraxa Health Center in Banda Aceh City in 2016. Univariate analysis was carried out on each variable from the research results and presented a frequency distribution table using the SPSS 17 program for windows evaluation version. Bivariate analysis was carried out by testing two variables between the independent and dependent variables. The researcher used analysis, namely the Chi-Square Test (X2).

3. Results and Discussions

Geographically, the Meuraxa Health Center is located in Lambung Village, Meuraxa District, Banda Aceh City, which is approximately 5 km from the city center and approximately 500 meters from Ulee Lheu Market.

Univariate Analysis
1. Family History of Hypertension

<table>
<thead>
<tr>
<th>No.</th>
<th>Family History</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Hypertension (+)</td>
<td>35</td>
<td>50.7</td>
</tr>
<tr>
<td>2.</td>
<td>Hypertension (-)</td>
<td>34</td>
<td>49.3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>69</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Primary data (processed in 2016)
Table 1 shows that of the 69 respondents most of the respondents 35 people (50.7%) had a family history of hypertension.

2. Smoking Habits of Respondents

**Table 2. Frequency Distribution of Respondents Based on Smoking Habits**

<table>
<thead>
<tr>
<th>No.</th>
<th>Smoking habit</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Active Smoker</td>
<td>41</td>
<td>59.4</td>
</tr>
<tr>
<td>2.</td>
<td>Non-Smoker</td>
<td>28</td>
<td>40.6</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>69</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Primary data (processed in 2016)

Table 2 shows that the number of respondents who have a smoking habit is 41 people (59.4%) and respondents who do not have habit smoking.

3. Thick Physical Activity

**Table 3. Frequency Distribution of Respondents Based on Physical Activity**

<table>
<thead>
<tr>
<th>No.</th>
<th>Physical activity</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Enough</td>
<td>26</td>
<td>37.7</td>
</tr>
<tr>
<td>2.</td>
<td>Not Enough</td>
<td>43</td>
<td>62.3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>69</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Primary data (processed in 2016)

Table 3 shows that the number of respondents who have sufficient activity is 26 people (37.7%) and 43 people (62.3%).

**Table 4. Frequency Distribution of Respondents Based on Hypertension Incidence**

<table>
<thead>
<tr>
<th>No.</th>
<th>Hypertension</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Yes</td>
<td>42</td>
<td>60.9</td>
</tr>
<tr>
<td>2.</td>
<td>No</td>
<td>27</td>
<td>39.1</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>69</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Primary data (processed in 2016)

Table 4 shows that the number of respondents who have hypertension is 42 people (60.9%) and respondents 27 people (39.1%) did not have hypertension.
Bivariate Analysis

Table 5. Relationship and the Amount of Risk History
Family Hypertension Incidence

<table>
<thead>
<tr>
<th>History Family</th>
<th>Blood Pressure</th>
<th>Total</th>
<th>OR (95% CI)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hypertension</td>
<td>Non Hypertension</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Hypertension</td>
<td>27</td>
<td>77.1</td>
<td>8</td>
<td>22.9</td>
</tr>
<tr>
<td>No Hypertension</td>
<td>15</td>
<td>44.1</td>
<td>19</td>
<td>55.9</td>
</tr>
<tr>
<td>Total</td>
<td>42</td>
<td>60.9</td>
<td>27</td>
<td>39.1</td>
</tr>
</tbody>
</table>

Source: Primary data (processed in 2016)

Table 5 shows that of the 35 respondents who have a family history, 77.1% suffer from hypertension, while of the 34 respondents who do not have a history of hypertension. The family turned out to be 44.1% who had hypertension. The results of statistical tests obtained p value = 0.010, it can be concluded that there is a difference in the proportion of hypertension incidence between families with a history of hypertension and families without a history of hypertension (there is a significant relationship between family history and the incidence of hypertension). From the results of the analysis, the OR value = 4.275, meaning that families who have a history of hypertension have a 4.275 times chance of developing hypertension compared to families who do not have a history of hypertension.

Table 6. The Relationship and the Amount of Risk Between Smoking Habits
and Hypertension Incidence

<table>
<thead>
<tr>
<th>Habits Smoking</th>
<th>Blood Pressure</th>
<th>Total</th>
<th>OR (95% CI)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hypertension</td>
<td>Non Hypertension</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Smokers Active</td>
<td>30</td>
<td>73.2</td>
<td>11</td>
<td>26.8</td>
</tr>
<tr>
<td>Non-Smoker</td>
<td>12</td>
<td>42.9</td>
<td>16</td>
<td>57.2</td>
</tr>
<tr>
<td>Total</td>
<td>42</td>
<td>60.9</td>
<td>27</td>
<td>39.1</td>
</tr>
</tbody>
</table>

Source: Primary data (processed in 2016)

Table 6 shows that of 41 respondents who have an active smoking habit, 73.2% suffer from hypertension, while out of 28 respondents who are not active smokers turned out to be 42.9% who had hypertension. The results of statistical tests obtained p value = 0.022; hence, it can be concluded that there is a difference in the proportion of the incidence of hypertension between active smokers and non-smokers (there is a significant relationship between smoking habits and the incidence of hypertension). From the results of the analysis, the OR value = 3.363, meaning that active smokers have a
3.363 times chance of developing hypertension compared to respondents who are not smokers.

Table 7. Relationship and the Amount of Risk between Physical activity and Hypertension Incidence

<table>
<thead>
<tr>
<th>Activity Physical</th>
<th>Blood Pressure</th>
<th>Total</th>
<th>@</th>
<th>OR (95% CI)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hypertension</td>
<td>Non</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Enough</td>
<td>9</td>
<td>34.6</td>
<td>17</td>
<td>65.4</td>
<td>26</td>
</tr>
<tr>
<td>Not Enough</td>
<td>33</td>
<td>76.7</td>
<td>10</td>
<td>23.3</td>
<td>43</td>
</tr>
<tr>
<td>Total</td>
<td>42</td>
<td>60.9</td>
<td>27</td>
<td>39.1</td>
<td>69</td>
</tr>
</tbody>
</table>

*Source: Primary data (processed in 2016)*

Table 7 shows that of the 26 respondents who have activity, 34.6% suffer from hypertension, while out of 43 respondents have activity is not enough, it turns out that 76.6% have hypertension.

The results of statistical tests obtained p value = 0.001; thus, it can be concluded that there is a difference in the proportion of hypertension events between activity and insufficient activity (there is a significant relationship between physical activity and the incidence of hypertension).

**Discussion**

The Relationship and the Magnitude of Risk between Family History and Hypertension Incidence

Based on the results of the study, from 35 respondents who had a family history, it turned out that 77.1% had hypertension, while from 34 respondents who had a family history, 44.1% had hypertension. Based on the results of statistical tests obtained p value = 0.010, it can be concluded that the incidence of hypertension is between families with a history of hypertension and families without a history of hypertension (there is a significant relationship between family history and the incidence of hypertension). From the results of the analysis, the OR value = 4.275, meaning that families who have a history of hypertension have a 4.275 times chance of developing hypertension compared to families who do not have a history of hypertension.

Genetic factors clearly play a role in determining blood pressure, as evidenced by studies comparing monozygotic and dizygotic twins and by studies examining the spread of hypertension in families. Hypertension is a condition that is hereditary in a family. Children with hypertensive parents are twice as likely to suffer from hypertension than children with parents whose blood pressure is normal (Legi, 2014; Pradono, 2014; Ika, 2013).

Research conducted by Pande using a cross-sectional prevalence study design to determine the prevalence and risk factors for hypertension in the people of Sidemen Village, Sidemen District, Karangasem for the period June-July 2014. The results of this study indicate that the incidence of hypertension occurs in most people who do not have a history of hypertension. hypertension family. From the results of statistical tests, obtained a positive relationship between family history of
hypertension and the incidence of hypertension ($r = 0.051$), but not statistically significant, with $p$ value $= 0.540$. The majority of family history of the incidence of hypertension has a relationship with the incidence of hypertension which is due to being inherited by 77.1% from previous parents, besides that it also appears from the lifestyle that those who are currently at risk of hypertension for the next generation (Bardja, 2017; Rahmadhani, 2021).

**The Relationship and the Amount of Risk Between Smoking Habits With Hypertension Incidence**

Based on the results of the study, from 41 respondents who had an active smoking habit, 73.2% suffered from hypertension, while from 28 respondents who were not active smokers, it turned out that 42.9% had hypertension.

The results of statistical tests obtained $p$ value $= 0.022$, so it can be concluded that there is a difference in the proportion of the incidence of hypertension between active smokers and non-smokers (there is a significant relationship between smoking habits and the incidence of hypertension). From the results of the analysis, the OR value $= 3.363$, meaning that active smokers have a 3.363 times chance of developing hypertension compared to respondents who are not smokers.

Smoking can cause nicotine to be absorbed by small blood vessels in the lungs and then circulated to the brain. In the brain, nicotine will signal the adrenal glands to release epinephrine or adrenaline which will constrict blood vessels and force the heart to work harder due to higher blood pressure. Tobacco has a considerable effect in increasing blood pressure because it can cause constriction of blood vessels. The chemical content in tobacco can also damage the walls of blood vessels. The carbon monoxide in cigarette smoke will replace the oxygen bonds in the blood. This results in increased blood pressure because the heart is forced to pump to incorporate sufficient oxygen into other organs and body tissues (Laili and Restyana, 2018; Mayasari et al., 2019).

In patients who were treated at the adult polyclinic of Bangkinang Health Center in 2011 showed that based on data analysis using the Spearman's rho, the direction of the correlation was unidirectional, the greater the smoking habit, the greater the incidence of hypertension with moderate correlation strength, there was a statistically significant relationship between smoking habits with the incidence of hypertension ($p: 0.00$) (Mayasari et al., 2019; Pratiwi & Perwitasari, 2017; Yonata & Pratama, 2016)

Smoking causes an increase in blood pressure. Besides that, based on research that has been done by researchers, it was found that around 73.2% of respondents who have a smoking habit experience hypertension (Aisyah & Widarti, 2011; Anggara & Prayitno, 2013).

**Relationship and the Amount of Risk between Physical Activity and Hypertension Incidence**

Of the 26 respondents who have activity, 34.6% suffer from hypertension, while from 43 respondents who have activity insufficient physical

The results of statistical tests obtained $p$ value $= 0.001$ so it can be concluded that there is a difference in the proportion of hypertension events between activity and insufficient activity (there is a significant relationship between physical activity and the incidence of hypertension). Physical activity greatly affects the stability of blood pressure. People who are not physically active tend to have a higher heart rate. This causes the heart muscle to work harder with each contraction.
The harder the heart muscle works in pumping blood, the greater the pressure placed on the artery walls, thereby increasing peripheral resistance, which causes an increase in blood pressure. Lack of activity also increases the risk of being overweight, which will cause the risk of hypertension to increase (Laili & Restyana, 2018).

This study is in line with research conducted by Rustiana (2014) which shows that there is a relationship between physical activity and the risk of suffering from hypertension (Rustiana, 2014). For those who do not do physical activity, the risk is 2.899 times higher than those who do physical activity. Based on this study, the researchers assumed that activity for people with hypertension with insufficient physical activity based on the research that researchers had done found 76.7% of respondents who would worsen the patient's condition (Mulyana et al., 2019).

4. Conclusions

There is a close relationship between family history and the incidence of hypertension, there is a clear relationship between smoking habits and the incidence of hypertension and there is a relationship between activity and the incidence of hypertension at the age of 35-54 years in respondents in the working area of the Meuraxa Health Center, Banda Aceh City. These three factors are the cause of the increasing incidence of hypertension in Banda Aceh and Aceh Province.

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