Makara Journal of Health Research e-ISSN 2356-3656 print ISSN 2356-3664

(http://journal.ui.ac.id/index.php/health/index)

Vol 22, No 2 (2018)

August

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Makara Journal of Health Research

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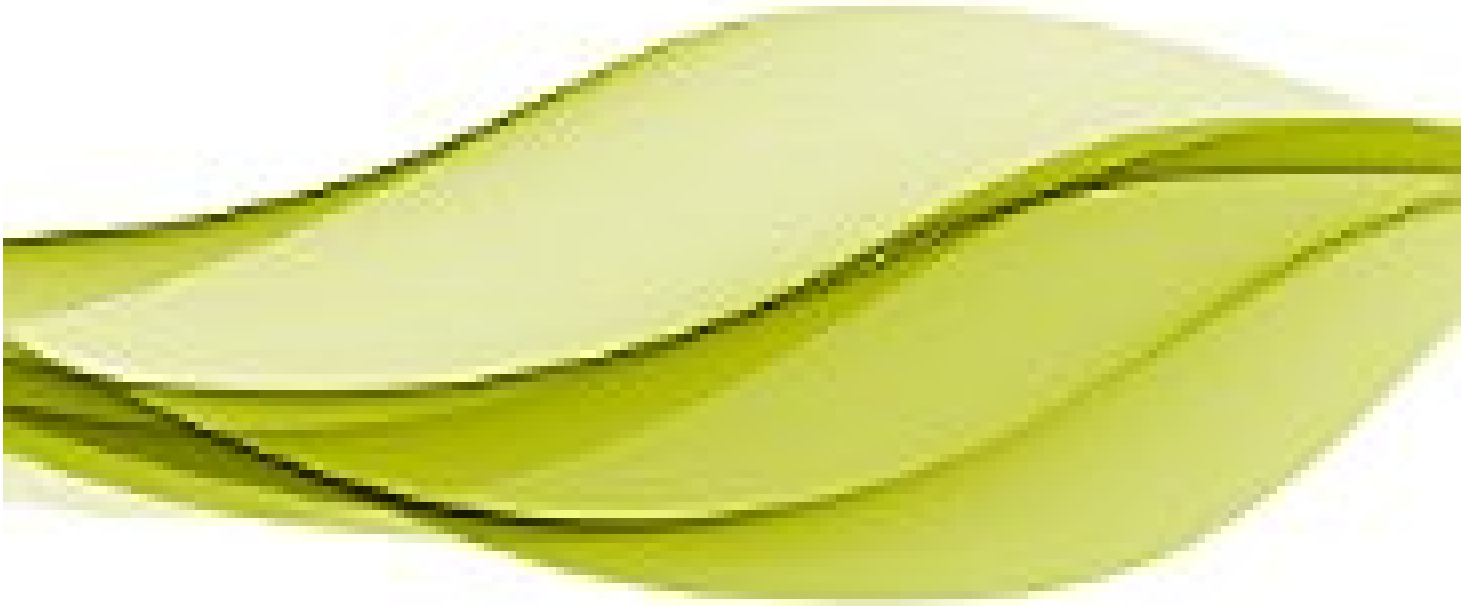

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Makara J. Health Res., 2018, 22(2): 99-103
doi: 10.7454/msk.v22i2.9732

WHO STEPS-wise Approach in Assessment of Dental Caries and Children's Quality of Life in Indonesia

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Abstract

Background: The high prevalence of dental caries is a major oral health problem in Indonesia. We aimed to determine the relationship between dental caries and quality of life in children living in rural and urban areas in Indonesia. **Methods**: A pilot survey was carried out with 2550 students aged 6-7 years old and 11-12 years old in rural, peri-urban and urban sites in 14 provinces in Indonesia. The pathfinder survey technique was applied. Data collected based on the WHO STEPS-wise framework using a dental examination by the WHO form (Annex 7) and quality of life questionnaire (Annex 8, Q10). **Results**: The prevalence dental caries among aged 6-7 and 11-12 were 88.01% and 70.27%, respectively. Children aged 6–7 years old was reported that tooth decay affected their appearance ($p = 0.013$), caused them to avoid smiling and laughing ($p = 0.003$), caused other children to make fun of their teeth ($p = 0.002$) and caused them to miss school hours ($p = 0.005$). Among 11–12 years old children, tooth decay reportedly affected their appearance ($p = 0.001$), caused them to avoid smiling and laughing ($p = 0.041$) and caused them to have chewing difficulty chewing ($p = 0.031$). **Conclusions**: Tooth decay affects children's quality of life, especially with regard to psychological health.

Keywords: Quality of life; dental caries; WHO STEPS-wise approach

Introduction

Oral health is no longer seen as the absence of caries or periodontal disease but also considers the individual's mental health and social well-being. The concept of oral health-related quality of life (OHRQoL) captures the aim of this new perspective.[1,2]

Locker and Allen defined OHRQoL as 'the extent to which oral disorders affect functioning and psychosocial well-being and the symptoms and functional and psychosocial impacts that emanate from oral diseases and disordersl'.[3] Moreover, OHRQoL is more broadly defined as 'a broad conception of health; encompassing the traditional definition of health that impact on individual's health on well-being and functioning in daily life,' and also more simply as 'the impact of the oral condition on daily functioning.[4]

The World Health Organization (WHO) recommends that the important to collect the global surveillance data which represents people's experience of poor OHRQoL. One way of assessing OHRQoL involves measuring its decline among children, as well as associated symptoms such as oral pain, discomfort or problems.[5]

There exist no Indonesian studies that focus on dental caries and quality of life, on a national scale and based on the WHO STEPS-wise approach, and such studies are needed. On the other hand, studies examining the impact of dental caries on the quality of life based on a local scale have been widely conducted. Indonesian dental associations and dental education institutions have been involved in this collaborative survey focused on obtaining baseline data on oral health and quality of life among 6−7 and 11−12-year-olds.

Our ultimate goal was to encourage data collection on tooth decay severity and self-reported quality of life based on the STEPS frameworks. The WHO STEPS-wise approach is a sequential process that starts with the compilation of self-reported health conditions using a questionnaire, followed by an oral examination.[5] Implementation of the WHO STEPS-wise approach in the study children's OHRQoL at the national level will be conducted for the first time in Indonesia. The relationship between dental caries and children's quality of life will be further discussed in this survey. Specifically, this survey sought to determine the influence of dental caries on quality of life in children living in rural and urban area in Indonesia, based on the WHO STEPS-wise approach.

Methods

A pilot survey was carried out with 2550 school children throughout Indonesia between the ages of 6–7 and 11–12 years. The WHO pathfinder survey technique includes the most important subgroups of the population with only one or two age indexes in a pilot survey. The sample selected based on the national pathfinder surveys and included between 10 and 15 sampling sites, which were considered as the sufficient number.[5] In this study, 14 sampling sites were chosen to represent rural, peri-urban and urban areas of Indonesia, which were as follows: Palembang (South Sumatera); Pekanbaru (Riau); Batam (Riau Island); Jambi (Central Sumatera); Sukabumi (West Java); Yogyakarta (Special Region of Yogyakarta); Berau (East Kalimantan); Nunukan (North Kalimantan); Makassar (South Sulawesi); Kendari (South East Sulawesi); Manado (North Sulawesi); Mataram (Lombok Island) and Papua (Papua Province).

At every site, all data collection was carried out by a team from the local dental association during the National Oral Health Month of 2015-2016. All examiners were trained and calibrated. The kappa score for inter-examiner reliability ranged from 0.70 to 0.80 for the dmft/DMFT value.

Dental caries status referred to the presence of any tooth decay and was determined via dental examination. The children were placed in chairs, and a dental mirror light or mouth mirrors with a headlamp and a CPI-ball ended probe were used to generate a tooth decay score according to the WHO Basic Method for Oral Health Surveys. We used a 6-item quality of life questionnaire, based on the WHO Self-assessment questions for children (Annex 8) number Q10. The questionnaire used a nominal scale answer format with 'yes' or 'no' response options.

The surveys received ethical approval from the Health Research Ethics Committee of the Universitas Indonesia, and all parents of participating children provided written informed consent before completion of any study-related procedures. All data were analysed using Spearman's rank correlation test and multivariate logistic regression.

Results

The characteristics of survey respondents are presented in Table 1. The total number of children in the 6-7 year and 11-12 year age group were 1293 and 1257, respectively. The location and gender of respondents was proportionally similar in the two age group.

Table 1. Respondents' Characteristics Based on Index Age

Item	Index Age (y)	
	6–7	11–12
Location		
Rural	314 (24.3%)	388 (30.9%)
Peri-urban	188 (14.5%)	209 (16.6%)
Urban	791 (61.2%)	660 (52.5%)
N	**1293 (100%)**	**1257 (100%)**
Gender		
Male	621 (52.0%)	626 (49.8%)
Female	672 (48.0%)	631 (50.2%)
N	**1293 (100%)**	**1257 (100%)**
Tooth Decay		
Mean of Total Decayed Teeth (Primary and Permanent)	6.59 SE (0.134)	2.54 SE (0.087)
Prevalence of Total Decayed Teeth (Primary and Permanent)	88.01%	70.27%
Quality of Life		
Dissatisfied with the appearance of teeth		
Yes	374 (28.9%)	368 (29.3%)
No	919 (71.1%)	889 (70.7%)
Often avoid smiling and laughing due to tooth decay		
Yes	228 (17.6%)	142 (11.3%)
No	1065 (82.4%)	1115 (88.7%)
Other children make fun of the appearance of decayed teeth		
Yes	151 (11.7%)	83 (6.6%)
No	1142 (88.3%)	1174 (93.4%)
Toothache or discomfort caused by tooth decay forced me to miss classes at school or miss attending the full school day		
Yes	234 (18.1%)	117 (9.3%)
No	1059 (81.9%)	1140 (90.7%)
I have difficulty biting hard foods		
Yes	432 (33.4%)	228 (18.1%)
No	861 (66.6%)	1029 (81.9%)
I have difficulty masticating food		
Yes	259 (20.0%)	125 (9.9%)
No	1034 (80.0%)	1132 (90.1%)

Quality of life was associated with the severity of dental caries. All data were not normally distributed. Therefore, a non-parametric correlation test was used. A Spearman's rank correlation test determined correlations between dental caries and quality of life.

In Table 2, among 6–7-year-olds, dental caries was specifically correlated with quality of life relating to the appearance of the children's teeth, avoidance of smiling and laughing and having other children make fun of the respondent's teeth. Among 11–12-year-olds, tooth decay was correlated with quality of life relating to the appearance of the children's teeth; avoidance of smiling and laughing and difficulties with chewing.

In the logistic regression analysis, quality of life was the dependent variable whereas location (rural, peri-urban, urban), gender, both primary and permanent decayed teeth were the independent variables. The final model of logistic regression is presented in Table 3 and 4.

Moving to Table 3, the psychological dimension of quality of life of 6–7-year-olds was significantly influenced by dental caries. The other influencing factor was the location of the respondent. Respondents living in rural, peri-urban and urban areas perceived higher psychological disturbance compared to the functional dimension (chewing and biting food).

In Table 4, dental caries only affected the psychological dimension following the location of the respondent and gender whereas the functional dimension was only influenced by gender.

Table 2. Correlation between Total Number of Decayed Teeth and Quality of Life

	6–7 y		11–12 y	
	Spearman Coefficient	***p***	**Spearman Coefficient**	***p***
Dissatisfied with the appearance of teeth	−0.059	0.013*	−0.095	0.001*
Often avoid smiling and laughing due to tooth decay	−0.070	0.003*	−0.058	0.041*
Other children make fun of the appearance of decayed teeth	−0.072	0.002*	−0.054	0.056
Toothache or discomfort caused by tooth decay forced me to miss classes at school or miss attending the full school day	−0.065	0.005*	−0.045	0.108
I have difficulty biting hard foods	−0.042	0.072	−0.050	0.077
I have difficulty masticating food	−0.038	0.103	−0.061	0.031*

*significant at $p<0.05$

Table 3. Logistic Regression Analysis for Quality of Life of Children in the Age Group of 6–7 Years Old

Quality of Life Questionnaire	**B**	**Wald**	**Sig**	**Exp (B); CI 95.0%**
Dissatisfied with the appearance of teeth				
Location	−0.390	30.354	0.000*	0.677 (0.589–0.778)
Total of decayed teeth	−0.028	4.754	0.029*	0.972 (0.948–0.997)
Often avoid smiling and laughing due to tooth decay				
Location	−0.344	17.259	0.000*	0.709 (0.603–0.834)
Total of decayed teeth	−0.041	7.142	0.006*	0.960 (0.932–0.989)
Other children make fun of the appearance of decayed teeth				
Gender	0.337	3.644	0.056	1.401 (0.001–1.981)
Total of decayed teeth	−0.061	12.218	0.000*	0.941 (0.909–0.973)
Toothache or discomfort caused by tooth decay forced me to miss classes at school or miss attending the full school day				
Total of decayed teeth	−0.047	10.337	0.001*	0.954 (0.927–0.982)
I have difficulty biting hard foods				
Gender	−0.380	10.273	0.001*	0.684 (0.542–0.863)
Total of decayed teeth	−0.022	3.288	0.070	0.978 (0.955–1.002)
I have difficulty masticating food				
Gender	−0.298	4.544	0.033*	0.743 (0.565–0.976)
Total of decayed teeth	−0.024	2.737	0.098	0.977 (0.950–1.004)

*significant at $p<0.05$

Table 4. Logistic Regression Analysis for Quality of Life of Children in the Age Group of 11–12 Years Old

Quality of Life Questionnaire	B	Wald	Sig	Exp (B); CI 95.0%
Dissatisfied with appearance of teeth				
Location	−0.179	6.577	0.010*	0.836 (0.729–0.959)
Gender	−0.287	5.179	0.023*	0.751 (0.586–0.961)
Total of decayed teeth	−0.075	14.761	0.000*	0.928 (0.893–0.964)
I have difficulty masticating food				
Gender	0.385	4.068	0.044*	1.470 (1.011–2.137)

*significant at $p<0.05$

Discussion

The average decayed teeth in both primary and permanent teeth of 6–7 year olds was 6.59 with SE ± 0.134, whereas for 11–12 year olds, it was 2.54 with SE ± 0.087. Approximately 88.01% of 6–7 year old children had one or more decayed primary or permanent teeth, whereas among 11–12 year olds, decay was found in as many as 70.27%. The prevalence of dental caries in children has shown a decreasing trend in other developing countries. For example, the prevalence of caries in children aged 11-12 years was 56.9% in Thailand.[6]

The survey found that the percentage of respondents in the age group of 6–7 years old who reported a disturbance in the quality of life aspects due to the tooth decay was varied from 11.7% to 33.4% and in the age group of 11–12 years old was varied from 6.6% to 29.3%. In Thailand, the prevalence of OHRQoL influence was high; as much as 89.8% of children had experienced many impacts on their daily life related to the oral health during the period of 3 months of study. Impact on eating was most prevalent, followed by several impacts on the emotional aspect.[6]

In terms of the Children's Oral Health-Related Quality of Life (C-OHRQoL), the data showed that there is a correlation between decayed teeth and the psychological aspect.

The correlation between dental caries and the C-OHRQoL was specifically related to the psychological dimension. A study conducted in India with children aged 11–12 years found that as many as 68.3% of children had difficulty eating and experienced disturbances in other activities such as sleeping, smiling, controlling emotional stability, school attendance and social interactions because of problems related to tooth decay.[7]

Quality of life depends on an individual's external as well as internal factors like social aspects, cultural surroundings, biological aspects, health, and personality.[8] In Indonesia, there were previously no data related to dental caries and quality of life among 6–7 and 11–12-year-olds at the national level. The prevalence of dental caries among 6–7 and 11–12-year-olds is high. Thus, children have been the major focus of public health and community dentistry. This oral health problem is urgent because of its impact on children's quality of life.

Poor oral health status reflected by the number of decayed teeth created limitations in many psychological dimensions such as inferiority, embarrassment, difficulty with mastication and inability to attend school because of toothaches.

However, our results were different from those of similar surveys conducted in other countries regarding the existence of functional disturbances caused by tooth decay. Children with tooth decay in Indonesia appear to be more worried or upset about the appearance of their teeth.

Assessment of an individual's OHRQoL allows consideration of different situations including functional, pain/discomfort, psychological and social. The functional dimension includes the ability of children to chew and bite. The psychological dimension of children's oral health interferes with daily activities in school, a significant consideration.[1]

Measuring the OHRQoL was challenging because of the children's limited reading abilities, as well as developmental barriers to thinking in abstract terms. Therefore, the abilities of children of different age groups to understand concepts included in the questionnaire should be taken into consideration.[3,9] Even among children in the same age group, cognitive development is highly variable and includes the ability to understand words and behavioural consistency. This makes repeated measurements necessary, and surveys that include these repeated measurements more difficult to perform.[10]

The issue of OHRQoL has attracted increasing attention and discussion within the literature over the past two decades. OHRQoL is used in research and to craft evidence-based policies. Policy makers and authorities should be aware of the greater impact of tooth decay if high DMFT scores are interpreted and correlated with impaired quality of life including the inability to eat, sleep, or concentrate, due to toothaches resulting from tooth decay.[11-14]

Conclusions

The surveys provided baseline information on children's tooth decay and its impact on the quality of life at a national level. The prevalence of tooth decay both in

primary and permanent teeth remains high and exerts a substantial impact on children's quality of life. Furthermore, the psychological dimensions of OHRQoL were associated with socio-demographic factors (location and gender).

Acknowledgement

All authors would like to express their gratitude to Indonesian Dental Public Health Association (Ikatan Peminatan Kesehatan Gigi Masyarakat Indonesia-IPKESGIMI) for translating the WHO examination forms and questionnaires; Indonesian Dental Association (Persatuan Dokter Gigi Indonesia - PDGI) and Unilever N.V. Co. for assisting the data collection process.

Conflict of Interest Statement

All authors report no conflicts of interest.

References

1. Inglehart MR, Bagramian RA. *Oral health related quality of life.* eds. Chicago: Quintessence Pub.; 2002.
2. Alsumait A, ElSlhy M, Raine K, Cor K, Gokiert R, Al-Mutawa S, *et al*. Impact of dental health on children's oral health- related quality of life: A cross-sectional study. *Health Qual Life Outcomes*. 2015;13:1-10.
3. Locker D, Allen F. What do measures of 'oral health-related quality of life' measure? *Community Dent Oral Epidemiol.* 2007;35:401-11.
4. Gilchrist F, Rodd H, Deery C, Marshman, Z. Assessment of the quality of measures of child oral health-related quality of life. *BMC Oral Health*. 2014:14:40.
5. World Health Organization. *Oral Health Surveys Basic Methods.* 5th ed. Geneva: World Health Organization Document Production Services; 2013.
6. Basavaraj P, Sunil MK, Nagarajappa R, Ashish S, Ramesh G. Correlation between oral health and Child-OIDP index 12- and 15- year-old children from Modinagar, India. *Asia Pac J Public Health*, 2014;26: 390-400.
7. Agrawal N, Pushpanjali K, Gupta ND, Garg AK. Child oral impacts on daily performances: A socio dental approach to assess prevalence and severity of oral impacts on daily performances in South Indian school children of Bangalore city: A cross-sectional survey. *J Indian Assoc Pub Health Dent.* 2014;12:88-92.
8. Cohen-Carneiro F, Souza-Santos R, Rebelo MAB. Quality of life related to oral health: contribution from social factors. *Cien Saude Colet.* 2011;16:1007-15.
9. Tsakos G, Allen PF, Steele JG. What has oral health related quality of life ever done for us? *Community Dent Health*. 2013:30:66-7.
10. Huntington NL, Spetter D, Jones JA, Rich SE, Garcia RI, Spiro A 3rd. Development and validation of a measure of pediatric oral health-related quality of life: the POQL. *J Public Health Dent.* 2011;71:185-93.
11. Krisdapong S, Somkotra T, Kueakulpipat W. Disparities in early childhood caries and its impact on oral health-related quality of life of preschool children. *Asia-Pasific J Public Health*. 2014;26:285-94.
12. Nawawi AP, Fadillah RPN, Supriatna A, Sarwendah S. Differences in the oral health behaviour of the 12-years-old children in rural and urban areas. *Padjadjaran J Dent.* 2017;29:204-8.
13. Gilchrist F, Rodd H, Deery C, Marshman Z. Assessment of the quality of measures of child oral health-related quality of life. *BMC Oral Health.* 2014;14:40.
14. Bettie NF, Ramachandiran H, Anand V, Sathiamurthy A, Sekaran P. Tools for evaluating oral health and quality of life. *J Pharm Bioallied Sci.* 2015;7:S414-9.