ISSN 2349-7831

International Journal of Recent Research in Social Sciences and Humanities (IJRRSSH)
Vol. 2, Issue 3, pp: (91-96), Month: July 2015 - September 2015, Available at: www.paperpublications.org

Constructing Therapeutic Management Framework in the Treatment of Dengue Fever (DF): How the Urban Poor Families in Cebu City, Philippines Coped With DF

[1]SIMEON C. BERNADOS, JR., [2]EDWIN A PILAPIL, [3]NEMIA F ZAMORA

[1]Chairman, Research and Development Division, College of Arts and Sciences, Cebu Technological University, Cebu City, Philippines
[2]Dean, College of Arts and Sciences, Cebu Technological University, Cebu City, Philippines
[3]Chairman, Extension Services Division, College of Arts and Sciences, Cebu Technological University, Cebu City, Philippines

Abstract: **To document the therapeutic management in the treatment of dengue fever (DF) among the urban poor in Cebu City, Philippines, this descriptive study was conducted in the dengue hotspot areas of the city. A total of 120 respondents using the formal and non-formal interviews were used. Results revealed that children usually got inflicted with dengue fever; household monthly income was low (Php8, 000.00) with employment as the main source of income (75%). Generally, the study was able to identify the essential factors in the DF therapy management program of the urban poor. These factors were: a) the ethnocognition on the diagnosis and prognosis of the disease, b) ethnotaxonomy of healers and health providers and, c) ethnomedical practice and the health-seeking behavior of health-care givers. In this study, it was made clear that home and alternative medication in DF therapy were responses due to the lack of financial resources in the restoration of health. Although, the urban poor may have received assistance from the national and local governments, health issues were still pressing problems that national government and local governments, and local communities have to address.**

Keywords: **Cebu City, conditional cash transfer, dengue fever, management framework, therapeutic management, therapeutic preferences, urban poor.**

I. INTRODUCTION

Dengue fever (DF) occupies a significant place in dengue virus history in the Philippines as dengue virus serotypes 3 and 4 were first isolated in 1956 from clinical samples collected in the country. As a vector-borne illness, millions of individuals are at risk of acquiring a dengue virus infection [6]. True enough, Cebu City, as reported by Department of Health – Region 7 (DoH-RO7), has the highest dengue fever (DF) incidence (19%), followed by Lapu-Lapu City (4.5%), Toledo City (3.8%), and Lilo-an (3.2%) (http://goo.gl/5AdfVF). Thus, the government through the efforts of DoH has embarked on programs that are aimed to reduce DF incidence not only for Cebu City but for the whole of Region VII as well.

However, actions taken by governments to curb DF incidence and the control of the population of dengue-carrying mosquitoes were both the chemical and the community-based control methods. For the former, the primary activity of dengue control programs is to reduce the adult mosquito population which would eventually lead to the decrease of disease transmission [2], [8], [9], [10], [13], [14]. On the latter, the community-based control method aimed at larval control through mobilization of the community [4], [20]. This study is benchmarked on the latter method on the treatment of DF.

Community participatory approaches to dengue prevention were conducted [3], for instance in Sarawak, Malaysia. The objectives of the project in Sarawak were to "reduce a high *Aedes* mosquito index and associated risk of dengue in two coastal Malay villages, using behavior modification strategies through a community participatory approach". The result was a significant reduction of the *Aedes* index and the increase of both material and non-tangible benefits for the communities under study. Similarly in Puerto Rico, the impact on knowledge and behavior on residential mosquito infestation using the community-based dengue prevention strategies was assessed. The Puerto Rico programs, as reported, have resulted in limited change in larval indices, high levels of awareness, and some behavior modification of the community [17].

The involvement of the community in the reduction of DF incidence and dengue mosquito population cannot be overlooked. As the end-users of the programs, the community may adopt, modify, or reject the intervention activities. The reason for this health-seeking behaviour lies on the local people's worldview on health, disease, and healing [6], [10]. In a study conducted at Cayo, Belize, it was pointed out that the "importance of community integration and participation in public health interventions regarding dengue fever" is something that cannot be relegated on the sidelines [16]. Hence, along this line of thought, this paper was aimed at the: 1) description of the socio-economic profile of the respondents, and 2) documentation of the respondents' treatment management of DF.

II. METHODOLOGY

The study was a descriptive research using a purposive sampling technique through the snowball approach or referral method. In the selection of respondents, two-point criteria were used: a) household of the respondents must have experienced an episode of dengue fever; b) respondents should come from the urban poor families in Cebu City defined as below poverty threshold line which was Php 8,778.00 for a family of five [21]. The study was conducted in the urban barangays in Cebu City, namely: Barangay Labangon, Apas, Lahug, Guadalupe, Busay, Tisa, Punta Princesa, Banawa, and Banilad. These places were declared by the Department of Health (DoH) as dengue-hotspot areas [6].

The data, using hired enumerators, were gathered through structured interview with the respondents with the aim of getting the following information: a) personal and household economic profile of the respondents, b) the treatment protocol of DF as practiced by the urban poor of Cebu City, c) the classification of health-care providers and, d) the medication intervention strategies. To complement the structured interview, an open-ended interview was carried out to verify some of the information gathered.

A part of the data used in this study was taken from 2011-2012 study by the authors. This study was focused on the therapeutic preferences in the treatment of DF in the selected areas of Cebu City. The 2011-2012 study was conducted during the height of the DF epidemics in city. The socioeconomic survey (SES) data of the 2011-2012 study were used as a benchmark data for the present project. Only the data that are gathered from the dengue hotspot areas were used in the present project.

No complex mathematical model was employed in this study but only the use of descriptive statistics.

III. RESULTS AND DISCUSSION

A. Respondents' Profile:

This is a purely descriptive study which used the survey as its primary tool for data gathering. A total of 120 respondents who were purposely selected from various dengue-hotspot barangays in Cebu City had at least one (1) family member who was inflicted with dengue fever (88%). Mostly, children (age 0-2) got inflicted with dengue fever (85%). Majority of the respondents were females (85%), married (85%), and with low educational attainment compared to their male counterpart. Majority of the respondents did not finish secondary education (88%). As to their economic status, majority of their household (63%) had a gross monthly income of less than Php 8,000.00 for a family of five to eight members (5-8) with employment as the main source of income (75%). The economically active age-range in the respondents' household was 15-60 years old with at least one (1) family member who is economically active (49%). Moreover, respondents rented the land where their homes were presently constructed (61%).

Majority of the respondents in this study were beneficiaries of the *Pamilyang Pantawid Pilipino* Program (4Ps) with the Department of Social Welfare and Development as the lead implementing agency. The 4Ps is the Philippine version of the conditional cash transfer with an aim of reducing poverty and as a social development strategy of the national government. As a poverty reduction scheme, it provides cash assistance to the extremely poor household for the improvement of the health, nutritional and educational needs of children aged 0-14. In 2013, Php120 billions were allocated by the national government for the 4Ps beneficiaries [15].

B. Respondents' Therapeutic Management on the Treatment of Dengue Fever:

What is dengue and when to hospitalize?: Urban poor protocol of DF management Definition of dengue fever by the local people is an essential component in DF therapy. How the people conceived of DF is a factor for treatment and other medical intervention strategies. Understanding the people's concept of DF and the factors associated to such conception will determine the proper intervention to take.

In the present study, respondents claimed that at the onset of fever, home medication was the immediate therapeutic option utilized in every home. Seventy-five percent (75%) of the respondents reported to have used home medication. Together with the application of any home therapeutic medium, the patient was also placed under observation keeping a close watch on the symptoms associated with DF. Respondents explained that DF is usually accompanied by other symptoms such as joint pains (77.6%), stomach pains (72%), headache (63.6%), rashes (58.9%), muscle pains (29%), bleeding (29%), vomiting/nausea (.9%). All these information were sourced from the tri-media (print, television and broadcast), barangay health workers (BHW), and neighbours experience on DF treatment. However, the study of Ariffin et al in the Gombal District, Malaysia in the identification of symptoms by the respondents proved that among the symptoms identified by respondents, fever is a poor predictor of the presence of DF while other symptoms have high predictor values. This result implied that DF is recognized by respondents only if fever is accompanied by other symptoms [1]. Hence, in the absence of other symptoms, respondents would rule out DF.

However, in the new publication by WHO in 2009, the organization came up with new classification for non-severe DF, to wit: the a) symptomatic and the b) asymptomatic DF. It is on the second classification where DF does not exhibit other signs or symptoms [**1**]. However, the organization warns that even DF patient with asymptomatic case may still develop severe DF. WHO, after a consensus of experts held at Havana, Cuba and South-East Asia (Kuala Lumpur, Malaysia) in 2007, and at WHO headquarters in Geneva, Switzerland in 2008 announced that "dengue is one disease entity with different clinical presentations and often with unpredictable clinical evolution and outcome" [19].

The appearance of other symptoms of DF does not necessarily mean the confinement of the patient to a hospital. Usually, medical clinics are consulted while continuing the administration of home medication. Respondents claimed that even if the patient has been diagnosed and/or seen with DF, the administration of alternative home therapy is being sustained hoping that the physical condition of the patient got improve.

If the physical condition continues to deteriorate, DF patients were mostly confined in government hospitals. It is sad to note that not all biomedical professionals subscribed to alternative or herbal therapy. Usually, biomedical procedures were applied especially in extreme cases. Yet, even if biomedical procedures were employed, the utilization of the alternative therapy is sustained. Respondents reported to have combined biomedical procedure with alternative method in the treatment of DF. This result concurred with the findings of Okanurak et al in a study conducted in Thailand [12]. The study reported that where pluralistic medical system is present, the nonbiomedical health-care providers would shift from one form to another until such time they were satisfied with the result.

Information on the treatment of DF is a tool that everyone can easily access. The tri-media, the BHWs, even the immediate environment of the respondents were sources of information for the treatment of DF. Furthermore, information should also be updated and new campaign and information materials should be vigorously pursued for the protection of the community. In this study, the knowledge on the symptoms of DF, for example, was brought about by information materials accessed by respondents. Sources of information are critical variables in DF therapy for the extent of information would entail the decision-making strategies and options for actions by health providers. Information on health services would greatly change the demand for quality health care, according to a study conducted in Nairobi, Kenya. In this study, it was shown that "public health information campaigns can be used to change patterns . . . For example, the campaigns can be used to increase demand for treatment for common illness, or for serious illness . . . or for preventive service," [11].

Taxonomy of health-care providers

The study of Heinrich and Munguti argued that people maintain a worldview on health, wellness, and healing. In conjunction with this perspective, people classify healers according to their fitness of purpose [6], [10]. In this present study, it concurred with Heinrich's and Munguti's studies that respondents maintain a system on the classification of health-care providers.

Parents especially mothers were considered as the primary health-care providers (74%) considering that home therapy was the primary therapeutic option in the treatment of DF. Being the primary health-care givers, mothers were the mainstay in the care of DF patients even if patients were confined in hospitals. Since fathers were always out for work, the care for DF patients was delegated to the mothers of DF patients. Thus, it can be argued that in the management of DF therapy, parents – more particularly the mothers and the generally the household members-- would be included in the DF therapy program, hence the household becomes the agents of first recourse. It is to be noted that decisions on what to administer and what course of action to take are jointly made by the both parents.

The secondary health agents were the BHWs (88%) and the social networks other than BHWs (12%) established by the primary health-care givers. Although BHWs together with the social networks of the primary health-care providers would assist the primary health-care givers by providing them information on the care for DF patients and the courses of action to take, it would be the latter who decides on the appropriate medication to be administered to DF patients. But in extreme and emergency cases, the BHWs made the final decision for hospitalization (94%). BHWs are considered as paramedical practitioners who are in the frontline of national government health care program. They monitor the health status of the community (78%) as well as the bridge between the primary health care providers and the biomedical professionals (22%).

Finally, the agents of last recourse were the biomedical professionals either in the private practice (34%) or in the government service (66%) in a tertiary medical institution. These were the last agents to be consulted with when either all therapeutic means are exhausted or the physical condition of DF patients continued to deteriorate. Respondents admitted that biomedical help is sought in extreme cases when other symptoms appeared especially bleeding (79%), vomiting (84%), and stomach pains (71%).

Biomedical professionals followed the protocol set by the World Health Organization (WHO) since 1975 in the diagnosis of DF. The organization defined DF as having to have the following criteria, to wit: 1) the presence of fever, 2) hemorrhagic tendency (positive tourniquet test, spontaneous bruising, bleeding from mucosa, gingiva, injection sites, vomiting blood, or bloody diarrhea), 3) thrombocytopenia (<100,000 platelets per mm^3 or estimated as less than 3 platelets per high power field) and, 4) evidence of plasma leakage (hematocrit more than 20% higher than expected, or drop in haematocrit of 20% or more from baseline following IV fluid, pleural effusion, ascites, hypoproteinemia) [18]. Vaccines for the treatment of DF are still to be developed.

Medication strategies

The study of Maderieta, it was reported that DF has neither a known antidote nor a vaccine developed although clinical trials were under way [9]. In the same report by WHO in 2007, dengue is caused by one of the four closely related but distinct virus serotypes of the genus *Flavivirus* implying that cross-protection is not possible. Thus, it can be assumed that an epidemic of multiple serotypes is possible [16]. The only available medical support given by biomedical professionals is supportive therapy which consists of oral fluid intake to prevent dehydration and/or platelet transfusion if the platelet level drops significantly lower than 20,000 or if significant bleeding occurs [5].

In this study, respondents reported to have administered alternative or herbal medicine in the treatment of DF. First in the list was the *mangagaw* (*Euphorbia hirta*) (71%), followed by apple tonic/juice (39%), young papaya leaves juice extract (28%), and virgin coconut oil (2%), and the hot chilli pepper (1%), and young sweetpotato leaves (*Ipomea batatas*) (1%). The dominance of *E.hirta* in the list can be attributed to its availability in the locality.

The preparation of the concoction for the young sweetpotato leaves ("*gay sa kamote"*, as popularly known in the province of Cebu) and *E.hirta* follows no definite formula. The fresh leaves of *E.hirta* and the *I.batatas*, after being thoroughly washed with tap water, are boiled in a kettle or a boiling pot. When the color of the water turns dark, ("*the darker, the better*", as often pointed out by the respondents), the concoction is then orally administered to the patient like a tea drink. For the chili pepper (*Capsicum frutescens)*, popularly known as *siling labuyo* or *sili kaguko*, three (3) to five (5) pieces of

are taken in orally straight like an ordinary pill or tablet. As claimed by respondents, the chili pepper strengthens the immune system. The juice of the young papaya leaves is usually administered as a concentrate measured by teaspoonful. Two teaspoonfuls of juice extracts are given to the patient. According to the respondents, the juice extracts, the *I.batatas*, and *E.hirta* concoctions can prevent the platelet to drop and promote fast recovery.

The apple tonic/juice and the virgin coconut oil are commercially prepared and sold in stores. Of the two, it is the former that has been popular among the health-care givers.

In the administration of the herbal preparations to the DF patients, respondents clearly stated that no preparations were used exclusively. Usually, alternative preparations or concoctions were used in combination with the physicians' prescription. In fact, some respondents (86%) claimed that some biomedical professionals allowed the primary health-care givers to continue their usual alternative therapy while the rest (14%) claimed to have covertly continued their traditional practice.

Home and alternative medications are rational choices for the primary health providers to improve the physical well-being of their patients. Backed up by local knowledge (42%) coupled with the testimony (27%) and experience (12%) which respondents formed through the years, administration of known and tested alternative and traditional method in the treatment of DF is an immediate response for health restoration and rehabilitation. The efficacy of alternative method has been discussed in previous studies [6], [10], [20]. With no known cure for DF [7], [19] – even up to the writing of this report – respondents employed wide array of procedures and means for health restoration

The superiority of biomedicine over other medical systems lies on its strong reliance on science and technology. Biomedicine has its foundation on the scientific knowledge that has been accumulated through rigorous scientific procedure. State-of-the-art technologies have been used to diagnose so that appropriate medical intervention to restore health and well-being can be provided. However, the cost of health restoration and physical rehabilitation is an element that every decision-maker and health provider has to consider in the treatment of DF. In this study, it is clear that home and alternative medication in DF therapy are responses to the lack of financial resources in the restoration of health. Although, respondents in particular or the urban poor of Cebu City in general are beneficiaries of the 4Ps of the national government, health issues are still pressing problems that governments and local communities have to address.

IV. CONCLUSION

Based on the preceding sections, the respondents in the treatment of DF maintained a therapeutic management system which has been practiced for many years. This therapeutic management system consists of three components, namely: a) the local understanding of the nature of DF, b) the taxonomy of DF healers and agents and c) the medication strategies. The local conception of what constitutes DF is brought about by the transmission of information and its network which helped the respondents to decide on the specific type of therapeutic agents to be administered and the development of criteria for confinement or hospitalization.

The classification of healers, be they biomedical or nonbiomedical, became the pool of human resources for the treatment of DF. The maintenance of these human resources greatly determines whom to consult with or approach when a given factor arises. Primary health-care givers would employ home therapy; secondary health-care givers were the recommendatory agents, and the biomedical professionals would employ the biomedical therapy.

Medication or intervention strategies are either symptom-based or physical-condition based. If a fever is not associated with other identified symptom, then the use of home or alternative therapy would be sustained otherwise DF-patients may be hospitalized depending on their physical condition and the recommendation of the secondary health agents. If patients are confined, the primary health-care giver may continue to administer alternative / herbal medicine in combination with the biomedical therapy or outrightly stop its use.

Generally, the study identified the factors which become essential in the DF therapy management program. These factors are: a) the ethnocognition on the diagnosis and prognosis of the disease, b) ethnotaxonomy of healers and health providers and, c) ethnomedical practice and the health-seeking behavior of health-care givers. Finally, it is proposed that in the formulation of a development program, to include the local worldview of the target clientele and their classification of their environments in consideration with the clientele's practice is a pre-requisite for its successful implementation.

REFERENCES

[1] F.Ariffin, Anis Ramli, "Recognizing Life-Threatening Features of Dengue in Children and Health Seeking Behavior in Dengue Emergency Amongst Parents and Carers: A Cross-Sectional Study in Gombak District, Malaysia," The Medical Journal of Malaysia 69 (5): 210-215. 2014.

[2] A. Che-Mendoza, G., Guillermo-May, J. Herrera-Bojórquez, M. Barrera-Pérez, F. Dzul-Manzanilla, C. Gutierrez-Castro, and P. Manrique-Saide, "Long-lasting insecticide-treated house screens and targeted treatment of productive breeding-sites for dengue vector control in Acapulco, Mexico," Transactions of The Royal Society of Tropical Medicine and Hygiene, Vol. 109 (2): 106-115. 2015.

[3] S. Crabtree, C. Wong, et al., "Community Participatory Approaches to Dengue Prevention in Sarawak, Malaysia," Human Organization, Vol. 60 (3): 281-287. 2001.

[4] N. Degalier, et al., "People's knowledge and practice about dengue, its vectors, and control means in Brasilia (DF), Brazil: Its relevance with entomological factors," Journal of the American Mosquito Control Association 16 (2): 114-123. 2000.

[5] DoH.2015. http://goo.gl/VuLgTl. Retrieved September 3, 2015.

[6] M. Heinrich, "Herbal and Symbolic Medicines of the Lowland Miixe (Oaxaca, Mexico):Disease Concepts, Healer's Roles, and Plant Use," Anthropos 89:73-83. 1999.

[7] G. Jennings, "Dengue Vaccines (Extended Abstract)," Phil J Microbiol Infect Dis. Vol. 22 (1):28-30. 1993.

[8] A. Kroeger, M. Ochoa et al., "Effective control of dengue vectors with curtains and water container covers treated with insecticide in Mexico and Venezuela: cluster randomised trials". www.resources.bmj.com/bmj/subscribers. 2009.

[9] S. Madarieta, et al., "Use of Permithrin-treated Curtains for Control of Aedes Aegypti in the Philippines," Dengue Bulletin 23:51-54. 1999.

[10] K. Munguti, "Indigenous Knowledge in the Management of Malaria and Visceral Leishmaniasis among the Tugen of Kenya," www.nuffic.nL/ciran. 1999.

[11] M. Muriithi, "The Determinants of Health-Seeking Behavior in Nairobi Slum, Kenya," European Scientific Journal 9 (8):151-164. 2013.

[12] K. Okanurak, Santasiri Sornmani, "Treatment Seeking Behavior of DHF Patients in Thailand," Southeast Asian Journal Tropical Medical Public Health 28 (2): 351-358. 1997

[13] S. Phuanukoonnon, I. Mueller and J. Bryan, "Effectiveness of dengue control practices in household water containers in Northeast Thailand," Tropical Medicine and International Health, Vol. 10 (8): 755–763. 2005.

[14] S. Phuanukoonnon, M. Bough, J. Bryan. "Household Practices of Temephos Use for Dengue Larval Control, Khon Kaen Province, Northeast Thailand," Dengue Bulletin 30: 251-259. 2006.

[15] C. Reyes, A. Tabuga, C. Mina, and R. Asis, "Promoting Inclusive Growth through the 4Ps," Phil. Institute of Development Studies, Discussion Paper Series 9:1-41.2013.

[16] L. Smith, "The cultural conceptions of dengue fever in the Cayo district of Belize," Human Organization, Vol. 71(1): 65-75. 2012.

[17] P. Winch, E. Leontsini, J. Rigau-Perez, et al., "Community-Based Dengue Prevention Programs In Puerto Rico: Impact on Knowledge, Behavior, And Residential Mosquito Infestation," Am. J. Trop. Med. Hyg. 67(4): 363–370. 2002.

[18] WHO, Dengue haemorrhagic fever: diagnosis, treatment, prevention and control, 2nd edition. 2007.

[19] WHO, Dengue haemorrhagic fever: diagnosis, treatment, prevention and control, 2007.

[20] LP Wong, S. Abubakar, "Health Beliefs and Practices Related to Dengue Fever. A Focus Group Study," PLoS Negl Trop Dis 7(7): e2310.doi:10.1371/journal.pntd.0002310.2013.

[21] Philippine Statistics Authority, "Poverty incidence among Filipinos registered at 25.8%, as of first semester of 2014. http://www.nscb.gov.ph/poverty/default.asp. Retrieved September 22, 2015.