

# Basic Oral Health Care Knowledge of Primary Health Workers Appraisal for Oral Health Education Program

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**Abstract-** Oral health is the most neglected area of public health that needs emphasis on developing global and local policies and intervention on oral health promotion and oral disease prevention. In the country, the Barangay Health Workers (BHWs) as the primary health care service providers must be trained so that they can deliver basic oral health care messages on oral disease prevention and timely referral. This study determined the basic oral health care knowledge among BHWs through descriptive survey method. The validated researcher-made questionnaire was distributed to selected 132 BHWs from different barangays in Ozamiz city. Results revealed that majority of BHWs had no proper oral health training in the last five years. They were highly knowledgeable about the relationship and effects of oral health to general health, structures, and functions of the oral cavity and screening and recognition of observable oral disease and disorders. The BHWs had less knowledge of basic oral hygiene and necessity of dental visit. Statistical analysis showed that the number of years in service and educational attainment among BHWs affect their knowledge on relationship and effects of oral health to general health and necessity of dental visit. When BHWs know the relationship of oral health to general health, they can recognize any observable oral disease and lead them to recommend for a dental visit. The high knowledge of BHWs should be reinforced with training so that they will acquire the necessary competency, skills, and approaches needed to deliver basic oral healthcare messages and referral services.

**Index Terms-** barangay health workers, healthcare messages, health education, oral health

## I. INTRODUCTION

**P**ublic health is the effort to promote physical and mental health and prevent disease, injury, and disability at the population level. It is concerned with the health care of all people and concentrates on the health of a population as a whole, rather than the treatment of an individual. [1] It is also the practice of managing threats to the health of the community. [2] In the World Oral Health Report, [3] oral diseases are the major public health problem and that increased emphasis on developing

global policies in oral health promotion and oral disease prevention.

Oral health is one of the most neglected areas of public health. The seeming overlook on oral health was manifested even in the number of WHO staff that totaled 8,000 globally, but only three professional level staff work exclusively for oral health. [4]

The necessity of good oral health is essential since poor oral health has significant social and economic consequences. [5] Poor oral health also has a detrimental effect on the children quality of life, their performance in school and their success later in life: healthy mouth enable an individual to speak, eat, and socialize without experiencing active disease, discomfort, and embarrassment. [6] Accordingly, children who suffer from poor oral health are 12 times more likely to have restricted – activity days, and that more than 50 million school hours are lost annually because of oral health problems which affect children's performance at school.

Many issues impact public oral health, one of the most important is access to dental care. The reasons were numerous: one is that even in developed countries like the U.S. a critical shortage of dentists exists, others include many individuals lack the financial resources or transportation to obtain dental care. Ineffective infrastructure also exacerbates dental health disparities with the practice of dentistry largely remaining in the private sector. Thus, the population who need dental care the most are often left without access to it. [7]

In the Philippines, the main oral health problems are dental caries or tooth decay and periodontal disease or gum disease. [8] These two oral diseases are so widespread that 87% of Filipinos are suffering from tooth decay and 48% have gum disease. [9] Accordingly, the combined ill effects of these two major diseases (except oral cancer) weaken bodily defense and serve as a portal of entry to other more serious, potentially dangerous and opportunistic infections overlapping other diseases present. Such will incapacitate a young victim as in crippling heart conditions arising from an oral infection that may end in death.

Locally, the Community Health Living Standards Survey (CHLSS) revealed that 82.7% of children ages 1-7 years old were not able to have a dental check-up for the past 6 months before the survey. In another study by Misamis University for the Bureau of Local Government Supervision (BLGS) of Department of Interior and Local Government (DENR) : the Citizen Satisfaction Index System (CSIS) of 2013-2014, [10] in both cities of Ozamiz and Oroquieta, basic

dental/oral hygiene got the lowest in 3 categories namely: awareness, availment and satisfaction. This was also aggravated by the study of Misamis Occidental IPHO that the dentist population ratio is one dentist for every two municipalities or an average of 1 dentist to 30,000 population.<sup>[11]</sup>

Since dental care and services are often beyond the reach of most individuals globally, the best approach to achieve public oral health care is through Primary Health Care. This study determined the basic oral healthcare knowledge among primary

## II. METHODOLOGY

The study employed a descriptive survey method using a researcher-made questionnaire to gather data. The questionnaire composed of six parts: I-basic information; II-training and experience; III-knowledge on oral health among the respondents (relationship and effects of oral health to the general health, structures and functions of the oral cavity and basic oral hygiene); IV-knowledge on screening and recognition of observable oral disease and disorders; V-knowledge on the necessity and practices of dental visit; and VI- availability of oral health providers in the community. Before sampling, the questionnaire was evaluated by three experts and pilot testing was conducted to ensure the reliability and validity of the research instrument.

Questionnaires were distributed to a total of 132 randomly selected Barangay Health Workers from 32 barangays of Ozamiz City. The researchers explained the purpose of the study, anonymity, and confidentiality of responses and the right to participate or refuse to the respondents before the conduct of the survey. To supplement results, the Focus Group Discussion (FGD) was conducted to obtain information and understanding of the basic dental/oral health issues and needs faced by primary health workers or the BHWs regarding primary oral health care in Ozamiz City. The gathered data were analyzed using the descriptive and inferential statistics. The frequency and percentage distribution were used to describe the demographics of BHWs, their training they attended and the different sources of their knowledge and information. Average weighted value (AWV) was computed per knowledge and interpreted as follows: (2.66–3.00 –High Knowledge; (1.33 – 2.65) – Less Knowledge; and (1.00 – 1.32) – No Knowledge.

The significant difference in the knowledge on basic oral health when grouped according to age, civil status, highest educational attainment and number of years in service was determined using the one-way variance analysis (ANOVA). The correlation among different areas of basic oral healthcare knowledge was determined using the Pearson r correlation for  $P < 0.05$  and  $0.01$ .

## III. RESULTS

### *Basic Information of the Respondents*

Results of the study show that all the respondents are female and the majority of them belong to 41-50 years old. However, there are several primary health workers belong to “senior citizen” age on which 3% of them aged 70 years old and above. Almost all of the respondents are married and finished their secondary years. Regarding the number of years in service, many primary health workers served for more than ten years followed by those who worked for 1-3 years. A higher number of

healthcare providers in Ozamiz City. Primary health workers of the LGUs in the barangays, locally known as Barangay Health Workers (BHWs) are the primary health service providers. The findings will be utilized as a basis for a community based oral health education program through the BHWs that will address the perceived lack of basic dental/oral health knowledge and low availability of oral health care services among residents in Misamis Occidental.

respondents working mainly as primary health care worker or Barangay Health Care Worker (BHW). Only a few of them have another means of livelihood which include small business, farming, and laundry.

Primary healthcare workers belong to the women’s organization of each barangay. Some of them also participated religious organizations such as Gagmayng Simbahanong Katilingban (GSK), Couples for Christ, IFI org, and Church Council. Several of the respondents are beneficiaries of the government programs including the Pantawid Pamilyang Pilipino Program (4Ps) and Senior Citizen organization. Other BHWs joined the cooperatives and other lending institutions.

### *Training and Experience*

Based on the result, only a few barangay health care workers had attended training for the last five years, and only one claimed that she attended dental care and learned that tooth brushing must be conducted twice a day (Table I).

Table I: Training attended by primary health care workers in the last five years

Trainings Attended	Number of Responses	Sponsoring agency	Skills, Knowledge, and Approaches (SKA) learned and acquired
Family Planning	2	DOH/LGU-CHO	Birth control, Mothers will become healthy
Disaster	2	DRRM	Love for the environment
Nutrition	1	DOH/LGU-CHO	Good nutrition is important.
Dental Care	1	DOH/LGU-CHO	Toothbrush twice a day
Cari	1	LGU-CHO	To determine children with pneumonia
Environmental Sanitation	1	LGU-CHO	How to clean the surrounding
Others : TB DOTS, etc.	2	DOH/LGU-CHO	Avoid cigarette, Prevention of TB, Regular intake of medicine
No Training attended	122		

### *Knowledge / Awareness of Oral Health*

#### *A. Knowledge of Relationship and Effects of Oral Health to General Health*

Table II shows that primary health care workers have high knowledge on relationship and effects of oral health to general

health. They considerably know that good dental health leads to a sense of well being and confidence. Respondents also had a high knowledge that pains in the mouth and teeth may lead to an inability to do work and absenteeism. However, respondents had less knowledge that gum diseases can complicate systemic diseases. They were not well versed that periodontitis will have an adverse impact on systemic health.

Table II: Knowledge of PHWs on relationship and effects of oral health to general health

Statements	WV	VI	Rank
1. Gum diseases such as d diseases can complicate systemic diseases such as diabetes, infective endocarditis, and others.	2.23	Less Knowledge	5
2. Mouth maybe a reservoir for bacteria which are causes of dental infections and other infections such as tonsillitis, and increased risk of pneumonia.	2.87	High Knowledge	3
3. Edentulousnesresult to impaired ability to chew and can lead to malnutrition	2.66	High Knowledge	4
4. Good dental /oral health leads to a sense of wellbeing and confidence	2.96	High Knowledge	1
5. The pain of infection in the mouth and teeth result in an inability to do work and absenteeism from school.	2.94	High Knowledge	2
<b>Composite Mean</b>	<b>2.73</b>	<b>High Knowledge</b>	

**B. Knowledge of Structures and Functions of the Oral Cavity**

In the present study, primary healthcare workers have high knowledge of the structures and functions of the oral cavity. They profoundly know that the mouth can be used to make music and even attract others and express oneself, that teeth are supported by the gums, and that tongue is essential for tasting and speaking (Table III).

Table III: Knowledge of PHWs on structures and functions of the oral cavity

Statements	WV	VI	Rank
1. Out teeth are used for chewing, as well as phonics	2.95	High Knowledge	5
2. Gums support our teeth.	2.98	High Knowledge	2
3. Our tongue is used for tasting and speaking	2.98	High Knowledge	2
4. Our mouth can be used to express ourselves, e.g., anger, happiness, etc.	2.98	High Knowledge	2
5. Our mouth can be used to make music, even attract others	2.99	High Knowledge	1
<b>Composite Mean</b>	<b>2.98</b>	<b>High Knowledge</b>	

**C. Knowledge and Awareness of Basic Oral Hygiene**

Table IV shows that the majority of primary healthcare workers have less knowledge of basic oral hygiene. They have the least knowledge on the replacement of toothbrushes after every illness. The BHws have high knowledge on the importance of eating fruits and vegetables in the gums and teeth, using of fluoride for stronger teeth and ways in the removal of food debris for good oral hygiene.

Table IV: Knowledge and awareness of PHWs on basic oral hygiene

Statements	WV	VI	Rank
1. Toothbrushing should be done at least Two (2 ) times a day.	2.14	Less Knowledge	6
2. Tooth brushes should be replaced every 6 months .	2.33	Less Knowledge	4
3. Using fluoride can make your teeth stronger	2.90	High Knowledge	2
4. Sharing of utensils like a spoon with a person who has carries can infect other persons.	2.24	Less Knowledge	5
5. Rinsing water after eating, flossing, and careful and judicious use of mouthwashes and toothpicks facilitates removal of food debris promoting good oral hygiene	2.83	High Knowledge	3
6. Eating fibrous , vitamin C and calcium-rich foods such as fruits and vegetables can help maintain healthy gums and teeth	2.98	High Knowledge	1
7. Tooth brushes should be replaced after every illness.	1.89	Less Knowledge	7
<b>Composite Mean</b>	<b>2.48</b>	<b>Less Knowledge</b>	

**Knowledge and Skills on Screening and Recognition of Observable Oral Diseases and Disorders.**

Table V shows that primary healthcare workers claimed that they are highly knowledgeable on screening and recognition of observable oral diseases and disorders. They know the different conditions that need to be referred, reported and consulted with the dentist or doctor immediately.

Table V: Knowledge and skills of PHWs on screening and recognition of observable oral disease and disorders

Statements	WV	VI	Rank
1. Any lumps, unusual growth and swelling of the mouth, neck, gums / maxillofacial area.	2.95	High Knowledge	1
2. Bleeding gums, pus and other fluids from tissues in the mouth.	2.95	High Knowledge	1
3. Trush and lesions.	2.83	High Knowledge	5
4. Red, white, yellowish, brownish or unusual color of the mouth area.	2.85	High Knowledge	3
5. Decayed, loose, sensitive, cracked, broken teeth	2.82	High Knowledge	6
6. Any feeling of dry mouth, burning mouth or tongue, and taste disorders/loss of taste, and unusual odor	2.84	High Knowledge	4
7. Saliva has a thick and ropy consistency as opposed to being thin and serous	2.60	Less Knowledge	7
<b>Composite Mean</b>	<b>2.83</b>	<b>High Knowledge</b>	

**Knowledge of Necessity and Practices of Dental Visit**

In this present study, primary healthcare workers are less knowledgeable about the necessity and practices of dental visit (Table VI).

**Knowledge of Availability of Oral Health Service Providers**

Among the several oral health practitioners in Ozamiz City, the majority of the primary healthcare workers only knew the dentist in the City Health Office. She is tasked with the tooth extraction in the City Health Office during Mondays and Fridays of the week.

Table VI: Knowledge of PHWs on necessity and practices of a dental visit

Statements	WV	VI	Rank
1. Dental check-up must be made every 6 months	2.46	Less Knowledge	5
2. Pregnant women must visit a dentist as soon as possible	2.76	High Knowledge	3
3. Upon eruption/coming out of temporary teeth of the children	1.52	Less Knowledge	7
4. Dental checkup can help prevent early oral o dental diseases	2.96	High Knowledge	1
5. Dental checkup and can determine treatment needs or correct existing periodontal disease	2.90	High Knowledge	2
6. Any disfigurement/malocclusion of the teeth.	2.67	High Knowledge	4
7. Regular dental check up can save you money.	1.75	Less Knowledge	6
<b>Composite Mean</b>	<b>2.43</b>	<b>Less Knowledge</b>	

Statistical analysis showed that the number of years of service among primary healthcare workers affects their knowledge on relationship and effects of oral health to general health and necessity and practices of dental visit (Table VII). Knowledge of structures and functions of the oral cavity dramatically differs among BHWs from different barangays. Educational attainment affects the knowledge of PHWS on basic oral hygiene and necessity and practices of a dental visit.

Table VII: One-way analysis of variance on the basic oral health care knowledge among the primary health care workers

Knowledge on	P value				
	Age	Civil Status	Highest Educational Attainment	No. of years in service	Barangay/ Residence
Relationship and effects of oral health to general health	.176	.931	.507	<b>.040*</b>	.640
Structures and functions of the oral cavity	.745	.894	.562	.450	<b>.000**</b>
Basic oral hygiene	.994	.163	<b>.018*</b>	.951	.426
Screening and Recognition of observable oral disease and disorders	<b>.007*</b>	.942	.219	.495	<b>.010*</b>
Necessity and Practices of Dental Visit	.831	.383	<b>.044*</b>	<b>.016*</b>	.076

\*\* Highly significant at P<0.05

\* Significant at P<0.05

Table VIII shows the correlational analysis among different areas of basic oral healthcare knowledge of primary healthcare workers. When the primary health care workers know the relationship of oral health to general health, they can recognize any observable oral disease and will lead them to recommend for a dental visit or consult the dental practitioners directly.

Table VIII: Pearson correlation analysis of the basic oral health care knowledge on the number of years of service of the primary health care workers.

	Relationship and effects of oral health to general health	Structures and functions of the oral cavity	Basic oral hygiene	Screening and Recognition of observable oral disease and disorders	Necessity and Practices of Dental Visit
Relationship and effects of oral health to general health	-----	.088	.354	<b>.006**</b>	.090
Structures and functions of the oral cavity	.088	-----	.523	.672	.292
Basic oral hygiene	.354	.523	---	.292	.105
Screening and Recognition of observable oral disease and disorders	.006	.672	.292	-----	<b>.001**</b>
Necessity and Practices of Dental Visit	.090	.292	.105	<b>.001**</b>	----

\*\* Correlation is significant at the 0.01 level and 0.05 level (2-tailed).

### Sources of Knowledge and Information

The high knowledge of primary health care workers is mainly from the television Thirty-nine percent answered that their knowledge on oral health directly came from watching television and only 1% of the respondents' information was from the posters, leaflets, and billboards (Fig. I).

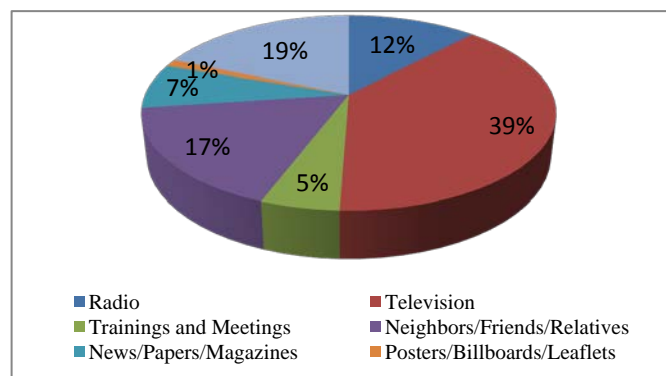


Figure 1: Sources of knowledge and information of primary health care workers

### IV. DISCUSSION

The self-rated oral health has a distinctive role in people's perceptions of their overall health. The impairment of oral health quality has direct effects, on the individual's general quality of life and well-being. [12] The self-rated oral health is a significant factor in oral health status as well as overall well-

being among community-dwelling older Japanese people.<sup>[13]</sup> In working-age adults, oral health impact can also be associated with the general health for those with more health problems.<sup>[14]</sup>

Parents were absent from work due to the oral conditions of their preschool children.<sup>[15]</sup> In the Philippines, the primary reason for school absenteeism and dropouts (about 40%) are due to illness on which a toothache is the most common.<sup>[16]</sup> School absenteeism is also happening among secondary school students (aged 16-18 years old) in Ha'il Region of Saudi Arabia also due to a toothache.<sup>[17]</sup> The unmet therapeutic dental need was associated with increased rates of absenteeism in U.S. school children.<sup>[18]</sup>

Periodontitis will have an adverse impact on systemic health. Evidence showed that the inflammation caused by periodontal infections affects not only the direct oral environment but also the systemic organs.<sup>[19]</sup> Recent studies have provided insights into the emergence and persistence of dysbiotic oral microbial communities that can mediate inflammatory pathology at local as well as distant sites.<sup>[20]</sup> Periodontitis has the strongest association with the diabetes mellitus type 2 and cardiovascular diseases.<sup>[21]</sup>

As primary health care service providers, it is vital to know the basic structures and functions of the oral cavity so that it is easier for them to maintain good oral health. They are the one who will provide the oral health messages to the members of the community, and they are most expected to have at least knowledge on the oral cavity.

Toothbrushes and spoons can play a significant role in disease transmission and increase the risk of infection since they can serve as a reservoir for microorganisms.<sup>[22]</sup> Toothbrushes were found to be contaminated with twenty strains of bacteria belonging to five different species. These include *Escherichia coli* and *Enterococcus* species (10%), *Staphylococcus aureus* and *Staphylococcus saprophyticus* (20%), and *Pseudomonas aeruginosa* (40%).<sup>[23]</sup> Toothbrush must also be replaced every six months, or less since the continuous use of the toothbrush will reduce its effectiveness in the plaque removal leading to increasing rate of gingival inflammation.<sup>[24]</sup>

There are many oral health conditions that need to be referred or consulted to oral health practitioners, but the main reason among the people both from rural and urban areas is for emergency treatment.<sup>[25]</sup> They only believed that dental check-up would just be of tooth extraction. Since people only go to the dentist mainly for emergency treatment and preferring service with minimal cost, they may not know of other private dentists in the area.

There was much information on oral health provided by television through advertisements, movies, and other programs that reach the broad audience including the primary health care workers. However, not everything what people can see on the television is always right.<sup>[26]</sup> There are instances in which reports, programs, advertisements were criticized for the way the stories were presented. A critical analysis is needed by the BHWs in accepting and using the information from the television for better delivery of exact health messages to their constituents.

Training is vital for the development of knowledge and skills of BHWs to be more competent and for them to provide safe care and protection for those who will access the health

care services. It was only before that doctor or a dentist, or any other health practitioner in whatsoever health organization would deliver quality care all alone to satisfy his or her patients.<sup>[27]</sup> With the development of healthcare and increasing demand for quality healthcare services at present, there must be a parallel growth of health care providers including the primary health care workers or BHWs.

## V. CONCLUSION

The researchers conclude that primary health care workers are highly aware on many areas of oral health. The study suggests that they are open-minded and willing to accept ideas and adopt changes as necessary. Primary health care workers or BHWs were not adequately trained by dental/oral health professionals. Their high knowledge will not translate into the required skills and approaches needed to deliver basic oral health care messages, and referral services. Oral healthcare awareness seminar and training must be conducted with a focus on basic oral hygiene and the necessity and practice of regular dental visit. They should be trained with the basic detection skills on any observable oral disease that will facilitate the referral of clients.

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