

## **Level of Awareness Towards Dengue among The Residents of Barangay Kauswagan**

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**Abstract** - This study aimed to determine the level of awareness on preventive measures for dengue fever among the residents of Barangay Kauswagan, Cagayan de Oro City. The study sought to: (1) describe the profile of the respondents in terms of informational sources and highest educational attainment and to; (2) assess the level of awareness of the respondents on the preventive measures on dengue fever. A modified questionnaire was used in the study. The data were analyzed and presented through the Frequency Counts, Weighted Mean and Ranking. The purposive sampling method was used to identify the respondents of the study. The respondents have more knowledge about using mosquito nets as their way of preventing dengue. Half of the respondents have attained the secondary level of education and the lowest percentage of educational attainment has primary level of education. The respondents were most aware on the use of mosquito nets through practice.

**Keywords** - Dengue, Level of Awareness, Barangay Kauswagan, Preventive Measures

## INTRODUCTION

The Department of Health today strongly reiterated its call to local governments and communities to sustain clean-up campaigns to prevent Dengue particularly in areas which have experienced an increase in Dengue cases. Despite the emergence of Dengue hotspots in some areas in the National Capital Region, Central Luzon, CALABARZON and the Ilocos Region, the total of number of Dengue cases nationwide is still 33.5% lower compared to the same period last year. From January to August 6 this year, the number of cases reported was 45,333 compared to 68,168 in 2010. Only 267 deaths have been reported this year compared to 539 in the same period last year (DOH, 2011).

The Department of Health led in the observance of "Dengue Awareness Month" last June with the theme "Eskwelahan, Simbahan, Barangay, Palengke at Buong Komunidad, Sama-Sama Nating Sugpuin ang Dengue." The 4S in the DOH Kontra Dengue Plan stand for Seek early consultation, Search and destroy, Self-protective measures and Say no to haphazard fogging. The program seeks to increase public awareness of the fight against dengue by applying the 4S plan. The Centers for Health Development are directed to coordinate with their LGU counterparts to encourage them to conduct a simultaneous activity with CHDs. The Department of Health, in collaboration with the Department of Science and Technology, also launched the Mosquito Ovicidal/Larvicidal Trap or Mosquito OL Trap as a system to be used in controlling the population of dengue-carrying mosquitoes.

The thrust of the Dengue Control Program is directed towards community-based prevention and control in endemic areas. The major strategy is advocacy and promotion, particularly the Four O'clock Habit which was adopted by most LGUs. This is a nationwide, continuous and concerted effort to eliminate the breeding places of *Aedes Aegypti*. Other initiatives are the dissemination of IEC materials and tri-media coverage (DOH, 2011).

The researchers hoped to describe the profile of the respondents in terms of area of residency, and highest educational attainment; and to determine the level of awareness of the respondents on the preventive measures on dengue fever; and to find out the significant difference on the respondents' profile and the level of awareness on the preventive

measures on dengue fever.

The study aimed to provide additional knowledge on the prevailing research evidence about dengue fever prevention and to determine the level of awareness on the preventive measures of dengue fever among the residents of Barangay Kauswagan, Cagayan de Oro City and its relationship with the incidence of Dengue Hemorrhagic Fever cases with in the area of residency, highest educational attainment, and media sources.

The researchers are interested in this study because Dengue cases have been increasing nationwide. Barangay Kauswagan was chosen because the area is swampy; proper sanitation is not emphasized and more stagnant waters are seen

## FRAMEWORK

This study was anchored on the Health Belief Model (HBM). This is a psychological model that attempts to explain and predict health behaviors. This is done by focusing on the attitudes and beliefs of individuals. The HBM was first developed in the 1950s by social psychologists Hochbaum, Rosenstock and Kegels working in the U.S. Public Health Services.

The HBM was spelled out in terms of four constructs representing the perceived threat and net benefits: perceived *susceptibility*, perceived *severity*, perceived *benefits*, and perceived *barriers*. These concepts were proposed as accounting for people's "readiness to act." An added concept, *cues to action*, would activate that readiness and stimulate overt behavior. A recent addition to the HBM is the concept of *self-efficacy*, or one's confidence in the ability to successfully perform an action. This concept was added by Rosenstock and others in 1988 to help the HBM better fit the challenges of changing habitual unhealthy behaviors, such as being sedentary, smoking, or overeating. Perceived susceptibility is one's opinion of chances of getting a condition. Perceived severity is defined as one's opinion of how serious a condition and its consequences are. One's belief in the efficacy of the advised action to reduce risk or seriousness of impact pertains to Perceived benefits. Perceived barriers include one's opinion of the tangible and psychological costs of the advised action. Cues to actions are Strategies to activate "readiness". And Self-

efficacy is the confidence in one's ability to take action (University of Twente, 2010). These four constructs affects the individual's perception towards health promotion and disease prevention.

Demographic factors, media exposure and, accessibility and availability of health care services in the respective endemic areas is assumed to influence the level of awareness to its residence. Demographic factors include: area of residency (zone or sitio), and highest educational attainment. Media factors include but are not limited to television, radio, newspaper and internet. The accessibility and availability of health care services of the barangay health center comprise information dissemination materials such as leaflets, brochures, fliers, house-to-house visits and health programs.

The relation of area of residency, zone or sitio to the level of awareness among the residents on the preventive measures on dengue fever was based on the fact that the more remote the area from the health center of the barangay, lesser exposure to the preventive measures of Dengue is expected.

The highest educational attainment of an individual pertains to the formal education received by the individual and results to higher degree of comprehension. Literacy is related to health, which is according to Human Skills for the Knowledge Society (2005). Persons with higher level of understanding and critical thinking skills may maintain optimum health through their ability to comprehend, analyze and interpret various health information. They may also be in a better position to exercise preventive health practices and identify problems so that they can be treated earlier, or make the right choices amongst health care options available to them.

Media plays a very important role on the level of awareness among individuals. Electronic, print media and interpersonal communications are the main sources of knowledge. It is assumed that the more a person is exposed to media, the more a person acquires knowledge specifically about Dengue fever.

The availability and accessibility of health care services at the barangay health center aims at increasing the level of awareness of the residents about its available health programs. It wishes to inform them on disease detection and prevention. Health awareness through community education plays a vital role in the barangay health system. Through community education, residents cannot only be participants

but also agents of change thus creating a ripple effect on other communal residencies as well.

In the health center, seminars are being conducted on various DOH health programs such as responsible parenthood, family planning, reproductive health, proper breast feeding, Measles vaccination, Polio eradication, TB counseling, and Dengue prevention. It also conducts socio-civic outreach programs, which intend to provide basic health consultation and services to poor communities. Barangay health center workers carry out home visits to promote clinic services and provide free vaccinations as well as providing prenatal, dental and medical check-ups.

Dengue and dengue hemorrhagic fever are present in urban and suburban areas in the Americas, South-East Asia, the Eastern Mediterranean and the Western Pacific and dengue fever is present mainly in rural areas in Africa. Several factors have combined to produce epidemiological conditions in developing countries in the tropics and subtropics that favor viral transmission by the main mosquito vector, *Aedes Aegypti*: rapid population growth, rural-urban migration, inadequate basic urban infrastructure (eg. unreliable water supply leading householders to store water in containers close to homes) and increase in volume of solid waste, such as discarded plastic containers and other abandoned items which provide larval habitats in urban areas. Geographical expansion of the mosquito has been aided by international commercial trade particularly in used tires which easily accumulate rainwater. Increased air travel and breakdown of vector control measures have also contributed greatly to the global burden of dengue and DHF (WHO).

Today about 2.5 billion people, or 40% of the world's population, live in areas where there is a risk of dengue transmission. Dengue is endemic in at least 100 countries in Asia, the Pacific, the Americas, Africa, and the Caribbean. The World Health Organization (WHO) estimates that 50 to 100 million infections occur yearly, including 500,000 DHF cases and 22,000 deaths, mostly among children.

Dengue is transmitted to people by the bite of an *Aedes* mosquito that is infected with a dengue virus. The mosquito becomes infected with dengue virus when it bites a person who has dengue virus in their blood. The person can either have symptoms of dengue fever or DHF, or they may have no symptoms. After about one week, the mos-

quito can then transmit the virus while biting a healthy person. Dengue cannot be spread directly from person to person (CDC).

The best preventive measure for residents living in areas infested with *Aedes Aegypti* is to eliminate the places where the mosquito lays her eggs, primarily artificial containers that hold water. Items that collect rainwater or to store water (for example, plastic containers, 55-gallon drums, buckets, or used automobile tires) should be covered or properly discarded. Pet and animal watering containers and vases with fresh flowers should be emptied and cleaned (to remove eggs) at least once a week. This will eliminate the mosquito eggs and larvae and reduce the number of mosquitoes present in these areas.

Using air conditioning or window and door screens reduces the risk of mosquitoes coming indoors. Proper application of mosquito repellents containing 20% to 30% DEET as the active ingredient on exposed skin and clothing decreases the risk of being bitten by mosquitoes. The risk of dengue infection for international travelers appears to be small. There is increased risk if an epidemic is in progress or visitors are in housing without air conditioning or screened windows and doors. The emphasis for dengue prevention is on sustainable, community-based, integrated mosquito control, with limited reliance on insecticides (chemical larvicides, and adulticides). Preventing epidemic disease requires a coordinated community effort to increase awareness about dengue fever/DHF, how to recognize it, and how to control the mosquito that transmits it. Residents are responsible for keeping their yards and patios free of standing water where mosquitoes can be produced.

As scores of deaths due to dengue have been recorded, the Department of Health (DOH) Region 7 says a new vaccine for trial against the dengue virus will soon be explored which will be pilot-tested in Barangay Guadalupe, Cebu City. DOH-7 Regional Dengue Program Coordinator Dr. Joy Abellana said that further details will be given after the meeting with Cebu City Mayor Michael Rama and the investigative team from the Armed Forces Research Institute of Medical Sciences (AFRIMS) today. Abellana said the dengue vaccine dubbed Code CYD 14 will soon be tested for its efficacy to identified beneficiaries in Barangay Guadalupe in Cebu City sometime in May. "There are only two recipients in the Philippines which are Cebu City and Laguna," Abellana said. The AFRIMS based in Bangkok, Thailand which

is undertaking surveillance on influenza has come up with the CYD 14, a phase III dengue vaccine efficacy trial.

Abellana said the vaccine testing is done in four countries in Asia namely Thailand, Vietnam, Indonesia and the Philippines (PIA, 2011).

The dengue fever vaccine, developed by France's Sanofi Pasteur, is the first to undergo the advanced "Phase III" clinical trial, the final hurdle before it becomes available to the public. The clinical trial aims to establish the efficacy of the vaccine. While the test is scheduled to last four years, the trial may be cut short especially if no dangerous side effects are detected or if the authorities and regulatory bodies including the World Health Organization and the United States Food and Drug Administration decide to fast track approval (Buban, 2011).

"Researchers worldwide have been working on a dengue vaccine for almost 60 years and for the first time, we have a potential candidate that actually shows great promise. The vaccine is important considering that while the dengue fever death toll is relatively small (of the current 27,000 hospitalized, 172 died already), most victims involve infants and young children," says Dr. Maria Rosario Capeding, head of the Dengue Study Group that supervises the dengue vaccine clinical trial being done in San Pablo, Laguna and very soon in the province of Cebu. In a related development, Health Assistant Secretary Enrique Tayag said the DOH has directed hospitals to put up a Dengue Express Lane to assure patients of prompt diagnosis.

"Doctors manning these express lanes are trained to look out for early warning signs, and to take the lead in the campaign for dengue awareness," he said.

He cited the D.E.N.G.U.E. strategy, which is D – daily monitoring of patient's status; E – encourage intake of oral fluids like Oresol, water, juices, etc.; N – note any dengue warning signs like persistent vomiting and bleeding; G – give paracetamol for fever and not aspirin because aspirin induces bleeding; U – use mosquito nets; and E – early consultation is advised for any warning signs. Tayag said the DOH is still actively promoting the "4S" in its anti-dengue campaign. These are: Search and destroy, Self-protection measures, Seek early consultation, and Say No to indiscriminate fogging. He stressed that fogging is used only during outbreak.

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to prevent Dengue particularly in areas which have experienced an increase in Dengue cases. Despite the emergence of Dengue hotspots in some areas in the National Capital Region, Central Luzon, CALABARZON and the Ilocos Region, the total of number of Dengue cases nationwide is still 33.5% lower compared to the same period last year. From January to August 6 this year, a total number of has been reported 45,333 compared to 68,168 in 2010. Only 267 deaths have been reported this year compared to 539 in the same time period last year (DOH, 2011).

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During and following the Second World War, Dengue has emerged as a public health burden in Southeast Asia and has become increasingly important, with progressively longer and more frequent cyclical epidemics of dengue fever/dengue hemorrhagic fever (Ooi and Gubler, 2008). Scientific advances in recent years have provided new insights about the pathogenesis of more severe disease and novel approaches into the development of antiviral compounds and dengue vaccines. Until the availability of a licensed vaccine, disease surveillance and vector population control remains the mainstay of



dengue prevention (Wilder-Smith et al., 2010).

Dengue viral infection has become an increasing global health concern with over two-fifths of the world's population at risk of infection. It is the most rapidly spreading vector borne disease, attributed to changing demographics, urbanization, environment, and global travel. It continues to be a threat in over 100 tropical and sub-tropical countries, affecting predominantly children. Dengue also carries a hefty financial burden on the health care systems in affected areas, as those infected seek care for their symptoms (Murrell et al., 2011).

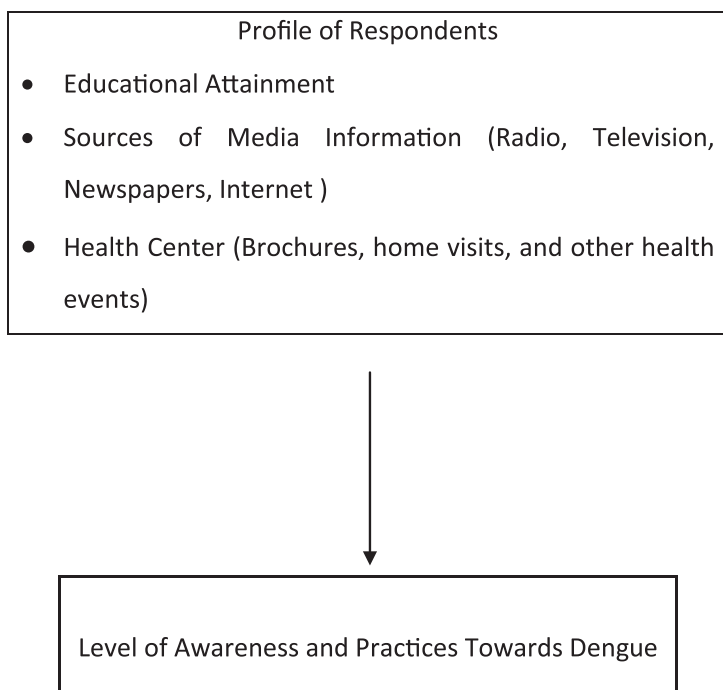
Dengue fever is a disease caused by a family of viruses that are transmitted by mosquitoes. It is an acute illness of sudden onset that usually follows a benign course with symptoms such as headache, fever, exhaustion, severe muscle and joint pain, swollen glands(lymphadenopathy), and rash. The presence (the "dengue triad") of fever, rash, and headache (and other pains) is particularly characteristic of dengue (Cunha, 2011).

Expert consensus groups in Latin America (Havana, Cuba, 2007), South-East Asia (Kuala Lumpur, Malaysia, 2007), and at WHO headquarters in Geneva, Switzerland in 2008 agreed that: "dengue is one disease entity with different clinical presentations and often with unpredictable clinical evolution and outcome" (WHO, 2009).

## **OBJECTIVES OF THE STUDY**

The study aimed 1) to describe the profile of the respondents in terms of information sources, and highest educational attainment; and 2) to determine the level of awareness of the respondents on the preventive measures on dengue fever.

## RESEARCH FLOW



## SIGNIFICANCE OF THE STUDY

**The Residents and Community.** The results of the study will allow them to employ the preventive measures of Dengue fever based upon the review and analysis on the effectiveness on the means of prevention as practiced by the residents themselves. This will lead to a community that is active on community organizing and active participants in future research studies, building a community of high level health wellness.

**The Researchers.** This study helped the researchers to implement improvements on the preventive measures of Dengue fever and employ new strategies to effectively address the issue on awareness.

**Nursing Practice.** Through this study, nursing practice, based on research evidence, was aimed at revising, improving and implementing new strategies for Dengue preventions. Such new strategies will

probably put into full utilization the newly added knowledge about Dengue prevention. The realization of an effective way to prevent the disease may gradually provide for a Dengue free society. Such measures can be adapted and this could possibly decrease socio-political, financial burden of the entire health community.

**Future Research Students.** Any future endeavor that attempts to produce similar or related studies can use this study as a reference. Pertinent information derived can hasten and guide other researchers.

## SCOPE AND LIMITATION OF THE STUDY

Focus was given on the factors that may influence the level of awareness with regard to immediate total control of Dengue fever among community residents of Barangay Kauswagan, Cagayan de Oro City. Only actual efforts to reduce and prevent the acquisition of Dengue Hemorrhagic fever were given credit.

Data gathered in this study utilized a two-part survey questionnaire. Questions and choices were formulated according to the information derived by the researchers, while confidentiality was strictly assured. Furthermore, secondary data was obtained from the records of Kauswagan Health Center, City Health Office of Cagayan de Oro and the Department of Health Regional Office.

The following reasons were the limitations encountered during the study:

We were not able to provide the current statistics of the population of Barangay Kauswagan for both Department of Health and City Health Office because they were not able to give us information about Dengue within the covered barangay due to the post-incidence of Typhoon Sendong, the Leptospirosis. Health Agencies were not able to entertain us in our research needs for they cannot entrust to students some of the confidential information regarding dengue fever. We also had limited time conducting our study due to our hectic schedule. With the Typhoon Sendong incident that happened recently, the attention of the public health workers at the City Health Office were all diverted to the flood victims having no time for us to be entertained with our concerns. We chose Barangay Kauswagan because it is one of the affiliated areas of Liceo de Cagayan University, it is accessible and it was recommended by the City Health Office of having dengue cases

## MATERIALS AND METHODS

The study used the descriptive research design. This study describes the characteristics of respondents such as; educational attainment, and availing health care services; and describe the differences that exist among the respondents when grouped according to their characteristics.

A representative on District 1 was randomly selected as respondents to represent the district in this study. This study made use of a two-part survey questionnaire as its main data gathering instrument. The first part of the questionnaire was designed to solicit information on the respondent's profile, highest educational attainment, and sources of information (television, radio, newspaper, internet and the Health Care Center Programs) availed by the residents. The second part sought to generate information on the level of awareness about preventive measure of Dengue Fever with specific preventive measures indicated in the questionnaire which was based on the World Health Organization Fact Sheet for Dengue Fever in the year 2009, Preventive Measures from National Environment Agency and also the measures promoted by the Department of Health.

Two sets of the survey questionnaire were drafted: one in English version which was used for the panel presentation and the other in the Visayan dialect for the benefit of the respondents. A reliability test of the survey questionnaire was conducted two weeks prior to the actual data gathering phase to check for possible vagueness in the questions formulated. The pretest has at least ten respondents with the same type and nature of the target population.

The researchers were able to prepare a letter addressed to the Barangay Council and Health Center, informing the barangay and zone officials about the study, to be endorsed by the Dean of the College of Nursing and noted by the research adviser, asking for consent to conduct the study in Barangay Kauswagan, Cagayan de Oro City. Also, the researchers were able to prepare consent forms to be signed and agreed upon by the respondents.

The actual data gathering was done in a one-on-one interview with the respondents and that the researchers explained the nature of the survey and specific instructions were be given to the respondents for an assurance that they understood properly each question. The

respondents were given ample time to answer the survey questionnaire.

The data was tabulated indicating the frequency in describing the profile of the respondents. Mean and Ranking were also used in the evaluation of the level of awareness on the preventive measures and practices of Dengue Fever among the residents Barangay Kauswagan, Cagayan de Oro City according to the variables of this study.

## RESULTS AND DISCUSSION

Objective 1. To describes the profile of the respondents in terms of highest educational attainment. Table 1, reveals that half of the respondents have attained the secondary level of education (26) and the lowest percentage of educational attainment was the primary level of education (10). The highest educational attainment of an individual pertains to the formal education received by the individual and results to higher degree of comprehension. Literacy is related to health, which is according to Human Skills for the Knowledge Society (2005). Persons with higher level of understanding and critical thinking skills may maintain optimum health through their ability to comprehend, analyze and interpret various health information. They may also be in a better position to exercise preventive health practices and identify problems so that they can be treated earlier, or make the right choices amongst health care options available to them.

Objective 2. To determine the level of awareness of the respondents on the preventive measures on dengue fever. Table 2 shows the respondent's level of awareness regarding the use of mosquito nets as a preventive measure is at (49) while they are least aware on avoiding and/or reducing outdoor activities during late afternoon. This implies that the residents of Barangay Kauswagan were aware that using mosquito nets is effective and most common preventive measure that they practice. The use of mosquito nets is the simplest way of preventing mosquito bites probably resulting to dengue. And also it is a traditional method of Filipinos to use the mosquito nets especially for those who are indigent. Avoiding and/or reducing outdoor activities during late afternoon is the least practiced because the residents at Barangay Kauswagan cannot avoid outdoor activities in the afternoon because it is their working hours and some of them have children that needs to be picked up from school and they have to do groceries during

late afternoon.

Table 3 shows the respondent's level of awareness through mass media exposure is at the highest level (42) on using mosquito nets because the DOH usually endorses it thru the media to the public, moreover the mosquito nets are affordable and convenient for most people. While the lowest level (18) was keeping unscreened doors and windows closed because it is not usually promoted by the media for it is not a priority intervention nevertheless it is not affordable especially for indigent people. This implies that Media plays a very important role on the level of awareness among individuals. Electronic, print media and interpersonal communications are the main sources of knowledge. It is assumed that the more a person is exposed to media, the more a person acquires knowledge specifically about Dengue fever.

Table 4 shows the respondent's level of awareness through health care brochures, home visit and other health events which is at the highest level (35) was on the use of mosquito nets while the lowest level (12) was on avoiding and/or reducing outdoor activities during late afternoon. This implies that the availability and accessibility of health care services at the Barangay health center aims at increasing the level of awareness of the residents about its available health programs. It wishes to inform them on disease detection and prevention. Health awareness through community education plays a vital role in the Barangay health system. Through community education, residents cannot only be participants but also agents of change thus creating a ripple effect on other communal residencies as well.

Table 5 shows that the respondents (48) use of mosquito nets because it is more accessible and Health Centers usually donates mosquito nets while the least used practiced is keeping unscreened windows closed (19) because people can't afford to make their windows screened. This implies that majority of the respondents of Barangay Kauswagan applied the preventive measure on mosquito nets.

## CONCLUSIONS

The respondents have more knowledge about using mosquito nets as their way of preventing dengue because this practice has always been a tradition for most Filipinos for it is accessible, affordable and convenient to use. Mosquito nets have been passed down from

generations to generations and people in the communities have always been using it because for them it is very effective. Information from tri-medias and from health centers also enhances the awareness of other preventive measures to the community.

## RECOMMENDATIONS

For the **respondents**, that they will try other methods of preventing Dengue to have a comparison of their previous practices and learn different primary prevention towards the mosquito-borne disease.

For the **health care providers**, that they should maintain environmental sanitation.

For the **community**, that they will maintain the preventive measures of dengue fever based upon the review on the effectiveness on the means of prevention as practiced by the residents themselves.

For the **future researchers**, that they will conduct their study at other places especially at communities prone to dengue.

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