Asia Pacific Journal of Multidisciplinary Research
P-ISSN 2350-7756 | E-ISSN 2350-8442 | www.apjmr.com | Volume 2, No. 4, August 2014

Knowledge, Attitude and Practices on Oral Health of Public School Children of Batangas City

Jennifer U. Dotado-Maderazo, DDM, MAEd. & Jona Jocylen Viavian Beloso-delos Reyes, DDM
College of Dentistry, Lyceum of the Philippines University, Batangas City, Philippines

Date Received: June 16, 2014; Date Published: August 15, 2014

Abstract *– Dental caries among Filipino children ranked second worst among 21 World Health Organization Western Pacific countries. A recent National Oral Health Survey showed that 97 percent of Grade 1 students and 82 percent of Grade 2 students surveyed suffered from tooth decay. WHO (2007) urges governments to " promote oral health in schools, aiming at developing healthy lifestyles and self care practices in children". The study assessed the dental health education of public school children in Batangas City to determine the knowledge, attitude and practices of the respondents on oral health; to determine the significant relationship between the profile of the respondents and their assessment on the dental health education and propose a program to improve the project. This study used a descriptive type of research and distributed a standardized questionnaire to 279 public school children of Ilijan, Sta. Rita Kalsada and Julian Pastor Memorial Elementary School. The participants were selected randomly. The findings of the study showed that there is an observed significant to highly significant relationship between the school and the assessment on oral health in terms of knowledge, attitude and practices. This means that their assessment is affected by the school where they belong.*

Keywords *– dental health education, oral health, dental caries*

I. INTRODUCTION

Dental care starts from infancy to old age. Even before the emergence of the first tooth, the attitude on care for the oral cavity can highly affect a person's future appearance and health.

According to American Academy of Pediatrics and American Academy of Pediatric Dentistry, children should visit the dentist as early as one year old. Getting preventive care early saves money in the long run, according to report published by the Center for Disease Control (CDC). The report found that costs for dental care were nearly 40 percent lower over a five year period for children who got dental care by age one compared to those who didn't go to the dentist until later.

Dental health education to public school children with the involvement of parents can be beneficial because according to different researches parents' prior knowledge, attitude and practices can affect the oral health status of the children. As cited in the following studies: oral health has an important role in general well being of individuals. Since oral health behaviors can affect the oral health, attempting to construct good oral health can affect the general health of the individuals. Indeed, the adoption of good oral health habits in childhood often takes place with parents especially with mothers. Since parents are primary social force influencing child development in the early childhood years, it seems that interventions targeting parental oral health beliefs and practices play beneficial roles in the intervention of oral health problems such as dental caries.

In a recent study on maternal influence to the dental health status of school children, it was found that maternal age, maternal education, location of residence, maternal knowledge and attitudes were positively correlated to the child's caries and oral hygiene status (Abiola et. al, 2009). Parent's anxiety and dental avoidance were also found to be risk factor in dental caries for five year old children (Wigen, 2009).

The study on the factors affecting dental fear in French Children aged 5-12 years showed that for children aged 5-12 years, prior experience of the dental setting can act as a positive component of dental fear (Nicolas et. al, 2010). According to American Academy of Paediatrics and American Academy of Paediatric Dentistry, children should visit the dentist as early as one year old.

Parental attitudes toward children's oral health were significantly associated with their own oral health behavior and understanding the importance of development of oral hygiene skills in their children (Vanagas et. al, 2009) and mother's oral health status is a strong predictor of the oral health status of their children. As evidenced by children of mothers who had high levels of untreated caries were more times as likely (odds ratio (OR), 3.5; 95 percent confidence interval (CI), 2.0-6.2) to have higher level of caries experience (treated or untreated dental caries) compared with children whose mothers had no untreated caries. A similar relationship was observed between mothers' loss and caries experience among their children. The children of mothers with high levels of tooth loss were more times as likely to have higher level of caries experience compared with children of mothers with no tooth loss; for mothers with moderate tooth loss, the OR was 2.3 (95 percent CI, 1.5-3.5) (Dye, 2011).

According to Monse-Schneider (2008), although knowledge has increased on the importance of brushing teeth among youth, it did not change their behavior. A change in the behavior to be made, supportive environment and skills were needed. Further suggested, school should use the 'Focusing Resources on the Effective School Health' (FLESH) approach, which emphasized on four core values namely school policies, water and sanitation, skill based health education and effective school health services. In a project conducted from the daily fluoride tooth brushing in schools in the Philippines, there has been approximately 40 to 50 percent reduction in high risk population in two years.

Another study with 12 to 13 age group on the effectiveness of dental health education, showed that the reduction of plaque and gingival score reductions were highly significant and were not influenced by socio-economic status. In the evaluation of the oral health knowledge, highly significant change were recorded (Shenoy, 2010).

The same result were also noted in Bangalore city with the significant improvement in the oral hygiene knowledge and practices in the experimental group after oral hygiene knowledge and practices in the experimental group after dental health education on oral hygiene practices, plaque control and gingival health (D'Cruz & Aradhya, 2013).

In a study on the impact of school based oral health education program on oral health of 12 and 15 years old school children in Shimla city, the result showed that the overall mean plaque score and gingival score decreased significantly after oral health education irrespective of gender. The authors further recommended that coordinating efforts be enhanced between personnel, parents and health professionals to ensure the long term benefits of such program (Vinay et al, 2013).

Dental caries among Filipino children ranked second worst among 21 World Health Organization (WHO) Western Pacific countries. A recent National Oral Health Survey (Department of Education, Health and Nutrition Center, 2008) showed that 97 percent of Grade 1 students and 82 percent of Grade 2 students surveyed suffered from tooth decay. The Grade 1 to 6 students had an average of 9/3 decayed teeth; 40 percent /41 percent of the decayed teeth had progressed into decay with pulpal involvement. The prevalence of Grade 1 to 6 students with pulpally involved teeth was 85 percent and 56 percent respectively (Morse et. al, 2009).

A resolution on oral health from, WHO in 2007, urges governments to promote oral health in schools, aiming at developing healthy lifestyles and self care practices in children.

Dental health education is defined as " a process that informs, motivates and help persons to adopt and maintain healthy practices and lifestyles; advocates environmental change as needed to facilitate this goal; and conducts professional training and research to the same end" (Hiremath, 2007). The process should not only focus on the children but parents involvement is highly recommended for they are the ones who were with them in their homes. Good knowledge alone will not create a great impact but it is the start of behavioral change to proper perspective. As cited in National Education Association, involving parents according to some researchers greatly affects behavioral change among children (NEA, 2008).

In 2009, the College of Dentistry of Lyceum of the University in Batangas City together with KEPCO Philippines Corporation and First Gas Corporation, an electric power plant located in Ilijan and Sta. Rita, Batangas City, implemented a program on oral health for public school children in the area. Public school children from Ilijan, Sta. Rita and Julian Pastor Elementary School were among the beneficiaries. The program composed of toothbrushing drill, dental health education for parents and children and pits and fissure sealant. The college provided the manpower to implement the program and the electric companies provided the materials. This joint project were consistently done every year for 6 years and assessment for its effectiveness is recommended.

This study assessed the dental health education program of the College of Dentistry of three public elementary schools in Batangas City. The result would be beneficial for its continuous improvement and realignment in order to answer the needs of the public school children today.

II. OBJECTIVES OF THE STUDY

The study sought to assess the dental health education process of public school children in Batangas City. More specifically it aimed, to determine the knowledge, attitude and practices of the respondents on oral health; determine the significant difference among the three participating schools on their assessment on the dental health education and propose a program to improve the project.

III. METHODS

This study used a descriptive type of research to assess the dental health program of LPU College of Dentistry to public school children of Batangas city. The participants of the study are public school children of Ilijan, Sta. Rita Kalsada and Julian Pastor Memorial Elementary SchooL of the school 2012-2013. Out of the total population of 516, 279 were lifted using 5 percent margin of error. The participants were randomly selected at random from different grade level.

The researchers used a standardized questionnaire. All beneficiaries were requested to complete a comprehensive questionnaire adopted from Peterson (2000) and Stenberg (2000) .The questionnaire included sixteen items designed to evaluate the knowledge, attitudes, and behavior of young school children regarding their oral health. Assessment of participants' oral health knowledge included items on the effects of brushing on the tooth and gums. Assessment of participants' oral health practices included brushing activity (such as frequency, duration, time, and brushing aids) and dental visits (such as regularity, reason behind the visit ,effect of pain and economics on dental attendance, information on first visit, and sought treatments). Items that assessed participants' dental attitudes included questions on fear from dental treatment, feelings regarding the treatment, thoughts about involvement in the dental treatment, opinions about and attitudes towards the dentist and the dental care, attitudes towards dental care and body care in general, and attitudes towards regular dental visits.

The data gathered were tallied, encoded and interpreted using descriptive statistics. These include frequency distribution, ranking and mean distribution and eta-square. All data were analyzed by supporting related studies that gave in depth presentation of results.

IV. RESULTS AND DISCUSSION

Table 1 shows the assessment of the knowledge about oral health of the respondents. When respondents were asked "What the use for cleaning their teeth, toothbrush and toothpaste exhibits the highest percentage of 94.60 while dental floss obtain the lowest percentage of 0.70.

Table 1. Respondents' Knowledge about Dental Health Education

Knowledge	F	%
What do you use for cleaning your teeth?		
a. Toothbrush and toothpaste	264	94.60
b. Mouthwash	10	3.60
c. Dental floss	2	0.70
d. Toothpicks	3	1.10
What does gum bleeding mean?		
a. Healthy gum	74	26.50
b. Gum recession	28	10.00
c. Inflammed gum	135	48.40
d. I do not know	42	15.10
How do you protect yourself from gum bleeding?		
a. Using toothbrush, toothpaste and dental floss	170	60.90
b. Using Vitamin C	50	17.90
c. Using soft food	40	14.30
d. I do not know	19	6.80
What does plaque mean?		
a. Soft debris on the teeth	62	22.20
b. Hard debris on the teeth	95	34.10
c. Staining of the teeth	102	36.60
d. I do not know	20	7.20
What does plaque lead to?		
a. Inflammation of the gum	60	21.50
b. Dental caries	128	45.90
c. Staining of the teeth	72	25.80
d. I do not know	19	6.80

Although different cleaning devices have been used in different cultures (e.g. chewing stick) the conventional toothbrush is the instr ument of most frequently used (Marya, 2011) as also reported elsewhere (Russel et al. 2001, Lin et al. 2001, Al-Sadhan, 2003, Al-Ansari et al 2006) for the removal of plaque and control of gingivitis (Cugini et al., 2006). However the use of dental floss was still unpopular

P-ISSN 2350-7756 | E-ISSN 2350-8442 | www.apjmr.com

among the respondents. These findings were relatively lower than Lian et. al., (2010) who obtained 11.5 percent with his study. Most of the respondents "inflamed gums" perceived bleeding gums mean with the percentage of 84.40. While least "gum recession" with 10.00 percentage.

Gum inflammation is also called gingivitis, clinically seen as red swollen gums that bleed easily. Gingival bleeding is commonly used to evaluate the status of oral health of children (Petersen, 2004) by passing unwaxed dental floss interproximally, any bleeding indicates the presence of gingivitis (Marya, 2011). Gingivitis is a mild form of gum disease that can be usually reversed by proper toothbrushing and flossing but if left untreated can progress to periodontal disease (NIH, 2011; Marya, 2011). Daily removal or disruption of dental plaque, or biofilm, is important for improving gingival health (Loe, 1965 as cited in Sharma, 2012),

The question on "How do you protect yourself from gum bleeding?", The highest percentage of responses protect themselves from gum bleeding when asked how the respondents were by "using toothbrush, toothpaste and dental floss" with 60.90. While the lowest percentage responded they do not know with 6.80.

On the question "What does dental plaque mean?", the respondents answered "staining of the teeth" with the highest percentage of 36.60 followed by "hard debris of the teeth", 34.10 and "soft debris of the teeth", 22.20. The lowest number answered " I don't know", with 6.80 percentage.

When children were asked "What does plaque lead to?", most of the respondents answered "dental caries" with 45.90 percentage followed by "staining of the teeth" and " inflammation of the gums" with the percentage of 25.80 and 21.5 respectively. The least percentage among the choices was "I don't know" with 6.80.

Based on the answers of the respondents, it showed that most of them chose the right answer as seen on the percentage of the choice, Most of them had chosen except for the question "What does dental plaque mean?" in which they answered staining of the teeth. Most of the children understand that the yellowish staining on the teeth was dental plaque through visual perception, but most of the respondents understand the importance of tooth brush and toothpaste in the removal of dental plaque that can lead to inflamed gingiva that when left untreated would lead to dental caries.

The result implies that the respondents understand the lectures presented by the faculty and students of the community extension program but this result was contrary to the study of Lian et. al. (2010) in Kuching, Sarawak and Al-Omiri et. al. (2006) in Jordan done among school children whose knowledge of oral disease was still poor.

Table 2 presents the assessment on the attitude of the respondents about dental health education. When respondents' were asked about their "last visit to the dentist", most of them did their last visit "six months ago" with 40.1 percentage while the least percentage was for "last 6 to 12 years" with 15.1 percent.

Table 2. Respondents' Attitude about Dental Health

Attitude	f	%
Last time I visited your dentist:		
a. Six months ago	112	40.1
b. Last 1-2 years	52	18.6
c. More than 5 years	73	26.2
d. Last 6 to 12 months	42	15.1
When I first visited the dentist:		
a. I was scared and reluctant	82	29.4
b. Very slightly afraid	37	13.3
c. Slightly afraid	94	33.7
d. I was never afraid	66	23.7
When I first visited the dentist:		
a. There was no dental pain	39	14.0
b. There was little pain	69	24.7
c. I felt nothing	53	19.0
d. There was enough time for the treatment	84	30.1
e. There was severe dental pain	20	7.2
f. I was feeling not comfortable	14	5.0
If you do not visit or are afraid of him/her, the reasons are/is:		
a. I was afraid of the handpiece	89	31.9
b. Treatment cost is high	36	12.9
c. There is no time	15	5.4
d. I am afraid sitting in the waiting room	17	6.1
e. I am afraid of the dental needle	69	24.7
f. There are no dental clinic nearby	22	7.9
g. There is no pain to go to dentist.	31	11.1

The result implied that the respondents had high exposure to the dental services which could be due to the community extension program extended by Lyceum of the Philippines University wherein volunteer dentist-faculty and students visit them yearly to implement the program of the department with the continued support of the sponsoring company which provided free medical

P-ISSN 2350-7756 | E-ISSN 2350-8442 | www.apjmr.com

and dental mission. These dental services prompted the high dental visit among respondents. However, the percentage of the dental visit was lower in compared to that of Canada where 676 second year used dental services once every six months (Scotts,et al. 2002). The studies of Carrillo-Diaz (2012) and Nicolas (2010) showed that the children who sporadically visit their dentist have higher levels of dental fear than those who attend regularly.

When asked when was their first visit to their dentist, most of the respondents were "slightly afraid" scared and reluctant" with 33.7 and 29.5 percent respectively; the lowest response was " very slightly afraid" with 13.3 percent.

Dental fear is an aversive state and is most likely based on the biological imperative of the 'fight or flight' response to threatening stimuli or situations. However, fear is not always extreme and can range from feelings of vague apprehension or uneasiness all the way to the circumscribed terror or panic (Armfield, 2010). Dental fear could manifest as treatment avoidance and uncooperative behavior during consultation (Skaret, 2007). Fearful children may delay dental treatment resulting in the deterioration of their oral health (Armfield et.al., 2009) like untreated dental caries, a worst periodontal condition and a higher probability of missing teeth (Gustasson et al. 2010; Nicolas et al., 2010).

When asked about their experience "visiting the dentist", most of the respondents replied with "There was enough time for the treatment" with 30.1 percent, followed by "There was little pain" with 24.7 percent. The least percentage among the responses was "I was not feeling comfortable" with 5.0 percent.

The result implied that the dental health program implemented by LPU to the respondents is a relaxing and fun activity for the respondents.

When asked on the reasons for the respondent's fear on their visit to the dentist, "being afraid on the hand piece" earned the highest responses of 31.9 percent followed by " fear of the dental needle" with 24.7 percent and "high treatment cost" with 12.9 percent. The least is "having no time" with 5.0 percent.

Children's fear on the handpiece used by dentist during tooth restoration could be associated with its loud sound and the vibration that can be felt by the respondents as sensitivity as well as pain (Gao, 2013). Fear of injection like injection phobia and blood injury phobia had been found associated to dental anxiety or fear in the studies of Vika (2008). But contrary to the study of Carriillo-Diaz et al. (2012), there was no direct connection between having fillings which uses dental drill and tooth extraction which is associated to injection to child dental fear.

Table 3 displays the assessment of the respondents on the practices dental health.

Table 3. Respondents' Practices about Dental Health

Practices	f	%
How often do you brush your teeth?		
a. Less than once per day	26	9.30
b. Twice per day	23	8.20
c. Once per day	43	15.40
d. More than twice per day	187	67.00
When do you brush your teeth?		
a. Morning	82	29.40
b. Before going to bed	35	12.50
c. Noon after lunch	63	22.60
d. in between meals	99	35.50
For how long do you brush your teeth?		
a. Less than one minute	68	24.40
b. Two minutes	74	26.50
c. One minute	100	35.80
d. More than two minutes	37	13.30
How often do you visit your dentist?		
a. Regularly every 6-12 months	99	35.50
b. When i have dental pain	118	42.30
c. Occasionally	37	13.30
d. I never visited a dentist	25	9.00
The treatment(s) I sought during my last visit to the dentist was/ were:		
a. Check my teeth	127	45.60
b. Have scaling	33	11.80
c. Treat my gums	30	10.80
d. Have crown/ bridge	15	5.40
e. Tooth extraction	59	21.10
f. Take X-ray	1	0.40
g. Have fluoride on my teeth	2	0.70
h. Have filling	1	0.40
i. Have orthodontic treatment	11	3.90
The reason for my last visit to the dentist was:		
a. Dental pain	185	66.30
b. A dentist advised	56	20.10
c. Family and friends' advice	23	8.20
My parents:		
a. Watch me while brushing the teeth	82	29.4
b. Do not watch but advise me	50	17.9
c. Never cared	74	26.5
d. Only my mother watches me	73	26.2

P-ISSN 2350-7756 | E-ISSN 2350-8442 | www.apjmr.com

Most of the respondents brush their teeth more than twice a day with 67 percent followed by once a day. The result implied that the dental health education implemented by LPU College of Dentistry influenced the positive attitude and practices of the respondents.

These findings were contrary to the study of Padlan (2013) to the school children of Dagupan City in which they reported that the respondents were not brushing their teeth regularly due to low level of knowledge and indigence. The results of the study of Ogundale et. al. (2008) among Nigerian children and Al-Omiri (2006) for Jordanian children were in agreement with the present study.

When respondents were asked "when do they brush their teeth", the most frequent reply was "in between meals" with 35 percent followed by "every morning" with 29.40 percent and "noon after lunch" with 22.6 percent. This shows that the tooth brushing drill implemented by LPU dental students in the program was effective in instilling to the minds of the children the importance of good oral hygiene to overall health. In other studies, educational interventions significantly improved health practices (Lueveswanij et.al. 2000; D'Cruz et al. 2013; Shenoy et al. 2010; Vinay et al., 2013).

When asked on how long they brush their teeth, most of the respondents replied "one minute" with 35.8 percent followed by "two minutes" with 26.5 percent and "less than one minute" with 24.4 percent. This implied that most of the respondents were not practicing the two minutes rule for toothbrushing and parents' monitoring to the tooth brushing activity of the children should be encouraged to guide children to practice proper brushing. This finding is opposing to the study of Al-Omiri et.al. (2006) regarding the practices of school children in North Jordan as well as in the study of Padlan (2013) wherein mothers reported "not practicing" tooth brushing in Dagupan City.

Also, when asked on "how often do they visit the dentist", most of the respondents replied " during dental pain" with 42.3 percent followed by "regularly every 6-12 months" with 35.5 percent. Dental fear has been reported in a lot studies (Gao et. al. 2013; Vika et. al. 2008; Carrillo-Diaz et. al. 2012 and Al-Omir et. al. 2004) in both children and adult population, and lack of parental encouragement leads to irregular dental visit.

The treatment last sought from the dentist by the respondents was dental check with 45.6 percent followed by tooth extraction with 21.1 percent. This means that LPU community extension program has been successful in creating awareness to the respondents on the importance of dental check up. Early detection of oral diseases has a good prognosis to recovery or prevention from degradation. But this finding was opposite to the study of Carneiro et al. (2011) which confirmed that dental check was not practiced by the children of Tanga, Tanzania.

The respondents' reason for their last visit to the dentist was dental pain with 66.3 percent followed by dentist advice with 20.1 percent. Dental pain was more often associated with dental caries implying lack of encouragement among parents to seek dental treatment that maybe due low level of knowledge on oral care and high cost of the treatment. These findings were in agreement with the findings of Al-Omiri (2004) wherein the perception and knowledge of parents significantly affects the frequency of and reason for dental visit.

When asked if their parents watch them when they brush their teeth, most of the respondents replied "watch me while brushing the teeth" with 29.4 percent, followed by "never cared" with 26.5 percent and "only my mother watches me" with 26.2 percent. The results implied that parents monitoring was very important for the respondents compliance to oral hygiene as maternal educational level was associated with better oral hygiene (Smyth et. al., 2007; Vanagas, 2009; Abiola, 2009).

Table 4. Difference among the Three Participating Schools' Assessment on Oral Health in terms of Knowledge

Knowledge	λ^2_c	p-value	I
What do you use for cleaning your teeth?	20.904	0.002	S
What does gum bleeding mean?	18.094	0.006	S
How do you protect yourself from gum bleeding?	11.598	0.072	NS
What does plaque mean?	33.780	0.000	S
What does plaque lead to?	13.848	0.031	S

Legend: Significant at p-value < 0.0; S – Significant; NS – Not Significant; I Interpretation

As seen from Table 4, a significant difference between the school and assessment on oral health in terms of knowledge, since the obtained chi-square values were greater than the tabular value and the resulted p-values were less than 0.05 level of significance, thus the null hypothesis of no significant relationship between the school and the assessment on oral health in terms of knowledge was rejected. This

P-ISSN 2350-7756 | E-ISSN 2350-8442 | www.apjmr.com

means that their assessment is affected by the school where they belong.

The significant difference in the assessment of oral health knowledge among the schools was attributed to the terms of implementation of oral health education and program practices in the school setting as well as the support given by the sponsoring company to the school regarding oral health.

The studies of Ogundaele (2008) and Lian (2010) reported the same results among secondary school students from two different countries.

Table 5. Difference among the Three Participating Schools' Assessment on Oral Health in the terms of Attitude

Attitude	λ^2_c	p-value	I
My parents	15.463	0.017	S
Last time I visited your dentist	34.707	0.000	HS
When I first visited the dentist	28.930	0.000	HS
When I first visited the dentist	73.071	0.000	HS
If you do not visit or are afraid of him/her, the reasons are/is	28.345	0.005	S

Legend: Significant at p-value < 0.05; S – Significant; NS – Not Significant; HS – Highly Significant; I Interpretation

As seen from Table 5, there is an observed significant difference among the three participating school and assessment on oral health in terms of attitude, since the obtained chi-square values were greater than the tabular value and the resulted p-values were less than 0.05 level of significance, thus the null hypothesis of no significant relationship between the school and the assessment on oral health in terms of knowledge was rejected. This means that their assessment is affected by the school where they belong.

The significant difference in the assessment of oral health attitude among the schools was attributed to the terms of implementation of oral health education and program practices in the school setting as well as the support given by the sponsoring company to the school regarding oral health.

The studies of Ogundale (2008) and Lian (2010) reported the same results among secondary school students from two different countries.

Table 6 reveals the difference among the Three Participating School's Assessment on Oral Health in terms of Practices. As seen from the result, there is an observed significant difference among the schools and assessment on oral health in terms of practices, since the obtained chi-square values were greater than the tabular value and the resulted p-values were less than 0.05 level of significance, thus the null hypothesis of no significant relationship between the school and the assessment on oral health in terms of knowledge was rejected.

Table 6. Difference among the Three Participating School's Assessment on Oral Health in terms of Practices

Practices	λ^2_c	p-value	I
How often do you brush your teeth?	14.919	0.021	S
When do you brush your teeth?	37.618	0.000	HS
For how long do you brush your teeth?	27.534	0.000	HS
How often do you visit your dentist?	23.161	0.003	S
The treatment(s) sought during the last visit to the dentist	62.625	0.000	HS
Reason for last visit to the dentist	9.168	0.164	NS

Legend: Significant at p-value < 0.05; S – Significant; NS – Not Significant; HS – Highly Significant; I Interpretation

This means that their assessment is affected by the school where they belong. The significant difference in the assessment of oral health practices among the schools were attributed to the terms of implementation of oral health education and program practices in the school setting as well as the support given by the sponsoring company to the school regarding oral health.

The studies of Ogundale (2008) and Lian (2010) reported the same results among secondary school students from two different countries.

Prevention of oral diseases requires the respondents to be adequately informed about the causal factors, and studies suggest that a high proportion of the population including many people most immediately relevant for preventive measures of this type namely parents, teachers and health care personnel have limited understanding of how to prevent oral diseases (Kwan, 2005).

In 1995, the World Health Organization's (WHO) Global School Health Initiative sought to mobilize and strengthen health promotion activities at the local, regional and global levels to improve the health of students, school personnel, families, and other members of the community through schools. One of the recommendations was to properly value the teachers and school staff and to provide them with the necessary support to enable them to promote health.

The capacity building program spearheaded by Department of Community Dentistry of the University of the Philippines Manila College of Dentistry (UPCD)

in partnership with Manila Doctors Hospital delivered a session of lectures to the teachers of Justo Lukban Elementary school. Favorable feedback was given by the participants and common suggestions of the attendees on the activity include having longer lecture sessions, to organize similar activities for the parents of the school children and to duplicate the program in other public schools (Mendoza 2013).

Table 7. Proposed action plan

Objectives	Activities	Persons Responsible	Participants	Evaluation
To create awareness of parents and teachers on the prevention of oral diseases. To empower the participants to achieve oral health	Lecture on the Basic Oral Health topics - Dental Caries and its prevention - Dental Traumatic Injuries - Importance of Primary Teeth - Nutrition and Oral Health Distribute Pamphlets and study guides for reinforcements of the lectures.	Volunteer faculties of the College of Dentistry	Parents and Teachers of Sta. Rita Elem. School, Julian Pastor Mem. Elem. School and Ilijan Elem School	Pretest and Post test Feedback Suggestions from parents and teachers on further improvement of the program

V. CONCLUSION AND RECOMMENDATION

The respondents from the three different public schools in Batangas city have a high level of knowledge, attitudes and practices attributed to the linkages provided by the LPU College of Dentistry, First Gas Corporation and KEPCO. There is a significant to highly significant relationship among the schools and the respondents' assessment to oral health with regards to knowledge, attitude and practices attributed to the oral health education and program practices in the schools setting as well as the support given by the sponsoring company to the school regarding oral health.

It is recommended to have continued linkages among industries maybe implemented in order to cater other public schools to undergo the same program by the College of Dentistry. The empowerment of teachers and parents regarding oral health by conducting lectures on personal health by the volunteer faculties of the department. And LPU may implement the proposed action plan of oral health to public school children.

REFERENCES

Abiola Adeniyi, A., Eyitope Ogunbodede, O., et al. (2009). Do maternal factors influence the dental health status of Nigerian school children?, *International Journal of Pediatric Dentistry*, 19 (6), 448-454.

Armfield, J.M. (2010). How do we measure dental fear and what are we measuring anyway?, *Oral Health Prev Dent*, 8, 107-115

Armfield JM, Slade GD, Spencer AJ, (2009), Dental fear and adult oral health in Australia. Community Dent Oral Epidemio, 37(3), 220-230.

Carrillo-Diaz, M., Crego, A., Armfield, J.M. & Romero-Maroto, M. (2012). Treatment experience, frequency of dental visits and children's dental fear: a cognitive approach, *European Journal of Oral Science*, 120, 75-81

Carneiro L, Kabulwa M, Maleyao M, Mrosso G, Choum R, (2011), Oral Health Knowledge and Practices of Secondary School Students in Tanga, Tanzania, *Int J of Dent*.

Cugini,M., Warren, P. R. (2006), The Oral-B Cross Action Manual Toothbrush: A 5-Year Literature Review, JCDA • www.cda-adc.ca/jcda, 72(4).

Department of Education, Health and Nutrition Center (2008). National Oral Health Survey 2006. Manila, Philippines

D'Cruz, A.M., Aradhya, S. (2013). Impact of oral health education on oral hygiene knowledge, practices, plaque control and gingival health of 13- to 15-year-old school children in Bangalore city. *Indian Journal Dent Hgy.*

Diaz, P.I.,Chalmers, N.I., Rickard, A.H. (2006). Molecular characterization of subject specific oral

microfloral during initial colonization of enamel. *Appl Environ Microbiol*, 72,2837-2848.

Dye (2011). The Journal of the American Dental Association, vol. 142, no.2, pp 173-183

Gao, X., Hamzah, S.H., Cynthia Kar Yung Yui, Colman McGrath, (2013) Dental Fear and Anxiety among children and adolescent: Qualitative Study using youtube. J Med Internet Res 2013;15(2):e29 http://www.jmir.org/2013/2/e29/

Hiremath, S. (2007). Textbook of Preventive and Communiy Dentistry, Publisher Elsevier, division Reed Elsevier India Private Limited Sri PPratap

Kwan, S.Y., Peterson PE, Pine CM, Borutta A, (2005) Health Promoting schools: an opportunity for health promotion. Bull World Health Organ 2005 Sept; 83(9):677-89

Lian, CW, Phing TS, Chat CS, Shin BC, Baharuddin LH, Jalil ZBJC (2010), Oral Health knowledge, attitude and practice among secondary school students in Kuching, Sarawak, Archives of Orofacial Sciences:5(1):9-16.

Marya, CM, (2011), A Textbook of Public Health Dentistry, Jaypee Brothers Medical Publisher, p. 278

Mendoza, MA, (2013), Capacity building programs: an alternative to traditional dental treatment, *The Journal of the Philippine Dental Association*, 63 (1), 69-71

Monse, B., Heinrich-Weltzien, R., Benzian, H. et.al. (2009). PUFA- An Index of clinical Consequences of untreated dental caries. Community Dent Oral Epidemiol.

Monse-Schneider, B.E., (2008). Article published in Bruine Times August 3, 2008, Retrieved from http://www.bt.com.bn/home_news/2008/08/03/oral_ hygiene_project_for _religious_a rabic schools retrieval date Nov. 26, 2013

National Institute of Dental and Craniofacial Research National Oral Health Information (2011) Clearinghouse 1 NOHIC Way Bethesda, MD 20892–3500 1–866–232–4528 http://www.nidcr.nih.gov, NIH Publication No. 11-1142 July 2011

Nicolas, E., Bessadet, M., Collado,V. (2010), "Factors affecting dental fear in French children aged 5-12 years old". International Journal of Paediatric Dentistry, Vol. 20. Issue 5 pages 366-373, Sept 2010.

Ogundale BO and Ogunsile SE, (2008), Dental health knowledge, attitude and practice on the occurrence of dental caries among adolescent in the local government area (LGA) of Oyo State, Nigeria, *Asian Journal of Epidemiology* 1(2):64-71

Padlan, E., (2013), Oral Hygiene Habits of Grade 1 Pupils at the Bocayao Sur Elementary School in Relation to Dental Caries, The Journal of the Philippine Dental Association, Volume 63 No. 1:43-68.

Peterson PE, Aleksejuniene J, Christensen LB, Erikse HM, Kalo I. Oral health behavior and attitudes of adultsin Lithuania. Acta Odontol Scand 2000;58:243-8.

Sharma,SC, BDS, DDS Deborah M. Lyle, RDH, BS, MS, Jimmy G. Qaqish, BSc Reinhard Schuller, MSc, (2012), Comparison of Two Power Interdental Cleaning Devices on the Reduction of Gingivitis, J Clin Dent 2012;23:22–26

Skaret E, Berg E, Kvale G, Raadal M, (2007), Psycological characteristics of Norwegian adolescents reporting no likelihood of visiting a dentist in a situation with toothache, Int J Paediatr Dent 2007;17:430-438.

Shenoy RP, Sequeira PS, (2013), Effectiveness of a school dental education program In improving oral health knowledge and oral hygiene practices and status of 12- to 13- year-old school children. Indian J Dent Res [serial online] 2010 [cited 2013 Oct 25]; 21:253-9. Available from http://www.ijdr.in/text.asp?2010/21/253/66652

Stenberg P, Hakansson J, Akerman S.(2000), Attitudes to dentalhealth and care among 20 to 25-year-old Swedes: results from a questionnaire. Acta Odontol Scand ;58:102-6.

Smyth E, Caamano F, Fernandez-Riviero P, (2007), Oral Health Knowledge, Attitude and Practices in 12 yr old school children, Med Oral Patol Oral Cer Bucal, 2007 Dec 1:12(8):E614-20

Vanagas, G., Milasauskiene, Z., Grabauskas,V. Mickeviciene, A.,(2009) "Associations between parental skills and their attitudes toward importance to develop good oral hygiene skills in their children". Medicina (Kaunas)) Vol 45 ssue 9, pages 718-723.

Vika M, Skaret E, Raadal M, Ost LG, Kvale G. (2008), Fear of blood or injury and injections and its relationship to dental anxiety and probability of avoiding dental treatment among 18-year olds in Norway. *Int J Paediatr Dent*, 18, 163-169.

Vinay KB , Kapil RS, Rajeshwar PL, Pravesh J, Deepak S, and Ashish J, (2013) Impact of school-based oral health education program on oral health

of 12 and 15 years old school children, J Educ Health Promot. ; 2: 33.

Westfelt, E. Rylander H, Dahlen G. Lindhe J. (1998),The effects of supragingival plaque control on the progression of advanced periodontal disease. *J Clin Periodontal*, 25,536-41.

Wigen, T., Skaret, E., Wang, N. (2009), "Dental avoidance behavior in parents and children as risk indicator for caries in 5 year old children". *International Journal of Paediatric Dentistry*, 19(6), 431-437.

World Health Organization, (2009) Oral health: Action plan for promotion and integrated disease prevention. Report by secretariat. Documents A60/16.

World Health Organization. WHO's Global School Health Initiative. Available at www.who.int/school_youth_health/media/en/92.pdf. Accessed 19 November 2012