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An Analysis of Determinants Affecting the Utilization of Integrated Non-Communicable Disease Service Posts (Posbindu PTM) in the Ulee Kareng Public Health Center, Banda Aceh City: A Health Belief Model Approach

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ABSTRACT

Non-communicable diseases (NCDs) are the leading cause of mortality worldwide, including in Indonesia, with a growing prevalence particularly in low- and middle-income countries. Banda Aceh City has recorded increasing rates of hypertension and diabetes mellitus. However, the utilization of early detection services through the Integrated Non-Communicable Disease Service Post (Posbindu PTM) remains suboptimal, with only 32% of the target population visiting the service at Ulee Kareng Public Health Center—far below the national target of 100%. This low utilization rate is presumed to be linked to public perceptions regarding disease risk and the importance of routine health screenings. This study aimed to examine the determinants influencing the utilization of Posbindu PTM using the Health Belief Model (HBM), which focuses on perceived susceptibility, severity, benefits, and barriers to health behavior. This study employed an observational analytic design with a cross-sectional approach. The population comprised individuals aged 15–59 years living in the catchment area of the Ulee Kareng Public Health Center in 2024. A total of 375 respondents were selected as the study sample. The data were analyzed using the Partial Least Squares (PLS) method with SmartPLS version 4.0. The findings indicated that perceived susceptibility, perceived severity, perceived benefits, and self-efficacy were significantly associated with the utilization of Posbindu PTM. In contrast, family support, support from health cadres and health workers, peer support, and perceived barriers showed no significant association. The most influential determinant was perceived benefits. Interventions that enhance individuals' perceived benefits are recommended for government initiatives aimed at increasing the utilization of Posbindu PTM services.

KEYWORDS
Health Belief Model, Posbindu PTM, Service Utilization

INTRODUCTION

Non-communicable diseases (NCDs) are now a serious concern internationally, integrated into the Sustainable Development Goals (SDGs) 2030, especially in Goal 3 which aims to ensure healthy lives and well-being. This is because the handling of NCDs requires high costs and adequate resources, with economic losses estimated to reach 4.47 trillion US dollars in Indonesia between 2012-2030 (Ministry of Health of the Republic of Indonesia, 2017).

In the last three decades, there has been a shift in the burden of disease in Indonesia from infectious diseases to non-communicable diseases. In 2019, the 10 main causes of DALYs (Disability Adjusted Life Years) lost were stroke, ischemic heart disease, tuberculosis, neonatal conditions, diabetes mellitus, cirrhosis of the liver, diarrheal diseases, chronic obstructive pulmonary disease, lower respiratory infections and HIV/AIDS. Around 63% of DALYs lost were caused by non-communicable diseases. Stroke and diabetes mellitus experienced a significant increase in DALYs from 2000 to 2019. The rate of death and disability due to non-communicable diseases and their associated risk factors also increased.(Abbafati et al., 2020)(Ministry of Health of the Republic of Indonesia, 2023).

The World Health Organization (WHO) estimates that by 2030, one in six people in the world will be 60 years of age and older. In Indonesia, it is estimated that by 2030, the number of elderly people (aged 60 years and older) will increase significantly along with increasing life expectancy (WHO, 2024). The increase in the number of elderly people is directly proportional to the increasing prevalence of non-communicable diseases such as diabetes mellitus, hypertension, and heart disease. The health system may not be adequate to handle the complex care needs of the elderly, and high care costs will also burden families and the government. Indonesia needs to face the challenges of the demographic bonus by implementing a comprehensive health strategy, including health promotion on the prevention of NCDs, routine checks and early detection of NCDs, and the development of integrated services.

The results of the 2018 Basic Health Research (Riskesdas) show that the number of non-communicable diseases (NCDs) in Indonesia is increasing. Diabetes mellitus, hypertension, stroke, chronic kidney disease, and cancer are some of the NCDs that are increasing. Chronic kidney disease increased from 2% to 3.8%, cancer increased from 1.4% to 1.8%, and stroke increased from 6.7% to 10.9%. The increase in the prevalence of diabetes mellitus from 6.9% to 8.5% and hypertension from 22.8% to 34.1%.

The increasing prevalence of non-communicable diseases (NCDs) is associated with unhealthy lifestyles, such as smoking, lack of physical activity, and low consumption of fruits and vegetables. Since 2013, the prevalence of smoking among adolescents (10-18 years) has continued to increase, namely 7.2% (Riskesdas 2013), 8.8% (Sirkesnas 2016) and 9.1% (Riskesdas 2018). The latest data from the 2019 Global Youth Tobacco Survey (GYTS) released by the Ministry of Health's Balitbangkes shows that 40.6% of students in Indonesia aged 13-15 years, including 2 out of 3 boys and almost 1 in 5 girls, have used tobacco products.

The proportion of the population that is physically inactive has also increased, from 26.1% to 33.5%, and 0.8% consume excessive alcohol. This trend is also followed by an increase in the number of people in Indonesia who are overweight or even obese from year to year. The proportion of overweight increased from 8.6% in 2007 to 13.6% in 2018, while obesity increased from 10.5% in 2007 to 21.8% in 2018. On the other hand, more than 95.5% of Indonesians aged over 5 years consume less than 5 servings of fruits and vegetables every day(Ministry of Health of the Republic of Indonesia, 2023).

Aceh Province is ranked 8th as the province with the highest prevalence of heart disease at 1.6%. North Kalimantan has the highest prevalence of heart disease in Indonesia at 2.2%, as stated by Annur, CM (2022). This is quite worrying, because Aceh, which is nicknamed the "Land of 1000 Coffee Shops", has many cafes and coffee shops that are increasingly mushrooming in every corner of the city, especially Banda Aceh as the center of the capital of Aceh. Lifestyle phenomena such as smoking, poor diet, stress, and lack of physical activity can also increase the risk of heart disease and other non-communicable diseases such as hypertension, diabetes mellitus, respiratory obstruction and cancer.

Based on data from the Aceh Health Profile issued by the Aceh Provincial Health Office in 2022, hypertension sufferers in Aceh who received standard health services

were 497,572 people or 38.29%. From the reported data, the district with the highest coverage was Langsa City at 86.98% and the district with the lowest coverage was Aceh Singkil at only 2.07%, while Banda Aceh City was ranked third lowest at 9.46%, and no district/city reached 100%.

Diabetes Mellitus (DM) sufferers in Aceh province in 2022 were 189,464 cases, while those who received standard services were 108,684 cases or 57.36%. From the reported data, the districts with DM sufferers receiving standard services were Central Aceh Regency, Gayo Lues, Banda Aceh City, Sabang and Subulussalam, each with 100% coverage and the district with the lowest coverage was Aceh Jaya which was only 1.57%. To reduce cases of hypertension and DM sufferers, health promotion efforts are needed to increase public awareness and knowledge about the importance of early detection of health and hypertension and DM sufferers taking medication regularly. (Aceh Provincial Health Office, 2023).

Integrated Non-Communicable Disease Development Post (Posbindu PTM) is one form of public health efforts (UKM) that has developed into community-based health efforts (UKBM) after coaching from the Health Center. Posbindu PTM functions as a community participation to motivate and prevent PTM risk factors by conducting early detection, supervision, and follow-up of PTM risk factors independently and sustainably. Basically, Posbindu PTM is a community-owned activity that is carried out entirely from the community, by the community and for the community (Ministry of Health of the Republic of Indonesia, 2014).
Nationally, the percentage of villages/sub-districts carrying out Posbindu activities in 2020 was 59.42% (48,559 villages/sub-districts) (Ministry of Health of the Republic of Indonesia, 2021). However, this achievement has not met the target set in the National Strategic Plan for PTM (Renstra P2PTM) for 2020-2024 which aims for 80% coverage of villages/sub-districts that carry out early detection and control of PTM (Ministry of Health of the Republic of Indonesia, 2020).

Based on the 2022 Aceh Health Profile, the district with the largest number of PTM Posbindu is Pidie district with 615 units, and the lowest is Sabang City with 29 units, and Banda Aceh City has 102 Posbindu units. The coverage of productive age health services in Aceh province is 54.98%, showing a significant difference between districts and cities, with Central Aceh district having the highest level of productive age health services at 87.82%, and Aceh Singkil district having the lowest level of health services at 9.30%, while Banda Aceh City with a coverage of 40.99% is in fifteenth place. The low coverage of productive age health services is due to public awareness to visit health facilities regularly. For this reason, health promotion is very important to increase public awareness of the importance of early health diagnosis and activate integrated coaching posts that already exist in each village.

According to the 2022 LKJIP of the Banda Aceh City Health Service, it shows that the number of standard service targets for productive ages (15-59 years) is 203,543, but only 90,234 (44%) have been achieved from the 100% target.

Based on a preliminary study conducted at the Banda Aceh City Health Office in July 2024, it was found that the distribution of Posbindu PTM in Banda Aceh City was 114 Posbindu spread across 11 health center work areas. Of the 11 sub-districts in Banda Aceh City, Ulee Kareng Sub-district is an area with a high number of PTM, namely 6423 cases (Hypertension and Diabetes Mellitus), but the high number of PTM sufferers is not directly proportional to the number of community visits to Posbindu, the achievement of Posbindu visits in 2023 was 6017 people or only reached 32%. Ulee Kareng Health Center has 9 Posbindu PTM spread across 9 villages in the Health Center work area with a target of 18,895 Posbindu people with a target of 100% as set by the Banda Aceh City Health Office. This shows that Posbindu PTM activities have not reached the entire community in the area, so coaching and follow-up are needed regarding this.

Rochmah's (2023) research shows that the factors that cause Posbindu PTM to be underutilized by the community are factors of perceived vulnerability, support from health workers, perceived severity, perceived benefits, and perceived barriers for the elderly. This study emphasizes self-awareness to go to Posbindu PTM for regular health checks.

*Rosenstock*created an intrapersonal theory called the Health Belief Model (HBM) in 1966. This model consists of a psychological model and a theory of health behavior

change, and focuses on the perceptions and beliefs of individuals with a disease.(Rochmah et al., 2023). The Health Belief Model theory states that the results of perceived health assessments and considerations of advantages and disadvantages determine a person's likelihood of carrying out disease prevention with Posbindu PTM. According to this theory, perceptions of vulnerability, perceptions of severity, perceptions of benefits, perceptions of barriers, self-efficacy, and cues to action (support from family, cadres, health workers, and peers) contribute to the utilization of Posbindu PTM(Mardhiyati et al., 2019).

Previous studies have shown that visits to Posbindu PTM depend on the results of perceived health assessments. These include perceived vulnerability, perceived severity, perceived benefits, perceived barriers, and respondent characteristics and cues to action. In terms of the utilization of Posbindu PTM in the Ulee Kareng Health Center work area, it has not met the target of one hundred percent.Therefore, the researcher wants to know how the determinants are related to the utilization of Posbindu PTM in the working area of Ulee Kareng Health Center, Banda Aceh City using the Health Belief Model (HBM) approach. This is the background for conducting a study entitled "Analysis of Determinants of the Utilization of Integrated Non-Communicable Disease Development Posts (Posbindu PTM) in the Working Area of Ulee Kareng Health Center, Banda Aceh City using the Health Belief Model (HBM) approach".

MATERIALS AND METHOD

This type of research is a non-experimental quantitative type that is descriptive analytical..The cross-sectional design used was chosen because the aim of the study was to evaluate the determinants associated with the use of PTM Posbindu..The research will be conducted at nine PTM Posbindu in the working area of the Ulee Kareng Health Center in Banda Aceh City..The population in this study was the entire target community in the Ulee Kareng Health Center working area aged 15-59 years in 2024 with a total of 16,468 people.. The samples taken in this study wereis 375 respondents.

This study uses primary data obtained through questionnaires given to research samples..The instrument used in this study was a questionnaire with a number of written questions used to determine the independent variables (perceived susceptibility, perceived seriousness, perceived benefits, perceived barriers, self-efficacy, family support, cadre support, health worker support, and peer support) and dependent variables (utilization of Posbindu PTM). The study used Structural Equation Modeling (SEM) with the SmartPLS (Smart Partial Least Square) version 4.0 approach to analyze the relationship between variables in a more complex manner.

RESULTS

The characteristic data used in this study are primary data obtained from data collection through questionnaires. frequency distribution and percentage of factors influencing the utilization of Integrated Non-Communicable Disease Development Posts (Posbindu PTM), based on data collected from 375 respondents. Each recorded factor shows how much influence it has on community participation in using Posbindu PTM services, with a division into various frequency categories as follows;

Table 1. Distribution of Factors Related to the Utilization of Posbindu PTM

Variables	*Frequency (f)*	Percentage (%)
Utilization of PTM Posbindu		
Low	209	55.7
Tall	166	44.3
Family Support		
Low	146	38.9
Tall	229	61.1
Cadre Support		
Low	210	56.0

Variables	*Frequency (f)*	Percentage (%)
Tall	165	44.0
Health Worker Support		
Low	235	62.7
Tall	140	37.3
Peer Support		
Low	179	47.7
Tall	196	52.3
Self Efficacy		
Low	126	33.6
Tall	249	66.4
Perception of Vulnerability		
Low	193	51.5
Tall	182	48.5
Perception of Severity		
Low	146	38.9
Tall	229	61.1
Perception of Benefits		
Low	238	63.5
Tall	137	36.5
Perception of Barriers		
Low	155	41.3
Tall	220	58.7
Total	375	100.0

Table 1.Based on the survey results, 55.7% of respondents admitted to having a low level of utilization of Posbindu PTM services, while 44.3% showed a high level of utilization. This shows that although some people show good interest and involvement, most have not utilized this service optimally. There are likely various factors, both internal and external, that influence the low level of utilization of Posbindu PTM services, such as lack of information, limited accessibility, or negative perceptions of the benefits of the service.

Most respondents (61.1%) received high support from their families, which plays an important role in encouraging participation in Posbindu PTM. In contrast, 38.9% received low support, which may have a negative impact on their motivation to participate in the service. As many as 56.0% of respondents admitted to receiving low support from Posbindu cadres, while only 44.0% felt high support. Support from these cadres plays an important role in educating and motivating the community to be active in Posbindu PTM.

Most respondents (62.7%) felt that the support provided by health workers was low, while only 37.3% received high support. This indicates the need to increase the involvement of health workers in providing support, information, and motivation to the community. Peer support appears to have a positive influence, with 52.3% of respondents feeling high support, which can increase their involvement in Posbindu PTM, although only slightly more than those who felt low support (47.7%).

The majority of respondents, namely 66.4% of respondents, showed high self-efficacy, meaning they felt capable of managing their own health and following the recommendations given by Posbindu PTM. However, another 33.6% had low self-efficacy, which may indicate a lack of confidence or uncertainty about their ability to manage their health conditions, even though they may have the desire to follow the program.

As many as 51.5% of respondents had a low perception of the risk of contracting non-communicable diseases (NCDs), indicating that they did not feel that they themselves were at high risk of contracting NCDs. Only 48.5% had a high perception, which could indicate a lack of understanding or indifference to the importance of NCD prevention. The majority of respondents (61.1%) considered NCDs to be a serious health problem that requires attention, although there were still 38.9% who considered it low, indicating a mismatch between the community's understanding and seriousness towards the potential impacts of NCDs.

Most respondents (63.5%) have a low perception of the benefits of Posbindu PTM. This indicates that the community does not fully understand the importance of the service in preventing and early detection of PTM, which can be a barrier to its use. As many as 58.7% of respondents considered the obstacles they faced in accessing Posbindu PTM to be high, such as transportation, time, or accessibility issues. Only 41.3% felt that the obstacles were low, indicating that various external obstacles played an important role in reducing the level of community participation.

Table 2. Outer Loading Results of Convergent Validity Test Stage 1

No	Statement	Variables	*Loading Factor*	Information
1	X1.1	Family Support	0.931	Valid
2	X1.2		0.957	Valid
3	X1.3		0.963	Valid
4	X1.4		0.941	Valid
5	X2.1	Cadre Support	0.859	Valid
6	X2.2		0.892	Valid
7	X2.3		0.905	Valid
8	X2.4		0.893	Valid
9	X2.5		0.912	Valid
10	X3.1	Health Worker Support	0.875	Valid
11	X3.2		0.913	Valid
12	X3.3		0.842	Valid
13	X3.4		0.865	Valid
14	X3.5		0.918	Valid
15	X4.1	Peer Support	0.905	Valid
16	X4.2		0.959	Valid
17	X4.3		0.920	Valid
18	X4.4		0.940	Valid

No	Statement	Variables	*Loading Factor*	Information
19	X5.1	Self Efficacy	0.803	Valid
20	X5.2		0.863	Valid
21	X5.3		0.864	Valid
22	X5.4		0.878	Valid
23	X5.5		0.905	Valid
24	X5.6		0.846	Valid
25	Y1.1	Perception of Vulnerability	0.848	Valid
26	Y1.2		0.761	Valid
27	Y1.3		0.850	Valid
28	Y1.4		0.797	Valid
29	Y1.5		0.159	Invalid
30	Y1.6		0.809	Valid
31	Y2.1	Perception of Severity	0.838	Valid
32	Y2.2		0.935	Valid
33	Y2.3		0.903	Valid
34	Y2.4		0.891	Valid
35	Y2.5		0.887	Valid
36	Y2.6		0.911	Valid
37	Y3.1	Perception of Benefits	0.793	Valid
38	Y3.2		0.883	Valid
39	Y3.3		0.933	Valid
40	Y3.4		0.958	Valid
41	Y3.5		0.935	Valid
42	Y3.6		0.948	Valid
43	Y4.1	Perception of Barriers	0.155	Invalid
44	Y4.2		0.759	Valid
45	Y4.3		0.787	Valid

No	Statement	Variables	*Loading Factor*	Information
46	Y4.4		0.876	Valid
47	Y4.5		0.888	Valid
48	Y4.6		0.887	Valid
49	Z.1	Utilization of PTM Posbindu	0.883	Valid
50	Z.2		0.935	Valid
51	Z.3		0.935	Valid
52	Z.4		0.951	Valid
53	Z.5		0.948	Valid

Table 2.The output of the loading factor value for the vulnerability perception variable has one statement with a value of0.159< loading factor value 0.70. Furthermore, the value of the perception of obstacles variable also has one statement with a value0.155< loading factor value 0.70. So statements that have a value < loading factor 0.70 must be deleted and retested. The following Table 4.7 presents the results of the loading factor test stage 2.

Table 3.Outer Loading Results of Convergent Validity Test Stage 2

No	Statement	Variables	*Loading Factor*	Information
1	X1.1	Family Support	0.931	Valid
2	X1.2		0.957	Valid
3	X1.3		0.963	Valid
4	X1.4		0.941	Valid
5	X2.1	Cadre Support	0.859	Valid
6	X2.2		0.892	Valid
7	X2.3		0.905	Valid
8	X2.4		0.893	Valid
9	X2.5		0.912	Valid
10	X3.1	Health Worker Support	0.875	Valid
11	X3.2		0.913	Valid
12	X3.3		0.842	Valid
13	X3.4		0.865	Valid

No	Statement	Variables	*Loading Factor*	Information
14	X3.5		0.918	Valid
15	X4.1	Peer Support	0.905	Valid
16	X4.2		0.959	Valid
17	X4.3		0.920	Valid
18	X4.4		0.940	Valid
19	X5.1	Self Efficacy	0.803	Valid
20	X5.2		0.863	Valid
21	X5.3		0.864	Valid
22	X5.4		0.878	Valid
23	X5.5		0.905	Valid
24	X5.6		0.846	Valid
25	Y1.1	Perception of Vulnerability	0.857	Valid
26	Y1.2		0.765	Valid
27	Y1.3		0.851	Valid
28	Y1.4		0.800	Valid
29	Y1.6		0.809	Valid
30	Y2.1	Perception of Severity	0.838	Valid
31	Y2.2		0.935	Valid
32	Y2.3		0.903	Valid
33	Y2.4		0.891	Valid
34	Y2.5		0.887	Valid
35	Y2.6		0.911	Valid
36	Y3.1	Perception of Benefits	0.793	Valid
37	Y3.2		0.883	Valid
38	Y3.3		0.933	Valid
39	Y3.4		0.958	Valid
40	Y3.5		0.935	Valid

No	Statement	Variables	*Loading Factor*	Information
41	Y3.6		0.948	Valid
42	Y4.2	Perception of Barriers	0.761	Valid
43	Y4.3		0.786	Valid
44	Y4.4		0.877	Valid
45	Y4.5		0.889	Valid
46	Y4.6		0.888	Valid
47	Z.1	Utilization of PTM Posbindu	0.883	Valid
48	Z.2		0.935	Valid
49	Z.3		0.935	Valid
50	Z.4		0.951	Valid
51	Z.5		0.948	Valid

Table 3.The output of the loading factor value of the second stage of testing, all variable statements have a value > loading factor 0.70 so that all are said to be valid. This indicates that the indicators/statements used successfully measure the correlation between the indicator/statement scores and their constructs/variables, thus supporting the validity of the measurement model construct..

In this study, several cue variables were used to act (family support, cadres, health workers, and peers), and self-efficacy variables related to the perception of health using the Health Belief Model (HBM) and the relationship between HBM and the use of Posbindu PTM..The R2 value indicates the overall productive power of the model. R2 values range from 0 to 1, with higher values indicating a better model in explaining variation. R-Square values of 0.75, 0.50, and 0.25 indicate a strong, moderate, and weak model, respectively. The following are the R-Square values in this analysis.

Table 4.R-Square Test Results (R2)

No	Variables	*R-Square*
1	Perception of Vulnerability	0.347
2	Perception of Severity	0.604
3	Perception of Benefits	0.776
4	Perception of Barriers	0.385
5	Utilization of PTM Posbindu	0.509

Table 4.shows the R-Square value for perceived vulnerability of 0.347. This shows that the cue to action variable (family support, cadres, health workers, and peers), and the self-efficacy variable are able to influence the perceived vulnerability variable by 34.7%, the remaining 65.3% is influenced by other factors, and indicates that the model is weak in the

relationship. The perceived severity variable is obtained at 0.604. This means that the cue to action variable (family support, cadres, health workers, and peers), and the self-efficacy variable are able to influence the perceived severity variable by 60.4%, the remaining 39.6% is influenced by other factors, and indicates that the model is moderate in the relationship.

The R-Square value for the perceived benefits variable is 0.776 or 77.6%, which means that the cue to action variable (family support, cadres, health workers, and peers), and the self-efficacy variable are able to influence the perceived benefits variable by 77.6%, the remaining 22.4% is influenced by other factors, and indicates that the model is strong in the relationship. The R-Square value for the perceived barriers variable is 0.385 or 38.5%, which means that the cue to action variable (family support, cadres, health workers, and peers), and the self-efficacy variable are able to influence the perceived barriers variable by 38.5%, the remaining 61.5% is influenced by other factors., and indicates that the model is weak in the relationship.

For the R-Square value of Posbindu PTM utilization is 0.509 or 50.9% which means that the cue to action variable (family support, cadres, health workers, and peers), self-efficacy variable, and Health Belief Model health perception variable (perception of susceptibility, severity, benefits, and barriers) are able to influence Posbindu PTM utilization by 50.9% and the remaining 49.1% is influenced by other factors, and indicates that the moderate model in the relationship.

Table 5. Path Coefficient Bootstrapping Results for Insignificant Variables

Path Coefficient	*Original sample*	*Sample mean*	*Standard deviation*	*T statistics*	*P values*
Family Support -> Perception of Vulnerability	0.048	0.05	0.061	0.780	0.435
Family Support -> Perception of Barriers	-0.143	-0.141	0.073	1,960	0.050
Family Support -> Utilization of PTM Posbindu	-0.026	-0.028	0.061	0.436	0.663
Cadre Support -> Perception of Vulnerability	-0.069	-0.069	0.089	0.774	0.439
Cadre Support -> Perception of Barriers	0.13	0.129	0.099	1,319	0.187
Cadre Support ->Utilization of PTM Posbindu	-0.059	-0.064	0.103	0.571	0.568
Support for Health Workers -> Utilization of Posbindu PTM	0.132	0.133	0.103	1.287	0.198
Peer Support -> Perceived Vulnerability	0.008	0.008	0.062	0.132	0.895
Peer Support -> Perceived Severity	0.045	0.048	0.05	0.899	0.369
Peer Support ->Utilization of Posbindu PTM	-0.071	-0.069	0.064	1,096	0.273
Self-Efficacy -> Perception of Barriers	0.011	0.011	0.094	0.112	0.911
Perception of Barriers -> Utilization of Posbindu PTM	0.001	0.003	0.045	0.022	0.982

Table 5.The results show that the family support variable does not have a significant relationship with perceptions of vulnerability with a p-value of 0.435 (>0.05). The results show that the family support variable does not have a significant relationship with the perception of barriers to grades.t-statistic 1,960 (>1.96), and p-value 0.05 (>0.05). The results show that the family support variable does not have a significant relationship with the utilization of Posbindu PTM with a p-value of 0.663 (>0.05). This study shows that the cadre support variable does not have a significant relationship with the perception of vulnerability with a p-value of 0.439 (>0.05). This study shows that the cadre support variable does not have a significant relationship with the perception of obstacles with a p-value of 0.187 (>0.05).

The results show that the family support variable does not have a significant relationship with the utilization of Posbindu PTM with a p-value of 0.568 (>0.05). The results show that the variable of health worker support does not have a significant relationship with the utilization of Posbindu PTM with a p-value of 0.198 (>0.05). The results show that the peer support variable does not have a significant relationship with perceived vulnerability with a p-value of 0.895 (>0.05).

The results show that the peer support variable does not have a significant relationship with the perception of severity with a p-value of 0.369 (>0.05). The results show that the peer support variable does not have a significant relationship with the utilization of Posbindu PTM with a p-value of 0.273 (>0.05). This study shows that the self-efficacy variable does not have a significant relationship with the perception of barriers with a p-value of 0.911 (>0.05). This study shows that the perception of barriers variable does not have a significant relationship with the utilization of Posbindu PTM with a p-value of 0.982 (>0.05).

Table 6.Path Coefficient Bootstrapping Results for Significant Variables

Path Coefficient	*Original sample*	*Sample mean*	*Standard deviation*	*T statistics*	*P values*
Family Support -> Perceived Severity	-0.155	-0.156	0.058	2,673	0.008
Family Support -> Perceived Benefits	0.128	0.127	0.040	3.221	0.001
Cadre Support -> Perception of Severity	0.220	0.218	0.082	2,668	0.008
Cadre Support -> Perception of Benefits	0.446	0.445	0.054	8.333	0.000
Health Worker Support -> Perception of Vulnerability	0.300	0.297	0.075	3.983	0.000
Health Care Worker Support -> Perception of Severity	0.404	0.403	0.091	4.444	0.000
Health Worker Support -> Perceived Benefits	0.116	0.115	0.050	2.308	0.021
Health Worker Support -> Perceived Barriers	-0.433	-0.435	0.073	5.923	0.000
Peer Support -> Perceived Benefits	0.093	0.093	0.034	2,732	0.006
Peer Support -> Perceived Barriers	-0.231	-0.231	0.072	3.194	0.001
Self-Efficacy -> Perceived Vulnerability	0.326	0.329	0.068	4.814	0.000
Self-Efficacy -> Perceived Severity	0.319	0.323	0.059	5.374	0.000
Self-Efficacy -> Perceived Benefits	0.186	0.189	0.058	3.201	0.001
Self-Efficacy -> Utilization of Posbindu PTM	0.272	0.271	0.064	4.278	0.000
Perception of Vulnerability -> Utilization of PTM Posbindu	0.340	0.343	0.041	8.257	0.000
Perception of Severity -> Utilization of Posbindu PTM	-0.118	-0.119	0.059	1,990	0.047
Perception of Benefits -> Utilization of Posbindu PTM	0.306	0.306	0.056	5,494	0.000

Table 6 shows that the family support variable has a significant negative relationship with the perception of severity with a coefficient value (relationship) of 0.155, t-statistic 2.673 (> 1.96), and p-value 0.008 (<0.05), meaning that the higher the family support, the lower the perception of severity felt by the individual. This study shows that the family support variable has a significant positive relationship with the perception of benefits with a coefficient value (relationship) of 0.128, t-statistic 3.221 (> 1.96), and p-value 0.001 (<0.05), meaning that the higher the family support, the higher the perception of benefits felt by the individual.

From the table above, it shows that the cadre support variable has a significant positive relationship with the perception of severity with a coefficient value (relationship) of 0.220, t-statistic 2.668 (> 1.96), and p-value 0.008 (<0.05). This can be interpreted that the higher the cadre support, the higher the perceived severity. This study shows that the cadre support variable has a significant positive relationship with the perception of benefits with a coefficient value (relationship) of 0.446, t-statistic 8.333 (> 1.96), and p-value 0.000 (<0.05), meaning that the higher the cadre support, the higher the perception of benefits felt by the individual.

From the table above, it shows that the variable of health worker support has a significant positive relationship with the perception of severity with a coefficient value (relationship) of 0.300, t-statistic 3.983 (> 1.96), and p-value 0.000 (<0.05). This can be interpreted that the higher the support of health workers, the higher the perceived vulnerability. This study shows that the variable of health worker support has a significant positive relationship with the perception of severity with a coefficient value (relationship) of 0.404, t-statistic 4.444 (> 1.96), and p-value 0.000 (<0.05), meaning that the higher the support of health workers, the higher the perceived severity.

This study shows that the variable of health worker support has a significant positive relationship with the perception of benefits with a coefficient value (relationship) of 0.116, t-statistic 2.308 (> 1.96), and p-value 0.021 (<0.05), meaning that the higher the support of health workers, the higher the perception of benefits felt. The results show that the variable of cadre support has a significant negative relationship with the perception of barriers with a coefficient value (relationship) of 0.433, t-statistic 5.923 (> 1.96), and p-value 0.000 (<0.05), meaning that the higher the support of health workers, the lower the perception of barriers felt by individuals.

This study shows that the peer support variable has a significant positive relationship with the perception of benefits with a coefficient value (relationship) of 0.093, t-statistic 2.732 (> 1.96), and p-value 0.006 (<0.05), meaning that the higher the peer support, the higher the perception of benefits felt by the individual. The results show that the peer support variable has a significant negative relationship with the perception of barriers with a coefficient value (relationship) of 0.231, t-statistic 3.194 (> 1.96), and p-value 0.001 (<0.05), meaning that the higher the peer support, the lower the perception of barriers felt by the individual.

From the table above, it shows that the self-efficacy variable has a significant positive relationship with the perception of severity with a coefficient value of 0.326, t-statistic 4.814 (> 1.96), and p-value 0.000 (<0.05). This can be interpreted that the higher the self-efficacy, the higher the perceived vulnerability. Research shows that the self-efficacy variable has a significant positive relationship with the perception of severity with a coefficient value of 0.319, t-statistic 5.374 (> 1.96), and p-value 0.000 (<0.05). This can be interpreted that the higher the self-efficacy, the higher the perceived severity.

The results show that the self-efficacy variable has a significant positive relationship with the perception of benefits with a coefficient value (relationship) of 0.186, t-statistic 3.201 (> 1.96), and p-value 0.001 (<0.05), meaning that the higher the self-efficacy, the higher the perception of benefits felt by the individual. The table above shows that the self-efficacy variable has a significant positive relationship with the utilization of Posbindu PTM with a coefficient value (relationship) of 0.272, t-statistic 4.278 (> 1.96), and p-value 0.000 (<0.05). This can be interpreted that the higher the self-efficacy, the higher the utilization of Posbindu PTM that is felt.

The results show that the vulnerability perception variable has a significant positive relationship with the utilization of Posbindu PTM with a coefficient value (relationship) of 0.340, t-statistic 8.257 (> 1.96), and p-value 0.000 (<0.05). This can be interpreted that the higher the perceived vulnerability, the higher the utilization of Posbindu PTM.

The study showed that the severity perception variable had a significant negative relationship with the utilization of Posbindu PTM with a coefficient value (relationship) of 0.118, t-statistic 1.990 (>1.96), and p-value 0.047 (<0.05). This can be interpreted that the higher the perceived severity, the lower the utilization of Posbindu PTM. The results showed that the benefit perception variable had a significant positive relationship with the utilization of Posbindu PTM with a coefficient value (relationship) of 0.306, t-statistic 5.494 (>1.96), and p-value 0.000 (<0.05). This means that the higher the perceived benefit, the higher the utilization of Posbindu PTM.

Based on the results of the analysis above, it is known that the perception of benefits is the most dominant factor in influencing the utilization of Posbindu PTM. This is indicated by the path coefficient value of 0.306 with a t-statistic value of 5.494 and a p-value of 0.000. This high coefficient value indicates that the higher the individual's perception of the benefits of Posbindu PTM, the more likely they are to utilize it.

DISCUSSION

Relationship between Family Support Variables and Perception of Severity

The results of the analysis show that family support has a significant negative relationship with the perception of severity. The coefficient value obtained is 0.155, with a t-statistic of 2.673 (greater than 1.96), and a p-value of 0.008 (smaller than 0.05), indicating that the relationship between family support and perception of severity is statistically significant. This means that the higher the family support received by individuals, the lower the perception of severity they feel.

Most respondents in this study showed a high level of family support, with a total of 229 people (61.1%). This reflects that many individuals feel supported by their families in dealing with various situations, which certainly contributes to a decrease in the perception of severity they feel. This family support can include emotional, instrumental, or informational aspects that help individuals feel more secure and have the resources to overcome the problems they face.

The Health Belief Model (HBM) theory provides a framework for understanding the relationship between family support and perceived severity. In the HBM, perceived severity is one of the important components that influences an individual's decision to take preventive action or seek treatment. Family support can serve to reduce perceived severity by increasing an individual's self-confidence and providing information that can help the individual better understand the situation (Rosenstock, 1974).

The relationship between family support and perceived severity of non-communicable diseases is significant. Higher levels of family support may lead to reduced perceptions of the severity of the disease.When individuals feel they have strong support from their family, they tend to feel more empowered and able to deal with the problems they face, so that the perception of severity with certain situations is reduced. In this case, family support functions as a protective factor that can reduce the negative impact of stress or problems faced by individuals. This is evident in various studies that highlight the positive impact of family support on health outcomes and perceptions (Astiarani et al., 2023), and (Darajat et al., 2024).

This study is in line with the study of Astiarani et.al. (2023) in patients with hypertension, that having family support is associated with an increase in more accurate perceptions of severity of the disease. Also in line with the study of Darajat et.al. (2024) found that 82.5% of diabetes mellitus patients who received high family support significantly influenced the management of these patients, potentially reducing the perception of severity of their condition. Strong family support improves patient compliance and psychological well-being, helping better health outcomes.

Relationship between Family Support Variables and Perceived Benefits

This study shows that family support is positively and significantly related to perceived benefits with a coefficient value of 0.128. This indicates that the higher the support an individual receives from their family, the higher the perceived benefits they feel. Family support can affect individuals in many ways, both psychologically, socially, and economically, which overall contribute to their positive views of the benefits or value of a situation or decision.

The results of the statistical test in this study also showed that the t-statistic value of 3.221 (> 1.96) and p-value of 0.001 (<0.05) indicated a significant relationship between family support and perceived benefits. It can be concluded that family support is an important factor related to how someone views the benefits in their lives. In this case, high support from the family provides a sense of security and emotional comfort for individuals, which in turn increases their ability to feel the benefits in life.

The majority of respondents in this study (61.1% or 229 people) reported high levels of family support, further

strengthening the finding that family support plays a key role in enhancing individuals' perceived benefits. This support can be in the form of moral encouragement, practical assistance, or the provision of resources needed by individuals to thrive and feel valued.

The relationship between family support and perceived benefits in managing non-communicable diseases (NCDs) is significant, as evidenced by various studies. Family support improves health care utilization, motivation, and disease management among individuals with NCDs, leading to improved health outcomes. A study showed that older adults who received family support were more likely to use formal health services, especially those with NCDs. This suggests that family support positively influences perceived benefits associated with managing NCDs (Agyemang-Duah et al., 2023).

Relationship between Cadre Support Variable and Perception of Severity

Based on the results of the analysis of the cadre support variable with the perception of severity, it can be concluded that there is a significant positive relationship between the two variables. The coefficient value of 0.220 indicates that every one unit increase in cadre support will increase the perception of severity by 0.220 units. This figure indicates a fairly strong relationship, although not too large, but quite meaningful in the context of this study.

The table also shows that the t-statistic value for the relationship between cadre support and perceived severity is 2.668, which is greater than the critical value of 1.96. This indicates that the relationship between cadre support and perceived severity is statistically significant. In other words, these results indicate that the cadre support variable does have a real impact on the perceived severity felt by respondents.

In addition, the p-value of 0.008 (which is smaller than 0.05) further strengthens the conclusion. A small p-value indicates that the possibility of the observed relationship occurring by chance is very small, so this result can be considered as strong evidence that cadre support is related to perceived severity.

In this study, most respondents had low levels of cadre support, with 210 people (56.0%) stating that they felt minimal cadre support. However, these data indicate that even though cadre support is low, the perceived severity can still be influenced. This may indicate the importance of the role of cadre support in shaping individuals' perspectives on the problems they face, even though the level of support received is still not optimal.

A study in El Salvador by Vidal et. al. (2020) showed that integrating community-based strategies (such as health workers) with clinical approaches is essential in managing NCDs. Collaboration between the health system and community organizations helps influence patients' perceptions of disease severity by providing comprehensive support and resources.

Relationship between Cadre Support Variables and Perception of Benefits

In this study, the cadre support variable was proven to have a significant positive relationship with the perception of benefits felt by individuals. This positive relationship was measured using a coefficient of 0.446, which indicates that the higher the level of cadre support, the higher the perception of benefits felt by individuals. More technically, the t-statistic value obtained was 8.333, which is greater than the threshold of 1.96, and the p-value of 0.000 which is smaller than 0.05, further strengthening the positive relationship between cadre support and perception of benefits.

This cadre support reflects how the contribution or assistance provided by the cadre can influence the views and perceptions of individuals with the benefits they receive, whether in a social, economic, or psychological context. In other words, when individuals feel strong and effective support from cadres, they tend to have a more positive view of the benefits they get from a related program or activity (Mardiana et al., 2024).

However, despite the significant relationship, the majority of respondents in this study showed a low level of cadre support. As many as 210 people (56.0%) of respondents had a low level of cadre support. This indicates a gap that may reduce the optimization of the perception of benefits felt by most individuals. By increasing the quality and intensity of support from cadres, individuals are expected to feel greater benefits, which in the end can have a positive impact on the success of the program or initiative being implemented.

The relationship between health cadre support and perceived benefits of non-communicable disease (NCD) prevention services is multifaceted, involving health worker empowerment and training, community engagement, and health service integration. Health cadres, such as community health workers and health extension workers, play a critical role in promoting NCD prevention by raising community awareness, conducting early detection, and facilitating access to health services. Their support plays a significant role in shaping community perceptions of the benefits of NCD prevention services, as they act as intermediaries between the health care system and the community. This relationship is influenced by several factors, including health cadre training and competence, community trust, and resource availability.(Hilal et al., 2024), and (Vidal et al., 2020).

According to researchHilal et. al. (2024), emphasized the empowerment of health cadres to improve community knowledge and behavior regarding non-communicable diseases. This support is very important because it fosters positive perceptions about the benefits of preventive services. By providing accurate information and conducting health checks, health cadres can effectively communicate the importance of early detection and healthy living, leading to increased community involvement in non-communicable disease prevention efforts. Thus, the relationship between health cadre support and perceived benefits is important in promoting health initiatives.

Another study in line with this is a study by Vidal et. al. (2020) which highlights that the support of health cadres significantly influences the perception of benefits regarding NCD prevention services. Trust in social connections and community health promotion is essential for effective NCD management, increasing patient engagement and adherence to preventive measures.

In this study, according to the results of the analysis, it states that cadre support is the most dominant factor to be a variable that has a strong relationship indirectly influencing the utilization of Posbindu PTM through the perception of benefits, because cadres play an active role in providing education, motivation, and assistance to the community. When cadres explain the benefits of posbindu well and build close relationships with residents, individuals become more aware of the importance of early detection and prevention of non-communicable diseases. This forms the perception that posbindu is beneficial, thus encouraging the community to use it more routinely.

Relationship between Health Worker Support Variables and Perception of Vulnerability

In the table presented, it can be seen that the variable of health worker support has a significant positive effect on the perception of vulnerability. The coefficient value obtained is 0.300, with a t-statistic of 3.983 (greater than 1.96) and a p-value of 0.000 (<0.05). This shows that the higher the level of support provided by health workers, the higher the perception of vulnerability felt by individuals. In other words, individuals who feel well supported by health workers tend to be more aware of the potential risks they face and, therefore, perceive themselves as more vulnerable to health problems.

Although this study showed a positive relationship between health worker support and perceived vulnerability, the survey results in this study showed that most respondents (62.7%) felt they received low support from health workers. This may indicate a lack of communication or interaction between health workers and patients that can reduce patients' awareness of their vulnerability to certain health conditions.

A study by Janz and Becker (1984) in HBM showed that support from medical personnel or health professionals can increase an individual's perception of their susceptibility to a disease. This support can be in the form of clear communication about health risks, reinforcement of prevention messages, and the provision of easy-to-understand information about ways to reduce these risks. In this case, good communication between health workers and patients can increase patients' awareness of the potential risks they face, which in turn can motivate them to take preventive measures.

A study by Duarte et. al. (2024) also supports this hypothesis, that support from health workers can increase the perception of vulnerability to NCDs, because those who trust health professionals tend to be

more receptive to health information and interventions aimed at reducing risk.

Relationship between Health Worker Support Variables and Perception of Severity

Perceived severity refers to the extent to which an individual feels that a health condition or disease can have a serious impact on his or her life. This perception plays an important role in motivating individuals to seek treatment, follow medical advice, and change behaviors to prevent or manage disease. Support provided by health workers can influence how individuals assess the severity of a health condition. In this study, it was found that health worker support had a significant positive effect on perceived severity, with a coefficient value of 0.404, t-statistic 4.444 (>1.96), and p-value 0.000 (<0.05). These findings indicate that the higher the support from health workers, the higher the perceived severity felt by individuals.

In this study, health worker support can cover various aspects, such as information provided by health workers, openness in communication, and empathy and attention given to patients. By providing clear explanations about the risks and impacts of a disease, health workers can increase patient awareness of how serious their condition is.

Previous research supports this finding. Becker (1974) in the Health Belief Model theory suggests that perception of severity is one of the factors that influence a person's health behavior. According to this model, if individuals feel that a health condition can have a serious impact on their lives, they are more likely to take preventive or treatment measures. Support from health workers can strengthen this perception by providing accurate information about the potential risks and impacts of the health condition being faced.

In addition, Rosenstock (1974) also emphasized the importance of communication in increasing the perception of severity. His research showed that individuals who receive clear and convincing information about the dangers or consequences of a disease will be more aware of the severity of the disease. Support from health workers, whether in the form of education, counseling, or outreach, can play a major role in shaping this perception of severity.

However, despite this significant positive relationship, the survey results showed that the majority of respondents (62.7%) felt that the support from health workers they received tended to be low. This could indicate a gap in the quality of communication between health workers and patients, which may affect the level of patient awareness of the severity of their condition.

Research from Duarte et. al. (2024) concluded that health worker support variables significantly influence perceptions of NCD severity, and it is important to consider the broader context, including cultural and socioeconomic factors, that may influence these perceptions. For example, variations in perceptions across countries highlight the need for interventions that take local beliefs and practices into account.

In conclusion, support from health workers plays an important role in shaping the perception of severity that individuals have towards their health conditions. This support not only strengthens patients' understanding of the potential serious impact of the disease they are facing, but can also motivate them to be more proactive in taking necessary medical action. Therefore, improving the quality of communication and support from health workers is very important in increasing patients' awareness and perception of the severity of their health conditions.

Relationship between Health Worker Support Variables and Perception of Benefits

In this study, it was found that support from health workers had a significant positive effect on perceived benefits, with a coefficient value of 0.116, t-statistic 2.308 (> 1.96), and p-value 0.021 (<0.05). This indicates that the higher the level of support provided by health workers, the higher the perceived benefits felt by individuals. Perceived benefits are individuals' beliefs that certain actions, such as following treatment or performing preventive behaviors, will benefit their health. This perception plays an important role in encouraging individuals to take health actions recommended by health workers. Support from health workers can play an important role in shaping this perception of benefits.

Support from healthcare workers can take many forms, from providing clear and easy-to-understand information about the benefits of medical procedures to providing comfort and confidence to patients in undergoing treatment or care. When individuals feel that healthcare workers provide good support and convey the benefits of the procedure in a convincing manner, they are more likely to believe in the benefits they will receive from the procedure.

Becker (1974) in the Health Belief Model states that the perception of benefits is one of the main factors that influence someone to take health actions. According to this model, individuals are more likely to take preventive measures or follow treatment if they believe that the action will bring significant benefits. Support from health workers plays an important role in communicating these benefits and eliminating any doubts that patients may have.

Champion and Skinner (2008) also confirmed the important role of social support in strengthening the perception of benefits. In their study of breast cancer prevention behavior, they found that patients who felt supported by health care providers, both emotionally and informationally, were more likely to believe in the benefits of preventive measures and were more likely to follow medical recommendations. This support reduced feelings of fear or doubt and replaced them with confidence that the actions they took would have a positive impact on their health.

However, despite this significant positive effect, the survey results showed that the majority of respondents (62.7%) felt that the support from health workers they received was low. This may be due to ineffective communication factors or limited time given by health workers in providing in-depth explanations of the benefits of treatment or preventive measures. It is hoped that health workers will continue to improve the quality of their support by providing clear and convincing information, and showing empathy in every interaction with patients, in order to increase the perception of benefits felt by patients.

The relationship between health worker support and perceived benefits for non-communicable disease (NCD) prevention services is multifaceted, involving factors such as knowledge, training, community engagement, and organizational support. Their effectiveness is influenced by their training, self-efficacy, and the support they receive from their organization and community. This relationship has been explored through various studies that highlight the importance of these factors in improving perceptions and effectiveness of NCD prevention services. For example, this study by Musoke et. al. (2021) found that community health workers faced challenges such as inadequate knowledge (58.4%) and lack of training (37.6%) regarding NCDs which negatively impacted community perceptions of their effectiveness. Limited community trust hindered the perceived benefits of NCD prevention services provided by local health workers.

Relationship between Health Worker Support Variables and Perception of Barriers

The relationship between health worker support and perceived barriers is important to understand in the context of health interventions. The results showed that support from health workers had a significant negative effect on perceived barriers, with an influence coefficient of 0.433, t-statistic of 5.923 (>1.96), and p-value of 0.000 (<0.05). This indicates that the higher the level of support provided by health workers, the lower the perceived barriers felt by individuals. In this study, the majority of respondents (62.7%) reported that the support they received from health workers was low, with 235 people included in that category.

According to the Health Belief Model (HBM) theory developed by Rosenstock (1974), perception of barriers is one of the key factors influencing an individual's decision to follow certain health behaviors. According to this model, if individuals perceive high barriers to accessing or following medical advice, they are less likely to take such action. However, support from health workers can reduce these perceived barriers by providing information, encouragement, or even practical assistance that makes individuals feel more capable of acting on medical recommendations.

Health workers, including community health workers and non-physician health workers, play a critical role in the prevention and management of NCDs. Their support is critical in overcoming barriers to service delivery, which can include logistical challenges, lack of resources,

and community engagement issues. The effectiveness of health worker support often depends on adequate training, resources, and community integration, which can significantly change the perception of barriers to NCD prevention services (Heller et al., 2019), and (Musoke et al., 2021).

Research from Heller et. al. (2019) identified that health worker support significantly influenced public perceptions of barriers to non-communicable disease (NCD) prevention services. Strong enabling factors, including ongoing training and supervision, improved health worker capabilities, leading to improved perceptions of service delivery. This relationship underscores the importance of strong health worker support in addressing public barriers and optimizing NCD prevention efforts in low- and middle-income countries.

This study can be concluded that increasing support from health workers can be an effective strategy in reducing the perception of barriers felt by individuals. Therefore, training for health workers to improve the quality of their support, both emotionally and informationally, is very important. In addition, it is also expected to create policies that support strengthening the relationship between health workers and patients so that the barriers felt by patients, whether related to access, cost, or uncertainty in treatment, can be minimized. Thus, the role of health worker support is not only limited to providing medical information, but also includes creating a supportive environment to reduce the barriers felt by individuals in taking necessary health actions.

Relationship between Peer Support Variables and Perceived Benefits

This study shows a significant positive relationship between peer support and the perception of benefits felt by individuals. The correlation coefficient of 0.093 with a t-statistic of 2.732 (greater than 1.96) and a p-value of 0.006 (<0.05) indicates that the higher the peer support received by a person, the greater the perception of benefits felt.

The results of the study showed a positive correlation coefficient of 0.093, which illustrates that there is a significant relationship between the level of peer support and the perception of benefits. This means that the higher the support an individual receives from peers, the greater their perception of the benefits of an action or decision they make. This phenomenon can be explained through the social mechanisms that occur in peer groups, where positive interactions and sharing experiences can strengthen an individual's belief in the benefits that can be obtained.

In accordance with the perception of benefits in the HBM theory which refers to the extent to which individuals believe that a particular action will bring benefits to their health or well-being. Peer support plays a key role in shaping this perception. Peers often provide information, motivation, or even real examples that can influence individuals to see the benefits of an action. With this support, individuals feel more confident and sure of the benefits they can get, which in turn increases their decision to act (Rosenstock, 1974).

This study is in accordance with the study of Haregu et. al. (2023) that peer support programs have been shown to improve health behaviors and outcomes, especially in chronic disease management. For example, in the Kerala Diabetes Prevention Program, participants with high peer support experienced greater health benefits than other participants. This suggests that peer support can enhance an individual's perception of the benefits of health actions by providing ongoing encouragement and concurrent experiences.

Peer support operates through several mechanisms, including emotional and social support, assistance with daily management, and linkages to clinical care and community resources. These elements help individuals feel more empowered and able to manage their health, thereby increasing their perceptions of the benefits of health-related actions (Evans et al., 2021).

These findings provide a deeper understanding of the role of peer support in shaping perceived benefits. For practitioners or health program managers, these results suggest the importance of involving peer groups in health interventions to strengthen participants' beliefs about the benefits of the recommended actions. For example, in disease prevention or healthy lifestyle promotion programs, optimizing peer support can increase perceived benefits and encourage individuals to be more actively involved in the program.

Relationship between Peer Support Variables and Perception of Barriers

Peer support can have a significant influence on the perception of barriers felt by individuals, especially in the context of decision making or behavior that affects their well-being. The results showed that the peer support variable had a significant negative relationship with the perception of barriers, with a coefficient value of 0.231, a t-statistic of 3.194 (> 1.96), and a p-value of 0.001 (<0.05). This indicates that the higher the support received from peers, the lower the perception of barriers felt by individuals.

In this context, peer support includes forms of emotional, informational, and instrumental support that can influence how individuals deal with challenges or obstacles in their lives. Peer support often serves as a psychological reinforcer that increases self-confidence, reduces fear or anxiety, and provides a more positive perspective on dealing with problems.

In HBM theory, perceived barriers refer to the extent to which a person feels there are obstacles or difficulties in making behavioral changes, whether related to health problems or other aspects of life. Peer support can reduce perceived barriers by providing emotional and social resources that can help individuals feel more capable of facing challenges. This support reduces feelings of anxiety or fear that can prevent individuals from taking desired actions or changes (Rosenstock, 1974).

One of the main concepts in the HBM is that social support can increase the perceived benefits of an action or behavior change, while reducing the perception of barriers. Peer support provides reinforcement that allows individuals to feel more confident in taking the necessary steps. Thus, the finding that the higher the peer support, the lower the perceived barriers, is in accordance with the HBM principle that social support functions to reduce psychological barriers (Schmid et al., 2024).

This study is consistent with Schmid et. al. (2024) who showed that increased peer support can lead to reduced perceptions of barriers faced by individuals living with non-communicable diseases in humanitarian settings. This support fosters a sense of community and shared experiences, which can empower individuals to navigate challenges more effectively. Consequently, when peer support is strengthened, individuals may feel less constrained by barriers related to managing their health conditions, ultimately improving their overall well-being and engagement in health-related activities.

From the results of the research and HBM analysis, it can be concluded that peer support plays an important role in reducing the perception of barriers felt by individuals. This support not only functions as an emotional reinforcer but also as a factor that reduces psychological barriers in making decisions or making behavioral changes. It is hoped that increasing peer support can be an effective strategy in reducing perceived barriers, facilitating individuals in achieving their goals or desired changes.

Relationship between Self-Efficacy Variables and Perception of Vulnerability

In the data analysis conducted, a significant positive relationship was found between the self-efficacy variable and the perception of vulnerability, as measured by the relationship coefficient value of 0.326, t-statistic 4.814 (greater than 1.96), and p-value 0.000 (smaller than 0.05). These results indicate that the higher the level of individual self-efficacy, the higher the perception of vulnerability to existing threats or risks. This means that individuals who believe in their ability to overcome challenges and manage risks tend to feel more vulnerable or more sensitive to potential threats faced.

Most of the respondents in this study, 249 people or 66.4%, showed a high level of self-efficacy. This indicates that their belief in their ability to overcome problems or threats can influence their perception of how much risk they face.

The Health Belief Model (HBM) theory developed by Rosenstock (1974) also provides an important perspective in understanding the relationship between self-efficacy and perceived vulnerability. HBM explains that an individual's health behavior is influenced by two main factors: their perceived vulnerability to a threat and their perceived severity of the threat. Furthermore, individuals will take preventive action or health behavior based on their belief that they can prevent or reduce the threat if they feel they have the ability (self-efficacy) to do so. Refers to the extent to which an individual feels

vulnerable to a particular threat or risk. This perception can be directly related to the level of self-efficacy, because individuals who feel they are able to manage threats will tend to feel more vulnerable but remain optimistic in the face of risk.

This research strengthens studies fromFaatih et. al. (2021) showed that higher self-efficacy was associated with greater perceptions of susceptibility to non-communicable diseases (NCDs). Participants who were actively involved in Posbindu NCDs showed higher mean ratings in their perceptions of the health belief model (HBM), including their understanding of disease severity and personal susceptibility. This suggests that individuals with greater self-efficacy are more likely to recognize their susceptibility to NCDs, thereby increasing their motivation to engage in preventive health behaviors.

Relationship of Self-Efficacy Variables with Perceived Severity

The results of the study indicate that the self-efficacy variable has a significant positive relationship with the perception of severity. This is indicated by the relationship coefficient value of 0.319, t-statistic 5.374 (greater than 1.96), and p-value 0.000 (smaller than 0.05). This finding indicates that the higher a person's self-efficacy, the higher the perception of the severity of the threat they feel. Most of the respondents in this study, namely 249 people or 66.4%, had a high level of self-efficacy.

Perceived severity, in the Health Belief Model (HBM), refers to a person's beliefs about the seriousness of the consequences of a threat (Rosenstock, 1974). Individuals who perceive a threat as severe or serious are more likely to take preventive action, especially if they feel they have the ability to deal with it (high self-efficacy).

This study is in accordance with a study by Lorber et. al. (2024) which showed that higher self-efficacy is often associated with increased health literacy, leading to a better understanding of the severity and implications of NCDs. This can result in more proactive health management and adherence to medical advice.

From the results of the analysis and support of existing theories, it can be concluded that self-efficacy is positively and significantly related to the perception of severity. Individuals who have high confidence in their abilities are not only more realistic in assessing how severe a threat is, but also more prepared to take the necessary actions. This supports the concept of the Health Belief Model which emphasizes the importance of the combination of perception of severity and self-efficacy in forming adaptive behavior towards risk.

Relationship between Self-Efficacy Variables and Perceived Benefits

The results of the study showed that the self-efficacy variable had a significant positive relationship with the perception of benefits, with a coefficient relationship value of 0.186, t-statistic 3.201 (greater than 1.96), and p-value 0.001 (smaller than 0.05). This shows that the higher a person's self-efficacy, the higher the perception of the benefits felt. Most of the respondents in this study, namely 249 people or 66.4%, had high self-efficacy.

Perceived benefits itself, in the Health Belief Model (HBM), refers to an individual's belief about the effectiveness of an action in reducing the risk or impact of a problem. When someone has high self-efficacy, they are better able to understand and believe that the action taken will produce positive results or expected benefits. Perceived benefits are one of the strongest predictors of health behavior change, but their strength increases when accompanied by high self-efficacy (Rosenstock, 1974).

The results of this study are in accordance with the study of Çiriş Yildiz et. al. (2023) which showed that there was a significant relationship between self-efficacy (measured by the Chronic Disease Self-Efficacy Scale) and health perception, indicating that higher self-efficacy may correlate with more positive perceptions of health services.

This study is also in accordance withChoi et. al.'s (2023) study found that higher self-efficacy was positively associated with perceived effectiveness of non-contact health services. This suggests that individuals with greater self-efficacy are more likely to recognize the benefits of services aimed at preventing non-communicable diseases.

Based on the results of the analysis and existing theories, it can be concluded that self-efficacy has a positive and

significant relationship with the perception of benefits. Individuals who have high confidence in their abilities tend to be more confident in the benefits that will be obtained from the actions taken. This is in accordance with the principles of the Health Belief Model, where the perception of benefits plays an important role in shaping health behavior, especially when combined with high self-efficacy. Thus, increasing one's self-efficacy is an important key to strengthening the perception of benefits and, ultimately, encouraging preventive actions or positive behavioral changes.

Relationship between Self-Efficacy Variables and Utilization of Posbindu PTM

This study shows that the self-efficacy variable has a significant positive relationship with the utilization of Posbindu PTM. The results of the statistical analysis showed a coefficient value of 0.272, t-statistic 4.278 (> 1.96), and p-value 0.000 (<0.05). This indicates that the higher the individual's self-efficacy, the higher the level of utilization of Posbindu PTM services. Most respondents, namely 249 people or 66.4%, were known to have high self-efficacy.

Self-efficacy is an individual's belief in their ability to organize and execute the actions needed to achieve a specific goal. In the context of utilizing health services such as Posbindu PTM, individuals with high levels of self-efficacy feel more capable of carrying out early detection efforts, routine check-ups, and following the health recommendations given. They are more confident in overcoming various obstacles that may arise, so they are more active in utilizing available health service facilities (Rosenstock, 1974).

The results of this study are in accordance with research from Mardhiyati et.al. (2019) that self-efficacy has a significant relationship with the utilization of Posbindu PTM. The results of the study showed that p <0.05, which means that there is a relationship between the perception of self-efficacy and the utilization of Posbindu PTM. The results of the analysis of the cross-tabulation table show that the group of respondents with low utilization of posbindu is more by respondents with low perceptions of self-efficacy compared to respondents with high perceptions of self-efficacy.

The results of this study confirm that self-efficacy plays an important role in increasing the utilization of health services such as Posbindu PTM. Therefore, strategies to increase the utilization of Posbindu PTM need to be directed at strengthening community self-efficacy, increasing awareness of vulnerability to disease, and clarifying the benefits that can be obtained from these services.

CONCLUSION

Based on the results of this study regarding the determinants related to the utilization of Posbindu PTM in the working area of Ulee Kareng Health Center, Banda Aceh City, the following conclusions can be drawn.

The most dominant determinant related to the utilization of Posbindu PTM in the working area of Ulee Kareng Health Center, Banda Aceh City is the variable of perceived benefits with a path coefficient value of 0.306, t-statistic 5.494 (>1.96) and p-value 0.000 (<0.05).

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