

The Influence Of Interpersonal Communication Toward Knowledge And Attitude Prevention Of Dengue Fever (DHF) In The Work Area Of The Meo-Meo Public Health Center In Baubau City

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Abstract: *Dengue Hemorrhagic Fever (DHF) risks causing death when the sufferer experiences shock due to bleeding. Until now, there is no specific drug to cure DHF. This study was aimed to determine the effect of interpersonal communication on improving the prevention of Dengue Fever (DHF). The type of research used is Quasi-experiment with nonrandomized pretest-posttest control group design. Samples were taken by simple random sampling of 78 respondents from a population of 1,791 households each of 39 respondents in the intervention group and 39 in the control group. Data collection uses questionnaires and interviews in the working area of the Baubau City Meo-Meo Community Health Center. Data were analyzed using the Wilcoxon and Man Whitney tests. The results showed the percentage of respondents characteristics in this study the most age groups were 28-38 years 39.74%, female sex 79.48%, married 92.31%, high school education 56.41%. The mean score increased knowledge (13.21 to 17.49), AND attitudes (33.38 to 38.92) about DHF before and after interpersonal communication. The mean score increased knowledge (12.69 to 16.49), and attitudes (33.33 to 37.46) about DHF before and after counseling. While the comparison of the intervention group was significant from the control group with ($p < 0.05$) namely knowledge ($p = 0,000$), and attitude ($p = 0.021$) about DHF. Interpersonal communication is more influential than counseling and the need for monitoring and evaluating the implementation of interpersonal communication on an ongoing basis.*

Keywords: *Interpersonal communication, Knowledge, Attitudes, DHF.*

1. INTRODUCTION

Dengue Hemorrhagic Fever (DHF) is an infectious disease and tropical disease that is still a public health problem in the world, including in Indonesia (1). According to WHO, dengue infection is a global health problem with an estimated incidence of around 390 million people each year. Asia is heading for the Dengue Hemorrhagic Fever (DHF) epidemic in 2019, a number of countries including Australia, Cambodia, Laos, Malaysia, the Philippines, Singapore, and Vietnam are facing a surge in dengue cases in the last six months. Most cases of Dengue Hemorrhagic Fever (DHF) in Indonesia until early February 2019 were in the regions of East Java, Central Java, NTT, and Kupang, reaching 16,692 cases with 169 people dying. This number increased compared to the previous month, namely 13,683 cases with 133 people died (2).

Dengue Hemorrhagic Fever (DHF) is an infectious and contagious disease caused by the dengue virus (3). Dengue Hemorrhagic Fever (DHF) is a transmission disease through mosquitoes bites from the genus *Aedes* especially *Aedes aegypti* or *Aedes albopictus* (4). Symptoms of Dengue Hemorrhagic Fever (DHF) do not appear immediately, but it takes 4-10 days after being bitten by a mosquito carrying the dengue virus. Red spots that appear on the skin surface are a sign of bleeding in the skin due to decreased platelets (5). The incidence of DHF is correlated with the potential for rainfall, temperature, and humidity. The incidence rate of DHF also tends to increase (6). Detection and mapping of serotypes in an area can be a strategy to monitor the transmission of dengue viruses and investigate outbreaks especially preventing severe outcomes in the event of an outbreak or the case of another handling (7). Furthermore, strengthening the institutional system can help in reducing cases of dengue hemorrhagic fever (DHF) (8).

In Baubau City, in 2018 the number of dengue fever sufferers was 98 cases decreased, in 2017 the number of dengue cases was 116 cases, and in 2019 dengue cases increased again by 157 cases. DHF cases in the working area of the Meo-Meo Puskesmas, Batupoaro District, Baubau City are 11 cases in 2015, 20 cases in 2016, 17 cases in 2017, 10 cases in 2018, and 10 cases in 2019. In 2019 there were still as many dengue cases as 10 cases are the same as in 2018 (9).

Dengue Hemorrhagic Fever (DHF) cases are not only caused by mosquitoes but also by human behavior who does not adopt a healthy lifestyle and are indifferent to the environment where mosquitoes are nesting. These behaviors include letting used clothes hang, not draining the tub, allowing standing water around the dwelling. The risk of dengue fever is indirectly influenced by intention, attitude, education, and family income (10).

Respondents' knowledge and attitudes affect the incidence of disease (11). Research by (12) in Bondowoso Regency found that counseling was effective in increasing knowledge, attitudes, and actions but was not effective for the presence of larvae. (13) research in Sleman Regency shows that there is a significant relationship between education, income, and knowledge in the control group. There is a significant relationship between the control group and the treatment group on the aspects of knowledge and attitudes which indicate that the provision of DHF prevention interventions is related to knowledge and attitudes.

Interpersonal communication is verbal and nonverbal interaction between two or sometimes more than two people who depend on each other (14). Interpersonal communication aims to learn, build relationships with others, influence others, and help others. Interpersonal communication is carried out through face-to-face where the message source can see directly who is the recipient of the message. Then there is immediate feedback without having to use intermediaries. Therefore, communication participants can also easily and immediately receive feedback from other communication participants right away. This study aims to analyze the effect of interpersonal communication on knowledge and attitudes

by increasing the prevention behavior of Dengue Hemorrhagic Fever in the working area of the Meo-Meo Community Health Center, Baubau City.

2. MATERIALS AND METHODS

Research Location and Design

This research was conducted in the working area of Public health center Bataraguru, Baubau City, Southeast Sulawesi. The type of research used in this study was a quasi-experiment with a nonrandomized pretest-posttest control group design.

Population and Sample

The population in this study were all households living in 2 sub-districts, namely Lanto 899 Households and 892 Wameo Households with a total population of 1,791 households. The sample of the interpersonal communication intervention group was 39 people and the control group with counseling was 39 people. So that the total sample size is 78 people.

Method of collecting data

Data collection was obtained using a questionnaire and observation sheet. Collecting data for the intervention group by visiting respondents door to door introducing themselves to respondents then conducting a pretest to find out their knowledge and attitudes then using interpersonal communication methods to respondents using leaflet media as well as seeing directly the condition of their homes, related to the prevention of Dengue Hemorrhagic Fever (DHF) with using the observation sheet to completion with a duration of 15-30 minutes. After one month the respondents were returned to do a posttest to find out the knowledge and attitudes of respondents after interpersonal communication a month ago.

For the control group, the extension was given a pretest to the respondent to find out the knowledge, and attitudes, then counseling with the lecture and discussion method using multimedia media, laptops, and projectors with a duration of 60 minutes (45 minutes of lecture and 15 minutes of discussion. After finishing the extension, it was continued with posttest to find out more) knowledge and attitudes after counseling Posttest data were taken 1 month later after treatment in the intervention group.

Data analysis

Data analysis in this study used bivariate analysis to determine differences in interpersonal communication with counseling on the improvement of Dengue Hemorrhagic Fever (DHF) prevention behavior in the work area of the Meo-Meo Community Health Center in Baubau City, namely using the T-test (T-test). The different test for the two dependent means is the Wilcoxon Signed Rank Test. The difference test for two independent means is Mann-Whitney.

3. RESULTS

Descriptive Analysis of the Intervention Group and the Control Group

Table 1. Results of the Descriptive Analysis of the Intervention and Control Groups

Variable		Mean		Difference Average
		Intervention Group	Control Group	
Knowledge	Pretest	13.21	12.69	0.52
	Posttest	17.49	16.49	1.00

Attitude	Pretest	33.38	33.33	0.05
	Posttest	38.92	37.46	1.46

Table 1 shows the results of the descriptive analysis in the pretest and posttest intervention groups increased the knowledge variable by 32.40%, and attitudes by 16.77%. Meanwhile, in the pretest and posttest control groups, there was also an increase in knowledge by 29.9% and attitudes by 12.4%.

Table 2. Knowledge Scores of Respondents in the Intervention Group and the Control Group at Pretest, Posttest in Lanto Village and Meo-Meo Village, Baubau City in 2020

Statistical value	Knowledge score				p-value
	n	Mean	SD	SE	
Intervention Group					0.000
Pretest	39	13.21	2.496	0.368	
Posttest	39	17.49	1.222	0.160	
Control Group					0.000
Pretest	39	12.09	2.687	0.430	
Posttest	39	16.49	1.223	0.197	

Table 2 shows there was an increase in the mean score of knowledge in the pretest intervention group to 13.21 and posttest to 17.49. The statistical test results obtained p-value = 0.000 ($p < 0.05$), which indicates that there is a significant difference in the mean score of knowledge at the pretest and posttest on the increase in knowledge of prevention of dengue hemorrhagic fever (DHF). The increase in the mean score also occurred in the control group at pretest 12.69 and the posttest to 16.49. The results of statistical tests obtained p-value = 0.000 ($p < 0, 05$) which indicates that there is a significant difference in the mean score of knowledge at the pretest and posttest on the increase in knowledge of the prevention of dengue fever.

Differences in interpersonal communication and counseling on improving attitudes to prevent Dengue Hemorrhagic Fever (DHF) in the working area of the Meo-Meo Community Health Center, Baubau City.

Table 3. The Score of Respondents' Attitudes in the Intervention and Control Group at Pretest, Posttest in Lanto Village and Meo Village, Baubau City in 2020

Statistical value	Attitude score				p-value
	n	Mean	SD	SE	
Intervention Group					0.000
Pretest	39	33.38	2.997	0.480	
Posttest	39	38.92	2.031	0.325	
Control Group					0.000
Pretest	39	33.33	4.567	0.731	
Posttest	39	37.46	2.780	0.445	

Table 3 shows there was an increase in the mean score of the pretest attitude to 33.38 and a posttest to 38.92 in the intervention group. The statistical test results obtained p-value = 0.000 ($p < 0.05$), which indicates that there is a significant difference in the mean score of attitudes at the pretest and posttest on the increase in the attitude of prevention of dengue hemorrhagic fever (DHF). The increase in the mean score of attitudes also occurred in the control group pretest 33.33, and posttest to 37.46. The statistical test results obtained p-value = 0.000 ($p < 0.05$) which indicates that there is a significant difference in the mean score of attitudes at the pretest and posttest on the increase in the attitude of prevention of Dengue Hemorrhagic Fever (DHF).

Differences in knowledge and attitudes between the interpersonal communication intervention group and the counseling group on the improvement of Dengue Hemorrhagic Fever (DHF) prevention.

Table 4. Differences in the Knowledge Scores of Respondents in the Intervention Group and the Control Group at Pretest and Posttest in Lanto Village and Wameo Village in Baubau City in 2020

Knowledge	Statistical value		
	n	Mean	p-value
Pretest			0.389
Intervention	39	12.95	
Control	39	1.50	
Posttest			0.000
Intervention	39	16.99	
Control	39	1.50	

Table 4 shows the results of statistical tests, the pretest score of knowledge between the intervention group and the control group was not significant, the value of $p = 0.389$ ($p > 0.05$), and the posttest result was significant, the value of $p = 0.000$ ($p < 0.05$). The mean posttest score of the intervention group was 16.99 higher than the control group was 1.50 with a difference of 15.49.

Table 5. The Difference in the Score of Respondents' Attitudes in the Intervention and Control Group at Pretest and Posttest in Lanto Village and Wameo Village in Baubau City in 2020

Sikap	Statistical value		
	n	Mean	p-value
Pretest			0.960
Intervention	39	33.36	
Control	39	1.50	
Posttest			0.021
Intervention	39	38.19	
Control	39	1.50	

Table 5 shows the statistical test results of the pretest attitude score between the intervention group and the control group are not significant, the value of $p = 0.960$ ($p > 0.05$), and the posttest results are significant, the value of $p = 0.021$ ($p < 0.05$). The mean posttest

score of the intervention group was 38.19 higher than the control group was 1.50 with a difference of 36.69.

4. DISCUSSION

Differences in interpersonal communication and counseling on increasing knowledge of the prevention of Dengue Hemorrhagic Fever (DHF). The results of statistical tests in the interpersonal communication intervention group obtained a value of $p = 0.000$ ($p < 0.05$) which indicates that there is a significant difference in the knowledge scores of the pretest and posttest on the increase in the prevention of dengue hemorrhagic fever (DHF). The results of statistical tests in the counseling control group obtained a value of $p = 0.000$ ($p < 0.05$) which indicates that there is a significant difference in the mean score of knowledge at the pretest and posttest, towards the increase in the prevention of dengue fever.

Based on the statistical test of the two groups, both of them are significant, but there is a difference in the percentage of knowledge in the intervention group, 32.4% higher than the control group 29.9% with a difference of 2.5% higher than the control group as well as the higher score in the intervention group for 1.00. So it can be concluded that interpersonal communication is more influential than counseling on increasing knowledge of Dengue Hemorrhagic Fever (DHF) prevention.

Differences in interpersonal communication and counseling on improving attitudes to prevent Dengue Hemorrhagic Fever (DHF). The results of statistical tests in the interpersonal communication intervention group obtained a value of $p = 0.000$ ($p < 0.05$) which indicates that there is a significant difference in the attitude scores of the pretest and posttest towards the increase in the prevention of dengue hemorrhagic fever (DHF). The results of statistical tests in the counseling control group obtained a value of $p = 0.000$ ($p < 0.05$), which indicates that there is a significant difference in the mean score of attitudes at the pretest and posttest, towards the increase in the prevention of dengue fever.

Based on the statistical test of the two groups, both of them were significant, but there was a difference in the percentage of the attitude of the intervention group, which was 16.6% higher than the control group 12.4% with a difference of 4.2% higher than the control group as well as the higher score in the intervention group of 1.46. So it can be concluded that interpersonal communication is more influential than counseling on improving the attitude of prevention of Dengue Hemorrhagic Fever (DHF).

Differences in knowledge and attitudes between the interpersonal communication intervention group and the counseling control group on the improvement of Dengue Hemorrhagic Fever (DHF) prevention. The results of statistical tests at the pretest and posttest obtained p -value = 0.389 ($p > 0.05$), and $p = 0.000$ ($p < 0.05$), which indicates that there is a significant difference in the mean score of respondents' knowledge between the intervention group and the group. control which means more influence interpersonal communication than counseling.

The results of statistical tests at the pretest and posttest obtained values of $p = 0.960$ ($p > 0.05$), and $p = 0.021$ ($p < 0.05$), respectively, which indicates that there is a significant difference in the mean score of respondents' attitudes between the intervention group and control group which means more influence on interpersonal communication than counseling. Based on statistical tests and scores of knowledge values, and attitudes in the intervention group and control group, it can be concluded that interpersonal communication is more influential than counseling on the improvement of Dengue Hemorrhagic Fever (DHF) prevention behavior.

This attitude is a response to efforts to prevent and eradicate dengue hemorrhagic fever through 3M plus, including drying, closing, and reusing or recycling used goods. Its added

value is sowing or dripping larvacides, using mosquito repellent, using clamps, maintaining mosquito larvae, planting mosquito repellent plants, regulating lighting and ventilation in the house, and avoiding hanging clothes in the house (15).

In accordance with research conducted by Weningtyas and colleagues (2012), interpersonal communication affects customer satisfaction and service quality on customer satisfaction (16). Research conducted by Patriana (2014) also states that interpersonal communication between community counselors and the families of children of criminals runs effectively because it fulfills elements such as trust, openness, mutual support, and empathy (17).

Research conducted by Listyorini (2016) on the factors that influence the behavior of eradicating mosquito nests in the people of Karangjati, Blora Regency (18). The results showed that the knowledge, attitudes, and roles of health workers influence the behavior of eradicating Dengue Hemorrhagic Fever mosquito nests in the community. The better the knowledge, the better the prevention behavior of Dengue Hemorrhagic Fever (19). While the results of research by Lontoh et al (2014) regarding the relationship between knowledge and attitudes with the prevention of Dengue Fever in Malalayang Village. The results show that there is a relationship between attitude and Dengue Hemorrhagic Fever prevention measures (20).

5. CONCLUSIONS AND RECOMMENDATIONS

There is an increase in knowledge before and after interpersonal communication interventions compared to counseling on the prevention of Dengue Hemorrhagic Fever (DHF) in the Work Area of the Meo-Meo Community Health Center, Baubau City. There was an increase in attitudes before and after interpersonal communication interventions compared to counseling on the prevention of Dengue Hemorrhagic Fever (DHF) in the Work Area of the Meo-Meo Community Health Center, Baubau City. Interpersonal communication is more influential than counseling on improving the prevention behavior of Dengue Hemorrhagic Fever (DHF) in the Work Area of the Meo-Meo Community Health Center, Baubau City. It is necessary to monitor and evaluate the implementation of interpersonal communication on an ongoing basis for Dengue Hemorrhagic Fever (DHF) programmers in public health centers as the spearhead of health services in districts/cities.

6. REFERENCES

- [1] Noor NB, Arsunan AA, Marleni NMR, Mallongi A. Algorithm malaria diagnosis as a result of the comparison between clinical symptoms and microscopy test in the population central Sulawesi Province. *Asian J Epidemiol.* 2017;10(1):32–6.
- [2] Indonesian Health Ministry. *Indonesia Health Profile 2018.* Indonesia: Ministry of Health of the Republic of Indonesia; 2019.
- [3] Arsin. AA. *Epidemiologi Demam Berdarah Dengue (DBD) di Indonesia.* Makassar: Masagena Press; 2013.
- [4] Bachtiar SP, Arsunan Arsin HA, Arsyad DS. Factors toward dengue haemorrhagic fever occurrence in Pattene village, North Wara district, Palopo city. *Indian J Public Heal Res Dev.* 2019;10(7):1085–9.
- [5] A. Rauf, H. Zaman, Junaid Zeb, Mohammad Shoaib, Irfan Ali MA. Dengue fever in patients presenting with acute febrile illness and thrombocytopenia. *Rawal Med J.* 2019;44(4):662–5.
- [6] Zamli, Syafar M, Palutturi S, Suriah, Arsin AA, Hatta, et al. Potential of rainfall, humidity and temperature, against the increasing of larvae in makassar city, Indonesia.

- Int J Innov Technol Explor Eng. 2019;9(1):1485–7.
- [7] Taslim M, Arsunan AA, Ishak H, Nasir S, Usman AN. Diversity of dengue virus serotype in endemic region of South Sulawesi Province. *J Trop Med*. 2018;2018.
- [8] Selpida ANNAMSDAAAY. Institutional strengthening as an anticipatory measure for dengue virus transmission to reduce the incidence of dengue fever. *Enfermería Clínica*. 2020;30(2):424–8.
- [9] Baubau Health Office. City of Baubau Health Profile 2019. City of Baubau: Health Office; 2019.
- [10] Devi Ayuningtyas1 K, Sri Rahardjo S, Murti B. Risk Factors of Dengue Fever: Application of PRECEDE – PROCEED Model. *J Epidemiol Public Heal*. 2018;04(01):37–46.
- [11] Madjid Abdul, Muhammad Syafar, Andi Arsunan Arsin, Maria Ida Leida, Abdullah Thahir, Burbahar RR. Effect of Knowledge and Attitude Factors on Tuberculosis Incidents in Mandar Ethnic in The District of Majene West Sulawesi. *Indian J Public Heal Res Dev*. 2019;10(8):1935–9.
- [12] Shidiq P. The Effectiveness of Family Education in the Eradication of Dengue Fever in Bondowoso Regency. Sebelas Maret University Surakarta;
- [13] Ikhlasari R.N. The Relationship of Giving Dengue Hemorrhagic Fever (DBD) Prevention Intervention to the Level of Knowledge, Attitudes, Actions, and Community Continuity in Godean and Mlati Districts, Sleman Regency. Essay; 2017.
- [14] DeVito JA. The Interpersonal Communication Book 13th Edition. United States of America: Pearson Education, Inc.; 2013.
- [15] Fatimah N, Rahardjo SS, Murti B. The Contextual Effect of Village on Health Preventive Behavior for Dengue Hemorrhagic Fever in Pati, Central Java. *J Epidemiol Public Heal*. 2019;4(3):198–204.
- [16] Weningtyas E, Suseno MN. Pengaruh komunikasi interpersonal dan kualitas pelayanan terhadap kepuasan konsumen. *Psikologika J Pemikir dan Penelit Psikol*. 2012;17(1):33–42.
- [17] Patriana E. Interpersonal Communication That Takes Place Between Community Guides and Families of Children of Criminals at Bapas Surakarta. *Journal of Rural and Development*. *J Rural Dev*. 2014;2(3):203–13.
- [18] Listyorini P.I. Factors Influencing Mosquito Nest Eradication Behavior (PSN) in Karangjati Community, Blora Regency. *Infokes*. 2016;6(1):90–6.
- [19] Dewi TF, Wiyono J, Ahmad ZS. Hubungan pengetahuan orang tua tentang penyakit DBD dengan perilaku pencegahan DBD di Kelurahan Tlogomas Kota Malang. *Nurs News J Ilm Keperawatan*. 2019;4(1).
- [20] Lontoh R.Y. RAJM& KPJ. he Relationship Between Knowledge & Attitude with Dengue Hemorrhagic Fever (DHF) Prevention Measures in Kelurahan Malalayang. *Pharm Sci Journal-UNSRAT*. 2014;5(1):120–7.