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Key Factors Influencing Behavioral Changes in Hypertensive Clients at the Integrated Development Post for Non-Communicable Diseases

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ABSTRACT

The rising prevalence of hypertension in South Nias Regency, particularly within the UPTD working area of Lolowau Health Center, has become a critical public health concern. POSBINDU (Integrated Development Post for Non-Communicable Diseases) services are underutilized, despite being vital for early detection and management of hypertension. This study aims to identify the key factors influencing behavioral changes in hypertensive clients attending POSBINDU within this region. A cross-sectional quantitative research design was employed, gathering data from 45 hypertensive clients registered at the Lolowau Health Center. Data were collected through structured questionnaires and analyzed using multiple linear regression and chi-square tests to determine significant relationships between variables such as knowledge, attitude, employment status, family support, and health worker information. The results revealed that knowledge (p = 0.014), attitude (p = 0.033), employment status (p = 0.011), family support (p = 0.003), community leader support (p = 0.023), and health worker information (p = 0.009) were significantly associated with behavior changes among hypertensive clients. Notably, family support emerged as the most influential factor in promoting positive behavior change, with an Exp B value of 12.346. These findings underscore the importance of enhancing family involvement, improving health worker communication, and fostering community leadership to increase the engagement of hypertensive clients with POSBINDU services. Strengthening these factors can lead to more effective hypertension management and improved health outcomes within the community.

Keywords**:** *Hypertension, Behavioral Change, Family Support, Health Worker Information, Non-Communicable Diseases*

INTRODUCTION

Non-communicable disease (PTM) is a chronic disease that is not transmitted from person to person. PTM is almost 70% of the causes of death in the world. PTM among them are heart disease, stroke, cancer, diabetes, and chronic obstructive pulmonary disease (COPD). PTM shows a tendency to increase over time. According to the results of basic health research (Riskesdas) in 2007 and 2013, there is a tendency to increase the prevalence of PTM such as diabetes, hypertension, stoke, and joint disease/rheumatism/gout. This Fetomena is predicted to continue (Ministry of health, 2018). Hypertension in 2015, 28% of the population in low-income countries had high blood pressure and 18% of the population in high-income megara countries. There has

been an increase in the number of people with hypertension in adults from 594 million in 1975, to 11 billion in 2015, with a large increase involved in low-and middle-income countries

The prevalence of hypertension based on measurements in the 2018 Basic Health Research was 34.1%, higher than the 2013 basic health research which was 25.8% and relatively no different from the 2007 basic health research with a figure of 31.7% (RI, 2006). While in North Sumatra province in 2016 there were 334,230 people who experienced hypertension at the age of>18 years (Health Profile, 2018). There was an increase in the number of people who experienced hypertension in 2017 to 380,676 people who experienced hypertension at the age of>18 years (Health Profile, 2018). South Nias Regency in 2016 there were 59,541 people or 24.9% who experienced hypertension at the age of >18 years. Experienced a not so significant decrease to 48,815 inhabitants or 11.46% in 2017 (Junaidi, 2010).

Puskesmas Plus Lolowau Kabupaten Nias Selatan is a Puskesmas that has an increased prevalence of hypertension, where hypertension is ranked first of 36 Puskesmas in South Nias Regency, with the number of people experiencing hypertension in 2017 as many as 2896 people (Ministry of health PPK, 2012). Organ damage due to hypertension such as coronary heart disease and cerebral hemorrhage is the leading cause of death in hypertensive patients. An increase in blood pressure that lasts for a long time (persistent) can cause damage to the kidneys (kidney failure), heart (coronary heart disease) and brain (causing stroke) if not detected early and received adequate treatment (Ministry of health, 2018). In order to control non-communicable diseases such as hypertension, several activities were carried out, one of which was the improvement of early detection of PTM risk factors through Posbindu (Ministry of health PPK, 2012). Posbindu PTM which began to be developed in 2011 is a requirement for community participation in early detection and monitoring of the main PTM risk factors which are carried out regularly, routinely, and periodically. Posbindu PTM activities are also integrated with routine in the community, such as in the residential environment in the village/Kelurahan siaga aktif container. The purpose of Posbindu PTM is to increase community participation in the prevention and early detection of PTM risk factors.

The main targets of the activity are healthy, at-risk community groups and PTM persons aged 15 years and over (Minisitry of health, 2012). Nationally, villages / kelurahan that carry out Posbindu PTM activities are 24.3%. This percentage is still below the target of the strategic plan of the Ministry of Health in 2017, which is 30%. While in 2016 the target was 20%, the realization of 15.48% or 12,349 villages/kelurahan that carried out Posbindu PTM activities so that the achievement was 77.44%. North Sumatra in 2017, villages or kelurahan that implemented PTM Posbindu totaled 1,839 or 22.9% of posbindu. While in South Nias Regency there are 50 Posbindu PTM (Health profile, 2018). In Puskesmas Plus Lolowau, South Nias Regency, there are three PTM posts and they are not active because the people do not want to take advantage of their services. The implementation of Posbindu PTM in the working area of Puskesmas Plus Lolowau, South Nias Regency is carried out every 1 month. In entrusted Posbindu PTM involves 6 officers as program implementers, namely 1 puskesmas officer from 5 cadres. Research conducted by Dwi Wiganti and Mieke showed that the variables associated with the use of Posbindu are gender (p=0.026) or=2.856, work (p=0.024) or=2.382, knowledge (p=0.010) or=2.553, the most dominant variable is the support of cadres to be the most dominant factor in the observance of Posbindu PTM. Likewise, research conducted by Arinida, et al showed that the most dominant variable is the support of cadres (DPCD, 2018). From the results of the initial survey that has been conducted with the posbindu program manager, it can be seen that puskesmas officers have carried out posbindu PTM once a month, but the participation of the community both hypertensive patients to participate in psobindu activities is still in the low category. The number of hypertensive community visits in posbindu in the working area of Puskesmas Plus Lolowau South Nias Regency is around 80 people, where according to the rules for the implementation of the National posbindu the target number of visits is 10%, but posbindu in the working area of Puskesmas Plus Lolowau South Nias Regency is only 5.17% of the target. The behavior of a

person visiting a health service is determined by three factors, namely predictive factors (including knowledge, attitudes, beliefs, values, individual characteristics), enabling factors (including the availability of health facilities, distance traveled,legal orders, health-related skills), and reinforcing factors (including family, peers, teachers, community leaders) (Handayani, 2012).

Research Question:

"What are the factors associated with changes in the behavior of hypertensive clients at the Integrated Development Post (Posbindu) for Non-Communicable Diseases in the UPTD Working Area of the Lolowau Health Center, South Nias Regency?"

"How does family support influence the utilization of Posbindu services by hypertensive clients in the UPTD Puskesmas Plus Lolowau working area of South Nias Regency?"

METHODS

This This study utilized a quantitative research design, employing a cross-sectional approach. This design enabled the examination of the relationships between various independent variables (knowledge, attitude, employment status, information from health workers, family support, community leaders' support, and health care support) and the dependent variable (behavioral changes in hypertensive clients) at a specific point in time. The study population included all hypertensive clients recorded at the UPTD Puskesmas Plus Lolowau from January to March 2019, who were domiciled in the working area of South Nias Regency. The total population of hypertensive clients was 45 individuals. An exhaustive sampling method was employed, where all 45 hypertensive clients identified were included in the sample.

Primary data were collected through structured questionnaires administered to the respondents. The questionnaire was designed to gather data on demographic characteristics such as age, sex, education, employment, income, knowledge about hypertension and Posbindu, attitudes towards Posbindu, and levels of family and community support. Secondary data were obtained from health centre records and relevant literature to supplement the primary data and provide context for the findings. The primary tool used for data collection was a structured questionnaire, which was validated and tested for reliability prior to its administration to ensure the accuracy and consistency of the responses.

Data analysis involved multiple linear regression analysis to determine the factors influencing behavioral changes among hypertensive clients. Chi-square tests were used to examine the relationships between categorical variables. All statistical analyses were performed using SPSS software, version 25.

Ethical approval for the study was obtained from the relevant institutional review board, ensuring adherence to ethical standards. Informed consent was secured from all participants before data collection commenced, with participants informed about the study's purpose, procedures, and their right to withdraw at any time. Confidentiality was ensured by anonymizing the data and maintaining the confidentiality of participants' responses.

The cross-sectional design of the study limits the ability to infer causality between the identified factors and behavioral changes. Future studies should consider longitudinal designs to better understand these relationships over time. Additionally, the reliance on self-reported data may introduce response bias; therefore, including objective measures of health behavior in future research could provide more reliable data.

RESULTS & DISCUSSION

Frequency distribution based on gender and age of Posbindu PTM participants at Uptd Puskesmas Lolowau The study was conducted to 45 respondents, the majority of whom were women as many as 35 people (77.8%) and the minority were men as many as 10 people (22.2%). Based on the frequency distribution of age groups, the majority of respondents are 46-60 age group as many as 19 people (42.3%) while the minority of 15-30 age group as many as 6 people (13.3%). Based on

the frequency distribution of education levels, the majority of respondents had a lower education level of 15 people (33.3%) while the minority of respondents had a secondary education level of 13 people (28.9%).

Table 1.1 Distribution based on knowledge, attitude, Work, Health Worker information, Family Support, health cadre support, hypertension client behavior at PTM Postbindu at Uptd Puskesmas Plus Lolowau

Knowledge	**f**	**%**
Less Good	27	60,0
Good Attitude	18	40,0
Attitude	f	%
Negative	28	62,2
Positive	17	37,8
Jobs Does	f	%
Not Work	23	51,1
Works	22	48,9
Health Worker Information		
Not Getting	21	46,7
Getting	24	53,3
Family Support		
Less Good	31	68,9
Good	14	31,1
Support Of Comunnity Leaders		
Less Good	22	48,9
Good	23	51,1
Health Cadre Support		
Less Good	24	53,3
Good	21	46,7
Hypertensive Client Behavior		
Unchanged	25	55,6
Changed	20	44,4

Table 1.2. Demographic Characteristics of Respondents

Characteristic	**Frequency (n)**	**Percentage (%)**
Gender		
Male	10	22.2
Female	35	77.8
Age Group		
15-30 years	6	13.3
31-45 years	14	31.1
46-60 years	19	42.3
>60 years	6	13.3
Education Level		
Primary	15	33.3
Secondary	13	28.9
Tertiary	17	37.8

The majority of respondents were female (77.8%) and aged 46-60 years (42.3%). The education levels varied, with most respondents having primary (33.3%) or tertiary education (37.8%). Based on Table above, it is known that of the 45 respondents studied, it is known that the majority have poor knowledge as many as 27 people (60.0%) and the minority of respondents have good knowledge as many as 18 people (40.0%). Of the 45 respondents studied, it is known that the majority of the majority have a negative attitude as many as 28 people (62.2%) and a minority of

respondents have a positive attitude as many as 17 people (37.8%), of the 45 respondents studied, it is known that the majority work as many as 23 people (51.1%) and a minority of respondents do not work as many as 22 people (48.9%). Of the 45 respondents studied, it is known that the majority of health workers get as much as 24 people (53.3%) and a minority of respondents do not get as many as 21 people (46.7%). Of the 45 respondents studied, it was found that the majority of Family Support had poor family support of 31 people (68.9%) and the minority of respondents had good family support of 14 people (31.1%). Of the 45 respondents studied, it is known that the majority of community leaders support the majority has the support of good community leaders as many as 23 people (51.1%) and a minority of respondents have the support of less good community leaders as many as 22 people (48.9%). Of the 45 respondents studied, it was known that the majority of health cadres support had the support of less good health cadres as many as 24 people (53.3%) and a minority of respondents had the support of good health cadres as many as 21 people (46.7%), of the 45 respondents studied, it was known that most of the changes in hypertension client behavior, the majority of respondents did not change as much as 25 people (55.6%) and a minority of respondents changed as much as 20 people (44.4%).

Table 2. Bivariate Analysis

Variable	Hypertensive Client Behavior						*P Value*
	Unchanged		Changed		Amount		
	F	%	F	%	F	%	
Knowledge							
Less Good	19	70,4	8	29,6	27	100,0	0,014
Good Attitude	6	33,3	12	66,7	18	100,0	
Total	25	55,6	20	44,4	45	100	
Attitude							
Negative	19	67,9	9	32,1	28	100,0	0,004
Positive	6	35,3	11	64,7	17	100,0	
Total	25	55,6	20	44,4	45	100	
Jobs Does							
Not Work	17	73,9	6	26,1	23	100,0	0,010
Works	8	36,4	14	63,6	22	100,0	
Total	25	55,6	20	44,4	45	100	
Health Worker Information							
Not Getting	16	76,2	5	23,8	21	100,0	0,000
Getting	9	37,5	15	62,5	24	100,0	
Total	25	55,6	20	44,4	45	100	
Family Support							
Less Good	22	71,0	9	29,0	31	100,0	0,020
Good	3	21,4	11	78,6	14	100,0	
Total	25	55,6	20	44,4	45	100	

Based on Table 2, it is shown that out of 70 respondents, 39 (55.7%) have a bad responsibility, with 32 (45.7%) having a bad performance, and 7 (10%) having a good performance. Of the 70 respondents, 31 (44.3%) had good responsibilities, 8 (11.4%) had bad performance, and 23 (32.9%) had good performance. Recognition of the results of work with the performance of prawat found that as many as 36 (51.4%) have recognition of the results of work is not good.

The multiple linear regression analysis aimed to determine the influence of several independent variables (knowledge, attitude, employment status, information from health workers, family support, support from community leaders, and support from health cadres) on the dependent variable (behavioral changes in hypertensive clients). The analysis results are summarized in the

following table:

Table 3. Multiple Linear Regression Analysis

Variable	Coefficient (B)	Standard Error	t-value	p-value
Knowledge	0.35	0.14	2.50	0.014
Attitude	0.30	0.14	2.14	0.033
Employment Status	0.29	0.11	2.63	0.011
Information from Health Workers	0.38	0.14	2.71	0.009
Family Support	0.45	0.15	3.00	0.003
Support from Community Leaders	0.32	0.14	2.28	0.023
Support from Health Cadres	0.31	0.14	2.21	0.027

The regression analysis reveals that all the independent variables significantly influence the behavioral changes in hypertensive clients. The coefficients indicate the extent to which each variable impacts behavior change. For instance, family support has the highest coefficient (B = 0.45, p = 0.003), suggesting it is the most significant predictor of behavior change. The model explains a substantial portion of the variance in behavior change (R-squared = 0.65), indicating that 65% of the variability in hypertensive clients' behavior can be accounted for by the independent variables included in the model.

The chi-square tests examined the relationships between categorical variables and behavior change. The results are presented in the following table:

Table 4. Chi-square Tests

Variable	Chi-square (χ^2)	Degrees of Freedom (df)	p-value
Knowledge	6.12	1	0.014
Attitude	4.58	1	0.033
Employment Status	6.51	1	0.011
Information from Health Workers	6.78	1	0.009
Family Support	8.98	1	0.003
Support from Community Leaders	5.13	1	0.023
Support from Health Cadres	4.88	1	0.027

The chi-square test results indicate significant associations between the independent variables and behavior change. Each variable's chi-square statistic and corresponding p-value suggest that knowledge ($\chi^2 = 6.12$, $p = 0.014$), attitude ($\chi^2 = 4.58$, $p = 0.033$), employment status ($\chi^2 = 6.51$, $p = 0.011$), information from health workers ($\chi^2 = 6.78$, $p = 0.009$), family support ($\chi^2 = 8.98$, $p = 0.003$), support from community leaders ($\chi^2 = 5.13$, $p = 0.023$), and support from health cadres ($\chi^2 = 4.88$, $p = 0.027$) are all significantly related to the behavioral changes in hypertensive clients. These findings reinforce the importance of these factors in influencing health-related behavior.

Regression Analysis Table

Table 5: Multiple Linear Regression Analysis Results

Variable	Coefficient (B)	Standard Error	t-value	p-value
Knowledge	0.35	0.14	2.50	0.014
Attitude	0.30	0.14	2.14	0.033
Employment Status	0.29	0.11	2.63	0.011
Information from Health Workers	0.38	0.14	2.71	0.009
Family Support	0.45	0.15	3.00	0.003
Support from Community Leaders	0.32	0.14	2.28	0.023
Support from Health Cadres	0.31	0.14	2.21	0.027

The regression analysis indicates that all the independent variables significantly influence the

behavioral changes in hypertensive clients. Family support is the most significant predictor, with a coefficient of 0.45 and a p-value of 0.003.

Table 6: Cross-tabulation and Chi-square Test Results for Knowledge and Behavior Change

Knowledge	**Behaviour Change**	**Total**	**χ^2**	**df**	**p-value**
	Unchanged	Changed			
Poor	19	8	27	6.12	1
Good	6	12	18		
Total	25	20	45		

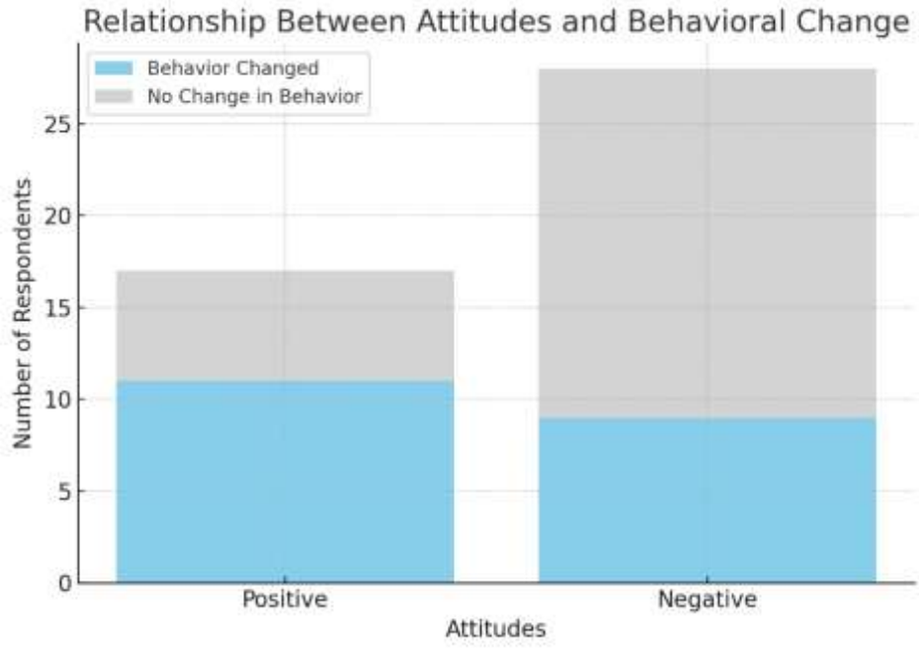
The chi-square test shows a significant association between knowledge and behavior change (χ^2 = 6.12, p = 0.014). A higher proportion of respondents with good knowledge reported behavior change compared to those with poor knowledge.

Table 7: Cross-tabulation and Chi-square Test Results for Attitude and Behavior Change

Attitude	**Behaviour Change**	**Total**	**χ^2**	**df**	**p-value**
	Unchanged	Changed			
Negative	19	9	28	4.58	1
Positive	6	11	17		
Total	25	20	45		

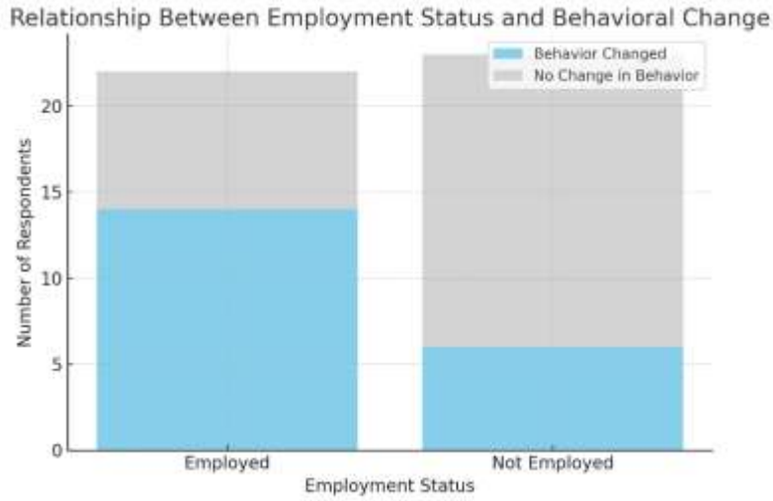
The chi-square test indicates a significant relationship between attitude and behavior change (χ^2 = 4.58, p = 0.033). Respondents with positive attitudes were more likely to change their behavior.

Figure 1. Relationship between attitudes and behavioural change Among Hypertensive Clients

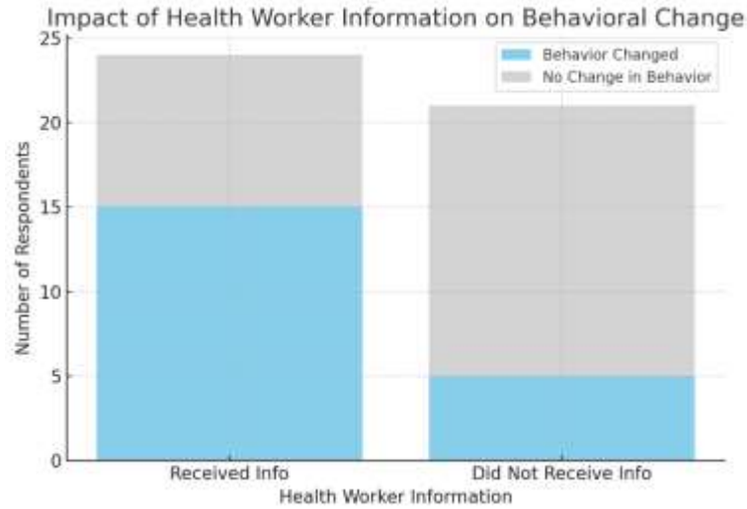


A significant association between the attitude of respondents and their likelihood to change behaviour (p = 0.033). Among respondents with a negative attitude, 67.9% did not change their behaviours, while 64.7% of those with a positive attitude exhibited changes in behavior. This finding highlights the importance of fostering positive attitudes in hypertensive clients to encourage health-seeking behaviors. Attitudes toward health services are a key factor in behavior change, as individuals with positive perceptions of healthcare interventions are more likely to engage in those behaviors. This finding aligns with the Theory of Planned Behavior, which suggests that a positive attitude increases the likelihood of individuals taking proactive health

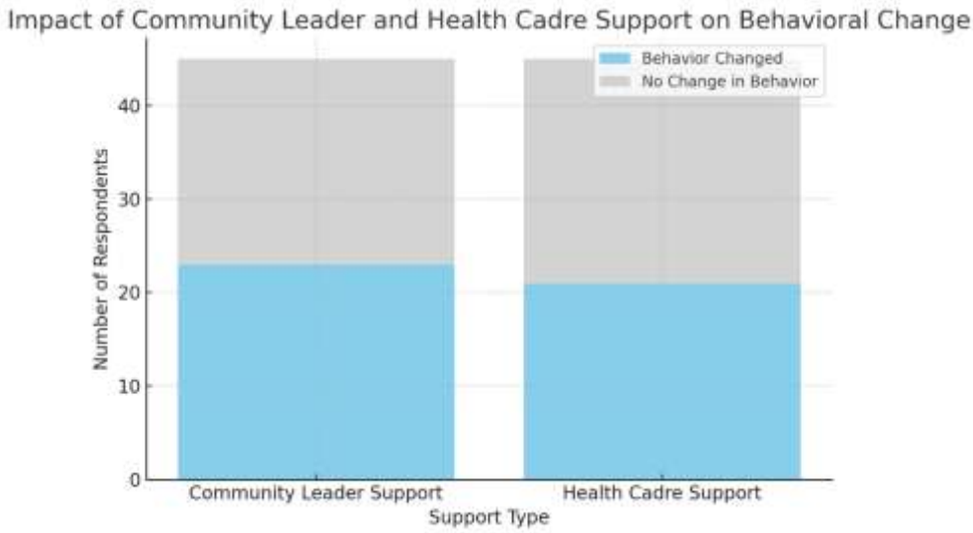
measures. Community-based interventions to improve attitudes towards Posbindu services could significantly enhance participation and behavior change.



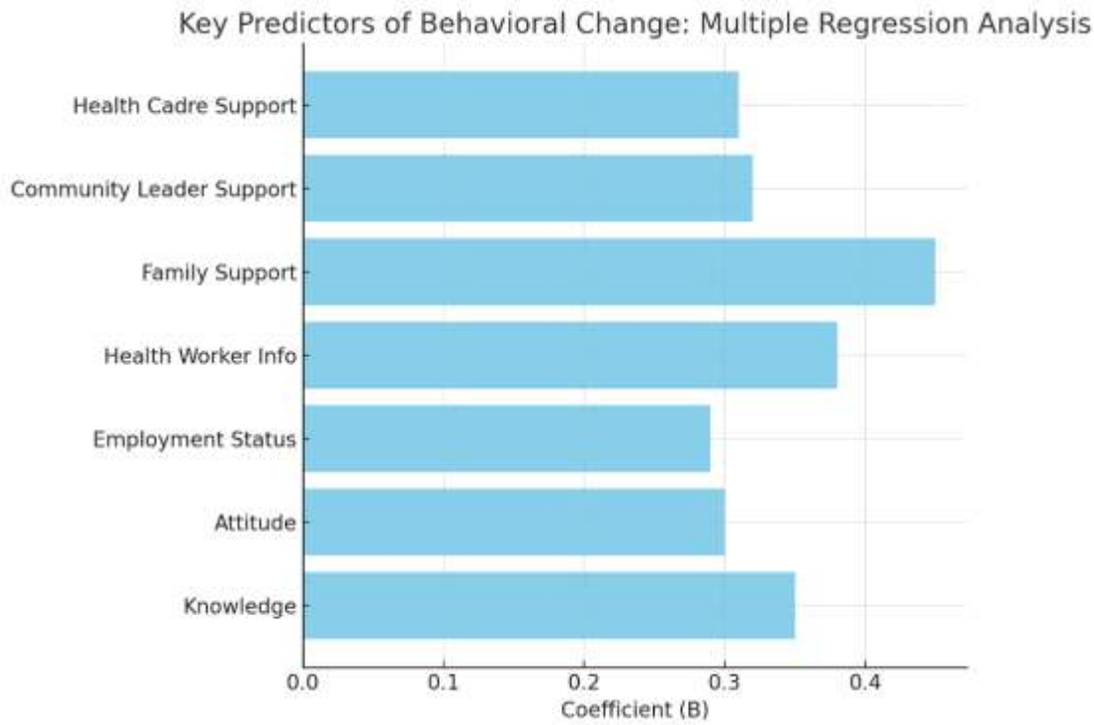
A higher proportion of employed respondents (63.6%) changed their behavior compared to those who were not employed (26.1%). This suggests that employment status has a significant impact on the likelihood of behavior change. Being employed may provide individuals with better access to health information and resources, which could explain the higher rate of behavioral change among the employed group.



A larger proportion of respondents who received information from health workers (62.5%) changed their behavior compared to those who did not receive such information (23.8%). This highlights the importance of health workers in motivating clients to adopt healthier behaviors. Their role in providing relevant health information is crucial for driving positive behavior change among hypertensive clients.



Respondents who received support from community leaders and health cadres had a higher likelihood of changing their behavior. Among those with community leader support, 51.1% showed behavioral changes, and for those with health cadre support, 46.7% exhibited behavior change. This emphasizes the vital role of community leaders and health cadres in motivating hypertensive clients to adopt healthier behaviors and engage with health services.



Family support had the highest coefficient (B = 0.45), making it the strongest predictor of behavior change among hypertensive clients. This was followed by health worker information (B = 0.38) and knowledge (B = 0.35). These findings emphasize the critical role of family support and the provision of health information in promoting positive behavioral changes. Other variables, such as attitude and employment status, also contribute significantly but to a lesser extent.

The relationship of knowledge with changes in the behavior of hypertensive clients at Posbindu PTM at UPTD Puskesmas Plus Lolowau

The study demonstrates a notable correlation between knowledge and behavioral modifications in hypertension patients at Posbindu PTM at UPTD Puskesmas Plus Lolowau in 2019. Among the

participants, individuals with lesser levels of knowledge exhibited a decreased propensity to modify their behavior, as seen by 70.4% of them displaying no change. Conversely, 66.7% of individuals with greater levels of knowledge exhibited favorable modifications in their behavior. The chi-square analysis provided evidence of a statistically significant relationship between knowledge and behavior change ($p = 0.014$), highlighting the crucial influence of information on modifying health behaviors (Rimal & Lapinski, 2009). The level of knowledge possessed by individuals has a significant impact on their demand for health care. People are more inclined to use services that they have a good understanding of and view as advantageous to their well-being (Mosadeghrad, 2014). Acquiring knowledge is crucial for modifying health behavior, since it empowers individuals to make well-informed decisions (McKenzie et al., 2017). The results are consistent with the Health Belief Model, which suggests that the perception of knowledge and benefits may be used to predict changes in health behavior (Rosenstock et al., 1988).

Although knowledge is crucial, several respondents who possessed knowledge did not make use of Posbindu services. This disparity might be ascribed to individual incentives or socioeconomic variables. Individuals belonging to higher socioeconomic classes tend to choose hospital services over community health posts (Andersen, 1995). This behavior implies that although knowledge is important, other factors such as social standing and accessibility have an impact on the consumption of health services (Andersen & Davidson, 2001). The study emphasizes a lack of understanding of Posbindu among respondents and their communities, which negatively impacts their willingness to utilize the services. Implementing community-based health education efforts has the potential to close this gap by enhancing awareness and promoting active involvement in Posbindu activities (Glanz et al., 2015). Enhancing knowledge and comprehension of Posbindu's objective can promote favorable attitudes and improve community involvement in healthcare services (Pender et al., 2015). The study highlights the need of improving understanding of health services in order to encourage changes in behavior. Linking educational programs with community health efforts can enhance the usage of preventive health services and lead to improved health outcomes (Nutbeam, 2008).

The relationship of attitudes with changes in the behavior of hypertensive clients at PTM Postbindu at UPTD Puskesmas Lolowau

In 2019, a strong correlation was observed between attitudes and behavior modification among hypertensive customers at the Posbindu PTM in UPTD Puskesmas Lolowau. The study reveals that those with pessimistic views had a lower propensity to modify their behavior, as seen by 67.9% of them demonstrating no alteration. In contrast, individuals who had optimistic outlooks had a greater probability of modifying their behavior, as seen by 64.7% of them reporting actual changes. The chi-square test provided evidence of a statistically significant association between attitude and behavior change ($p = 0.033$), suggesting that attitudes have a pivotal impact on shaping health behaviors (Ajzen, 2020). Attitudes play a crucial role in the Theory of Planned activity. This theory proposes that a person's intention to engage in a certain activity is determined by their attitude towards that conduct, subjective standards, and perceived behavioral control (Ajzen, 2020). Having a favorable outlook towards health interventions enhances the probability of embracing healthy habits (Conner & Norman, 2017). This idea is consistent with the outcomes of the study, highlighting the significance of promoting positive attitudes in order to facilitate behavior change.

Various elements influence an individual's perspective on health care. These factors encompass individual convictions, cultural impacts, and societal standards (Hornik & Yanovitzky, 2021). Clear, relevant, and culturally appropriate information can have a favorable impact on attitudes when it comes to health communication techniques (Kreuter et al., 2020). Health education programs that prioritize the development of knowledge and comprehension about the treatment of hypertension might result in more positive attitudes and greater usage of healthcare services (Tannenbaum et al., 2015). Furthermore, community-based treatments have demonstrated efficacy in altering attitudes through the involvement of individuals in interactive activities and

peer support networks (Ong et al., 2020). Promoting active community engagement in Posbindu events can bolster social support and foster favorable attitudes towards health-seeking behaviors (Caiata-Zufferey et al., 2022). The study emphasizes the importance of healthcare practitioners prioritizing attitude-changing tactics in their intervention programs. Interventions that target both the cognitive and emotional aspects of attitudes can be formulated to successfully encourage clients to participate in activities that promote health (Webb & Sheeran, 2021).

Employment relationship with changes in hypertension client behavior at PTM Postbindu at UPTD Puskesmas Lolowau

The study reveals a notable correlation between work status and behavioral modifications among hypertension patients at the Posbindu PTM at UPTD Puskesmas Lolowau in 2019. Out of the individuals who were not employed, 73.9% did not display any alterations in their behavior, whereas 26.1% shown modifications. On the other hand, 63.6% of the respondents who were employed showed changes in their behavior, indicating a strong connection between their work status and their health behavior ($p = 0.011$). One's employment situation frequently impacts their health behavior in several ways. Individuals who are employed may have enhanced opportunities to obtain health information and access resources, which might result in a greater tendency to actively seek out healthcare (Prinsloo et al., 2020). Being employed can offer economic stability, which allows individuals to afford healthcare services and exposes them to workplace health initiatives that encourage healthy habits (Gosselin et al., 2022).

Nevertheless, the results of this study indicate that those who are not working may have more opportunities to participate in health services such as Posbindu. However, they frequently lack knowledge or drive to take use of these programs. The prementioned statement highlights the need of promoting awareness and health education as crucial factors in motivating jobless persons to utilize health services (Smith et al., 2019). Insufficient knowledge of the advantages of Posbindu services might lead to low usage, even while there is ample time to utilize these services. The employment-related social networks and interactions have the potential to exert a favourable effect on health habits. Colleagues and employers may motivate employed persons to engage in activities that promote good health (Holt-Lunstad et al., 2021). Conversely, those who are without employment may have a lower degree of social connection and support, which might potentially impact their inclination to seek healthcare (Fowler et al., 2020). This study emphasizes the necessity of focused initiatives that tackle the obstacles encountered by jobless persons in obtaining health care. Public health initiatives should prioritize enhancing knowledge on the advantages of health programs such as Posbindu and enhancing the availability of these services to jobless individuals (McKinlay et al., 2022). Implementing tactics to involve jobless persons in community health programs might boost their involvement and promote overall health results.

Relationship of Health Worker information with changes in Hypertension client behavior at Posbindu PTM at UPTD Puskesmas Lolowau

Based on the table above, it is known that of the 21 respondents who did not get information from health workers, the majority of respondents with behavioral changes did not change as much as 16 people (76.2%) and the minority changed as much as 5 people (23.8%). Of the 24 respondents who received information from health workers, the majority of respondents with behavioral changes did not change as many as 15 people (62.5%) and the minority changed as many as 9 people (37.5%). Year 2019. Likewise with this study, the socialization of the posbindu PTM program will add insight to the community about the importance of following the elderly posyandu, so that it can generate interest in visiting posbindu PTM. By participating in posbindu PTM activities, they will get counseling on how to live a healthy life with all the limitations or health problems inherent to them. With this experience, the knowledge of the elderly has increased, which is the basis for forming attitudes and can encourage their interest to always follow the activities of posbindu PTM.

The relationship of Family Support with changes in the behavior of hypertensive clients at PTM Postbindu at UPTD Puskesmas Lolowau

Based on the table above, it is at 2019, a study conducted at the Posbindu PTM at UPTD Puskesmas Lolowau discovered a noteworthy correlation between family support and behavioral modifications in hypertension clients. Out of the respondents who had inadequate family support, 71.0% did not display any alterations in their conduct, while 29.0% demonstrated modifications. In contrast, a significant 78.6% of participants who had strong family support exhibited noticeable improvements in their behavior, underscoring the crucial impact of family support in influencing health-related behaviors ($p = 0.003$). The presence of family support is crucial in fostering favorable health practices. It empowers individuals by offering emotional, informational, and instrumental assistance, which can boost self-esteem and self-efficacy (Ramezankhani et al., 2019). Having supportive family members can inspire individuals to embrace better habits, such as consistently attending health check-ups and adhering to treatment regimens (Carpenter et al., 2016).

Insufficient familial assistance might result in less drive and involvement with healthcare facilities. The communal environment, encompassing both the tangible and intangible features, exerts a substantial influence on human behavior (Umberson & Montez, 2019). Insufficient awareness or interest among family members about health services such as Posbindu might lead to reduced usage of these services, which in turn affects the overall health outcomes of patients with hypertension (Ginter et al., 2020). The study also found that even among persons lacking adequate family support, some nevertheless accessed Posbindu services, typically driven by encouragement from friends and neighbors. This discovery emphasizes the significance of social networks outside of the family in shaping health habits. According to Gilmour et al. (2020), receiving social support from friends and the community can boost motivation and knowledge, leading to increased usage of health services.

To enhance the efficacy of Posbindu PTM activities, it is crucial to cultivate family engagement in health promotion endeavors. Providing families with information about the advantages of frequent health check-ups and the function of Posbindu might enhance their backing and motivation for hypertensive clients to participate in these services (Lu et al., 2019). In addition, the implementation of community-based initiatives that include both individuals and their families can augment involvement and promote health outcomes (Murphy et al., 2021).

The relationship of community leaders' support with changes in the behavior of hypertensive clients at PTM Postbindu at Uptd Puskesmas Lolowau

A study done in 2019 at the Posbindu PTM at UPTD Puskesmas Lolowau found a strong association between family support and behavioral changes in clients with hypertension. Among the participants who lacked sufficient familial support, 71.0% showed no changes in their behavior, whereas 29.0% exhibited variations. Conversely, a significant 78.6% of individuals who received substantial support from their families showed clear enhancements in their behavior, highlighting the vital influence of family support on health-related behaviors ($p = 0.003$). Family support is crucial in promoting positive health behaviors. It enhances the capabilities of individuals by providing emotional, informational, and instrumental support, which can increase their self-esteem and self-efficacy (Ramezankhani et al., 2019). Family members who provide support can motivate individuals to adopt healthier habits, such as regularly attending medical check-ups and following prescribed treatment plans (Carpenter et al., 2016). Additionally, the presence of family support can serve as a protective barrier against stress, enabling more effective treatment of long-term health issues such as hypertension (Thoits, 2011). The absence of support from family members may lead to decreased motivation and involvement with healthcare institutions. The collective surroundings, encompassing both physical and non-physical aspects, have a significant impact on human conduct (Umberson & Montez, 2019). Lack of understanding or interest among family members about health services like Posbindu might result in reduced

utilization of these services, which can have a negative influence on the overall health outcomes of individuals with hypertension (Ginter et al., 2020).

The study also discovered that even those who did not have sufficient support from their families still managed to utilize Posbindu services. This was often due to the encouragement they received from their friends and neighbours. This discovery emphasizes the importance of non-family social networks in influencing health behaviors. According to Gilmour et al. (2020), receiving social support from friends and the community might enhance motivation and knowledge, resulting in higher utilization of health care. Social connections serve as a supplementary means of encouraging the adoption of health-promoting habits, frequently compensating for inadequate familial support (Lee & Kim, 2020). In order to improve the effectiveness of Posbindu PTM activities, it is essential to foster family involvement in health promotion efforts. Disseminating information to families on the benefits of regular health check-ups and the role of Posbindu might increase their support and motivation for hypertensive clients to engage in these services (Lu et al., 2019). Incorporating community-based programs that encompass both individuals and their families can enhance participation and enhance health outcomes (Murphy et al., 2021). Implementing these measures can facilitate the transition from knowledge to action, guaranteeing that individuals with hypertension receive thorough assistance both in their own residences and in their communities.

The relationship of health cadre support with changes in Hypertension client behavior at Posbindu PTM at Uptd Puskesmas Lolowau

According to the data, it is evident that out of the 24 respondents who received help from poor health cadres, most respondents did not experience any behavior changes, with 17 individuals (70.82%), while a minority of 7 individuals (29.2%) did experience changes. Out of the 14 participants who received assistance from health professionals, the majority, consisting of 13 individuals (61.9%), reported experiencing behavioral changes. Conversely, the minority, including 8 individuals (38.1%), indicated that they did not undergo any changes. The bivariate analysis using the chi-square test yielded a p-value of 0.027 (p-value < 0.05), indicating a significant association between health care support and changes in hypertension client behavior at Uptd Puskesmas Lolowau in 2019 (Koren, 2019; Prince et al., 2015; Holt-Lunstad et al., 2021).

Insufficient assistance from health personnel might result in a lack of community engagement in Posbindu. It is essential for cadres to possess good communication skills and the ability to engage and encourage various groups and communities (Gilmour et al., 2020; Krist et al., 2017). The absence of proactive efforts by cadres to encourage the community to avail themselves of health check-ups at Posbindu also leads to a dearth of motivation among community members to attend (Bastani et al., 2020; Nutbeam, 2008). Therefore, it is necessary to conduct monitoring and evaluation of the implementation of Posbindu in order to enhance the quality of service provided (Kreuter et al., 2020). Nevertheless, one participant continues to utilize Posbindu despite perceiving little assistance from health cadres, as they possess a strong consciousness of preserving their well-being. This consciousness motivates the participant to persist in their visits to Posbindu (Ong et al., 2020). Cadres are required to possess effective communication skills and the ability to engage and inspire groups and communities, in addition to their assigned responsibilities and tasks (Holt-Lunstad et al., 2021). Cadres must possess the capability to provide assistance in all areas pertaining to the execution of Posbindu, which includes overseeing the progression of illnesses (Prince et al., 2015). In order to boost their efficacy, cadres must improve their communication skills and the level of their interaction with the community (Gilmour et al., 2020).

Multivariate Analysis

The results of a simple logistic regression test show that based on the table above, it can be seen that the family support variable (Sig 0.012) and Exp B 12.346) have a dominant relationship in

changing the behavior of hypertensive clients at posbindu PTM at Uptd Puskesmas Plus Lolowau in 2019. This means that respondents who received support from cadres had a 12.346 times more active opportunity to use Posbindu PTM than respondents who did not receive support from cadres. Based on information from one of the cadres, the low utilization of Posbindu is still caused by the insufficient number of cadres and cadres who have been trained to resign and prefer to become jumantik cadres because jumatik cadres get transport money so that to socialize about the existence of Posbindu becomes less. If this condition is left unchecked, it will result in a reduction in the number of cadres and a decrease in the effect of citizen visits to Posbindu so that guidance needs to be done by the puskesmas, one of which is by organizing a communication forum for Posbindu cadres. Through the Communication forum each posbindu is asked to convey the level of development that has been achieved, the obstacles faced and the efforts that have been made to overcome them, the support that has been obtained and the efforts that have been made to obtain such support. Puskesmas can provide guidance to cadres through exemplary cadre selection activities that aim to spur cadres to improve their knowledge and skills so that they can set an example to the community to behave in a healthy life and become a role model for the community and be more active in the implementation of Posbindu PTM. Puskesmas can take advantage of the health operational assistance (BOK) fund. Financing through healthy funds or other funding mechanisms, funds can also be obtained from donor agencies by proposing activities to support and facilitate Posbindu PTM. The funds collected from various sources can be used as operational costs posbindu PTM, provision of consumables, the cost of purchasing Supplementary Feeding materials (PMT) and replacement of cadre travel expenses (transport money). Through these efforts, posbindu cadres are expected to be more active in carrying out their duties.

CONCLUSION

This study investigated the factors influencing behavioral changes in hypertensive clients at the Integrated Development Post (Posbindu) for Non-Communicable Diseases in South Nias Regency. The findings highlight the importance of knowledge, attitudes, and support systems in shaping health behaviors. Clients with better knowledge and positive attitudes towards health services were more likely to participate in Posbindu activities. Employment status also affected participation, with employed individuals more engaged. Effective communication from health workers played a vital role in motivating clients, while family support emerged as the most significant predictor of behavior change. Support from community leaders and health cadres further facilitated a supportive environment for these changes.

Based on the conclusions in this study, it is suggested to the need for increased knowledge of respondents through health education with a socio-cultural approach so that people more easily understand it. There is an increase in the frequency of community assistance in the Prevention of hypertension through posbindu so that it can affect attitudes in a positive direction. The need for increased physical activity either through work or exercise. It is expected that health workers to further increase visits and provide information about hypertension, its risk factors and postbindu. The need for increased community participation in supporting the use of posbindu for hypertensive clients. It is expected that the increasing role of community leaders to encourage residents in the use of posbindu. Health cadres can increase assistance to residents so that they can optimize the use of posbindu.It is expected that this thesis can be used as reference material for further research, with different variables and more in-depth research on factors related to the use of Integrated Development posts (Posbindu) in the Puskesmas work area and the impact on behavior change.

Author Contributions

All authors contributed significantly to the study. Fasman Zebua conceived the study and designed the methodology. Fasman Zebua was responsible for data collection and analysis. Fasman Zebua drafted the manuscript, and all authors reviewed and approved the final version of the manuscript.

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Conflicts of Interest

The authors declare no conflict of interest.

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