Original Article

Study of Dental Caries Status and Oral Health Knowledge, Attitude and Practice (KAP) among 15-year-old Schoolchildren in North Okkalapa and Tharyarwaddy Townships

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Abstract

In recent caries researches, Significant Caries index (SiC) was used to identify the high caries experienced group in the community combined with DMFT (Decayed, Missing and Filled Teeth) index. The aim of this study was to assess dental caries status and knowledge, attitude and practice (KAP)on oral health among 15-year-old schoolchildren from urban area in Yangon Region and rural area in Bago Region. School-based, cross-sectional, comparative study was carried out among 410 school children, i.e. 217 from North Okkalapa Township and 193 from Tharyarwaddy Township. Prevalence of dental caries and mean DMFT were 44.70% and 0.98(1.50) in urban area and 32.12% and 0.53 (0.98) in rural area. Mean SiC in urban and rural areas were 2.58 (1.60) and 1.59 (1.09) respectively. Both DMFT and SiC data were significantly higher in urban than rural area. Dental caries occurrence was greater among urban schoolchildren, although KAP score of urban students was higher than rural students. There was no statistically significant association between KAP and dental caries experience among school children in both townships. Therefore, school oral health promotion program for rural schoolchildren should be strengthened.

Introduction

Dental caries is the most prevalent of oral disease with considerable variations in occurrence between countries, regions within the same country as well as in the region with different social and ethnic groups. Thus the

need to scale up action based on comprehensive caries data collection systems was emphasized as the first step in planning for preventive dentistry program [1].

For many years already, dental caries prevalence surveys use standardized indices such us DMFT and DMFS indices to measure, score and analyze the caries experience. However, a detailed analysis of the caries situation in many countries show that there is a skewed distribution of caries prevalence, i.e. some proportion of population still has high or very high DMFT values even though certain proportion is totally caries free. Clearly, the mean DMFT value does not accurately reflect this skewed distribution leading to incorrect conclusion that the caries situation for the whole population is controlled while in reality several individuals still have caries [2].

Significant Caries index (SiC) was developed in order to bring attention to the individuals with the highest caries values in each population under investigation and to overcome limitation of DMFT [3]. Ditmyer stated that using both DMFT and SiC together may help to highlight oral health inequalities more accurately among different population groups so as to identify the need for preventive oral health interventions [4].

The concern of an individual on oral disease is dependent on the KAP of a person. It naturally reflects their own experiences, cultural perceptions, familial beliefs and other life situations and strongly influences the oral health behavior and finally, oral health status [5].The study also suggested that individuals who had favorable KAP on oral health have better oral health condition in their later years than those who do not.

Nowadays, level of dental caries was still increasing in adolescence in some developing countries, especially for the countries where preventive programs have not been established. Moreover, many studies have been conducted on KAP on oral health, but mostly among adults and old people. In fact, the time trends, both for society and dental diseases, necessitate a focus on the period of adolescence when many habits that continue throughout life are initiated [6].

In Myanmar, like other developing countries, there was also scarce data on dentition status as well as KAP of the adolescent population. Thus, it is interesting to carry out the study determining the association between KAP and dentition status among adolescence from urban and rural areas.

Materials and Methods

Cross-sectional, school-based comparative type of study was carried out in two Basic Education High Schools each from North Okkalapa Township and Tharyarwaddy Township in2014.The random sampling method

was used to select schools, and then 410 school children who fit in with inclusion criteria participated.

After getting the permission from Township Educational Officer and headmasters of the schools, the schoolchildren were informed and explained about the objectives and procedures of the study and asked for consent. Firstly, the participants were asked to answer the questionnaire concerning socio-demographic data, oral hygiene behavior and oral health KAP. The examiner explained detail of each question and how to score and all participants were asked to answer instantly and submit back after completing the questionnaires. Then, the school children were examined to assess dentition status by using DMFTindex [7] under natural day light in a prepared separate room in each school. The clinical data collection was performed by the examiner and two trained recorders.

After clinical data collection, oral health education session was given. Any schoolchild with dental treatment need was treated at the site of survey and was referred to the University of Dental Medicine, Yangon and respective Dental OPD in each township.

Collected data were cleansed and entered in Statistical Package for Social Sciences (SPSS) (version 16.0). The continuous variables were expressed by means and standard deviations and analyzed by Student's *t* test. The categorical variables were described by frequencies and percent and analyzed by Chi-square test.

Results

Total sample included 410 schoolchildren, in which 85 males and 132 females from urban schools and 86 males and 107 females from rural schools participated. Majority of schoolchildren in the present study was Bamar (84.4%) and followed by Kayin (9.75%). One third of their parents (37.6%) were farmers. Most of the participants (91.9%) brushed their teeth twice a day and only16.9% brushed in both vertical and horizontal methods. Almost all of them (99.8%) used tooth brush and tooth paste to clean their teeth.

Prevalence of dental caries of total sample was 38.41% and mean DMFT and mean SiC of 15-year-old schoolchildren were 0.76 (1.24) and 2.09 (1.44) respectively. There was no statistically significant relationship between dental caries status (prevalence of dental caries, mean DMFT and SiC) and gender distribution (Table 1 and 2). But prevalence and mean values of dental caries were higher in schoolchildren from urban area than in those from rural area (Table 3).

Table 1.Relationship between gender and dental caries status among 15-year-old schoolchildren in urban area (n = 217)

	Prevalence of dental caries n (%)	Mean DMFT (SD)	Mean SiC (SD)
Male (n = 85)	38 (44.7)	0.79 (1.09)	2.53 (0.84)
Female (n = 132)	59 (44.7)	1.10 (1.70)	2.54 (1.79)
***p* value**	0.999*	0.137§	0.982§

*Chi-squared test §Student's *t* test

Table 2.Relationship between gender and dental caries status among 15-year-old schoolchildren in rural area (n = 193)

	Prevalence of dental caries n (%)	Mean DMFT (SD)	Mean SiC (SD)
Male (n = 86)	23 (26.7)	0.53 (1.09)	2.00 (1.24)
Female (n = 107)	39 (36.5)	0.53 (0.88)	1.46 (0.88)
***p* value**	0.151*	0.988§	0.051§

*Chi-squared test §Student's *t* test

Table 3.Relationship between locality and dental caries status among 15-year-old schoolchildren (n = 410)

	Prevalence of caries n (%)	Mean DMFT (SD)	Mean SiC(SD)
Urban (n = 217)	97 (44.7)	0.98 (1.50)	2.58 (1.60)
Rural (n = 193)	62 (32.1)	0.53 (0.98)	1.59 (1.09)
***p* value**	0.009*	0.001§	<0.001§

*Chi-squared test §Student's *t* test

Mean KAP score of total sample was 10.67 (2.07)(range 5 - 17). KAP score was associated with locality but not with gender (Table 4). There was no difference in dental caries prevalence between schoolchildren with high and low KAP scores (cutoff point was 11 marks). Mean values of DMFT and SiC were also not related to KAP score in both urban and rural areas (Table 5 and 6).

Table 4.Relationship between locality and KAP concerning oral health among 15-year-old schoolchildren (n = 410)

Locality	Mean KAP (SD)	*p* value[§]	Gender	Mean KAP (SD)	*p* value[§]
Urban (n = 217)	11.34 (2.02)	< 0.001	**Male (n = 85)**	11.38 (2.23)	0.815
			Female (n = 132)	11.31 (1.88)	
Rural (n = 193)	10.00 (1.91)		**Male (n = 86)**	9.72 (1.94)	0.064
			Female (n = 107)	10.23 (1.86)	

[§]Student's *t* test

Table 5.Relationship between dental caries experience and KAP concerning oral health among 15-year-old schoolchildren in urban area (n = 217)

	Prevalence of caries n (%)	Mean DMFT (SD)	Mean SiC (SD)
High KAP (≥11 marks) (n = 143)	77 (53.8)	1.08 (1.65)	2.76 (1.79)
Low KAP (<11 marks) (n = 74)	43 (58.1)	0.78 (1.13)	2.08 (0.99)
***p* value**	0.549*****	0.172[§]	0.082[§]

*Chi-squared test [§]Student's *t* test

Table 6.Relationship between dental caries experience and KAP concerning oral health among 15-year-old schoolchildren in rural area (n = 193)

	Prevalence of caries n (%)	Mean DMFT (SD)	Mean SiC (SD)
High KAP(≥11 marks) (n = 77)	55 (71.4)	0.44 (0.87)	1.55 (0.96)
Low KAP (<11 marks) (n = 116)	76 (65.51)	0.59 (1.05)	1.73 (1.11)
***p* value**	0.389*	0.288[§]	0.526[§]

*Chi-squared test [§]Student's *t* test

Discussion

The present study was aimed to measure dental caries occurrence and oral health related KAP and their association among middle schoolchildren in urban and rural townships. Moreover, the usefulness of SiC index in combination with DMFT index was also assessed. Occurrence of dental caries was not different between male and female. It can be suggested that they had similar school environment in which the same foods and drinks were available to choose. In contrast, one study performed among 12-year-old Myanmar schoolchildren revealed that female had higher caries experience than male [8].

The present study revealed that urban schoolchildren had more caries experience than rural students. It might be due to eating habit and lifestyle differences between two groups. In addition, children in urban area have more access to and consume more sweetened snacks and drinks than those in rural area. The similar findings were reported in previous studies carried out in Myanmar [9, 10].There might be some association between urbanization and dental caries status.

Above findings reported that the usefulness of SiC index was not much different from DMFT measurement in this study. Further researches are needed to evaluate the practicality of SiC index in caries assessment.

Oral health KAP score of urban school children was higher than that of rural school children. This might be due to the fact that differences in socioeconomic status, accessibility to oral health care services and availability of school-based educational programs. School health services should be strengthened in Myanmar especially in rural areas.

No association was observed between oral health KAP score and dental caries in both townships. It seemed to be that the schoolchildren had correct information and knowledge of oral health but they did not apply these facts in their daily practice. Studies proposed that the association between KAP of oral health and dental caries status were not simple, some confounding factors such as parents' educational level and occupation should be considered.

Conclusion

Caries experience of urban schoolchildren was significantly higher than rural schoolchildren so school-based oral health preventive program as well as curative services should be reinforced. To improve oral health KAP among schoolchildren and community, using available and popular source of information among them such as printed and social media e.g. oral health education broadcasting session from radio, should also be

considered. Further researches are needed to clarify the use of SiC index in measurement of dental caries status among other population groups.

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