

Association between life satisfaction and oral health conditions at adolescents in urban and rural areas in Indonesia: pilot pathfinder survey

Hubungan antara kepuasan hidup dengan kondisi mulut pada usia remaja di urban dan rural di Indonesia: survei pilot pathfinder

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ABSTRACT

Objective: To determine the association between life satisfaction and oral health conditions at adolescents in rural and urban areas. **Method:** A pilot pathfinder survey was conducted on April 9-14th 2018 using questionnaires. The samples were 416 adolescents aged 11-14 in urban and rural areas of Gowa regency, Indonesia. Chi-square and Pearson correlation test were carried out to test the relationship between life satisfaction and self-rated oral health condition. **Result:** In urban areas, there is a significant relationship between life satisfaction and oral health, p-value was 0.040; self-assessed caries experience, p-value was 0.040; and self-assessed malocclusion experience, p-value was 0.006. In rural areas, there is a significant relationship between life satisfactions with self-assessed malocclusion experience, p-value was 0.002. **Conclusion:** There is an association between life satisfaction and oral health conditions in adolescents in urban and rural areas.

Keywords: life satisfaction, oral health condition, adolescent, urban, rural.

ABSTRAK

Tujuan: Mengetahui hubungan antara kepuasan hidup dengan kondisi mulut pada usia remaja di rural dan urban. **Metode:** Dengan *pilot pathfinder survey*, survei dilakukan tanggal 9-14 April 2018 menggunakan kuisioner. Remaja usia 11-14 tahun sebanyak 416 sampel di daerah urban dan rural Kabupaten Gowa, Indonesia. Untuk menguji hubungan antara kepuasan hidup dengan kondisi mulut yang dinilai sendiri, digunakan uji chi-square dan korelasi Pearson. **Hasil:** Pada daerah urban, terdapat hubungan yang signifikan antara kepuasan hidup dengan tingkat kesehatan mulut, nilai-p 0,040; pengalaman karies yang dinilai sendiri, nilai-p 0,040; dan pengalaman maloklusi yang dinilai sendiri, nilai-p 0,006. Pada daerah rural, terdapat hubungan yang signifikan antara kepuasan hidup dengan pengalaman maloklusi yang dinilai sendiri, nilai-p 0,002. **Simpulan:** Terdapat hubungan antara kepuasan hidup dengan kondisi kesehatan mulut pada usia remaja di daerah urban dan rural.

Kata kunci: kepuasan hidup, kondisi kesehatan mulut, kualitas hidup yang berkaitan dengan kesehatan mulut, remaja, urban, rural

Received: 1 January 2020

Accepted: 1 June 2020

Published: 1 Desember 2020

INTRODUCTION

Life satisfaction is considered as an important aspect of quality of life. Adolescents generally have a lower life satisfaction. Based on research of *Health Behavior in Schools Aged Children* (HBSC) 2016 by WHO in 41 countries shows that the prevalence of life satisfaction significantly decreased on age 11-15 years. Adolescents who have low level of life satisfaction also have a low quality of life. Life satisfaction also affects health, in both general health and oral health. According to WHO in 2012, oral health plays an important role in quality of life. Oral health can affect the quality of life and directly affect the physical, cognitive, emotional and psychological.¹⁻⁵

Research by Lin et al⁶ revealed that individuals who have low life satisfaction also have poor behavior in maintaining their health including oral and dental health. Settineri et al⁴ revealed that there is a

significant relationship between mental state or individual feelings towards the condition of the teeth and mouth. Based on research by Neto et al⁷, malocclusion affects quality of life mainly related to physical and psychological discomfort. Yeh et al⁸, states that the quality of life is affected by dental caries treatment. The quality of life significantly improved after restoration treatment.^{4,6-8}

Gowa regency is the third largest regency in Province of South Sulawesi with population of 668,875 people. The ratio of dentists and residents in Gowa regency is 5.7:100,000 populations. Adolescent health services in Gowa regency 2015 can be seen from the coverage of primary school students who receive services as many as 1044 people and who need service are 7118 people. It indicates that teenagers in Gowa Regency still have many poor oral health conditions and feared could affect the satisfaction of their life.^{10,11}

Based on the explanation, a question arises as to whether teenagers pay attention to their oral health condition in assessing their life satisfaction. Therefore, researchers are interested to know the relationship of life satisfaction and self-rated oral health conditions in adolescents in urban and rural, especially in Gowa Regency.

METHODS

The Ethics Committee of Medical Faculty Hasanuddin University in Indonesia, has approved this survey and all respondents have agreed to participate in this survey by filling out the consent form. The pilot pathfinder survey is a survey involving one or two age groups that are the most likely subgroup of populations to experience different levels of disease. The survey was conducted in Somba Opu subdistrict which represent the urban and Pattalassang subdistrict which represent rural areas of Gowa regency, South Sulawesi on 9-14 April 2018.

Samples taken were adolescents aged 11-14 who meet the inclusion criteria as many as 416 samples and willing to fill the questionnaires. The assessment criteria used a questionnaire adapted from a study conducted by HBSC³ and Kavaliauskiene et al.¹

Life satisfaction

Child's satisfaction is assessed using measurement techniques from HBSC³ research. Children are asked to see a ladder step with a number from zero ("0") at below to ten ("10") at the top, with instructions to assume the top of the ladder represents the best possible life, and the bottom of the ladder representing the worst possible life. Then they were asked to show the steps of the stairs in which they will put their lives at this time. Thus, the responses were scored from 0 to 10. In the analysis, the items were also dichotomized into 'low life satisfaction' (score 0-7) and 'high life satisfaction' (score 8-10).¹

Family welfare

Family welfare is measured by *Family Affluence Scale* (FAS), which has been specifically developed for HBSC studies as a measure of social position. This scale is simple and easy to answer even for children. The current FAS include four questions, which include car and home, computer ownership, own rooms in residences and holidays in a year. A combined FAS score was calculated for each respondent based on his response to these four items and then three-point ordinal variables were prepared for this analysis in which

score is 0-2 indicates low well-being; score 4-5 indicates medium wellbeing, and score is 6-9 shows high well-being.¹³

Fear of the dentist

We asked the respondent the following question "How much do you fear about dental care?" Respondents can choose one of five waves: 1 is none, 2 is a little, 3 is somewhat, 4 is large, 5 is very large. In the analysis, the dichotomy results to 'a little fear of the dentist' (for answers 1 and 2) and 'great fear of dentists' (for the remaining answers).¹

Level of oral health and wellbeing

Respondents were asked to assess their oral health and the extent to which it affects their wellbeing. For each of these dimensions, five sub-items are written in the following way: "How would you describe the health status of the following parts of the mouth: teeth; lips; gums; oral mucosa; jaw or joint?" and "Over the past three months, how much of your whole life is affected by the conditions of the following parts of the mouth: tooth; lips; gums; oral mucosa; jaw or joint?" Responses were scored in the following manner: related to oral health assessment: 0 is very good at all, 1 is excellent, 2 is good, 3 is moderate and 4 is bad; with respect to wellbeing: 0 is not at all, 1 is very little, 2 is rather, 3 is many and 4 is very much. The final score is taken from the maximum score on all sub-items of each dimension. The dichotomy of the two dimensions is made: 'whole oral health assessment' with categories 'excellent', 'good', 'moderate', and 'oral conditions affect welfare' with 'not at all', 'very slight' a lot/very much'.¹

Questionnaires perception of children/child perception questionnaire

'The child's perception questionnaire (CPQ)' originally had a 37-item consisting of four health domains (subscale), i.e. oral symptoms (6 items), functional limitations (9 items), emotional wellbeing (9 items), and social welfare (13 items). Items are scored on a 5-point Likert scale ranging from 0 ("never") to 4 ("daily or almost daily"). In the analysis, scores for each item are added together to get a score of the sum of each sub-scale as well as the total CPQ scale. Then, the number of scores is standardized to a 0-100%, percentage score scale by dividing the number of scores with maximum scores and multiplying by 100. Note that higher number/percentage values refer to worse OHRQoL.¹

Experience level of dental caries and self-assessed malocclusion

Respondents were asked to answer (1) do they have dental caries or cavities to be treated, and (2) have they ever noticed that their teeth grow irregularly or they experience malocclusion. The answer categories are 1-yes, I notice that myself; 2-yes, this is confirmed by the dentist; 3-no, I do not have that kind of disorder.¹

Table 1 Distribution of sample characteristics (n = 416)

Sample Characteristics	Frequency	
	n	%
Age		
11	141	33.9
12	171	41.1
13	41	9.9
14	63	15.1
Gender		
Man	209	50.2
Women	207	49.8
Location		
Urban	210	50.5
Rural	206	49.5

Source: Primary Data, 2018.

Data were analyzed using SPSS 24. Chi-square test assesses the relationship of life satisfaction with various sample characteristics. Pearson correlation test assesses the correlation between Child Perception Questionnaire (CPQ) with life satisfaction.

RESULTS

Table 1 shows the distribution of sample characteristics. Based on age, most sample are at the age of 12 were 171 people (41.1%) and at least at the age of 14 were 63 (15.1%). By sex, the sample of men were more than women, that is 209 (50.2%). Based on the location, the largest sample survey was in the urban area with 210 people (50.5%).

Table 2 shows the relationship of various characteristics with life satisfaction in a sample of adolescents in urban Gowa regency. Based on the characteristics of family welfare, the highest number of samples in high welfare group with high life satisfaction were 59 people (66.3%) with p is 0.162; more than 0.05) which means no relationship between family welfare level and life satisfaction in adolescents in urban Gowa regency significantly. Based on the fear of dental treatment, the highest number of

Table 2 Relationship of various characteristics with life satisfaction in the sample of adolescents in urban Gowa District.

Sample Characteristics	Life Satisfaction				p-value ^a
	Low		High		
	n	%	n	%	
Family welfare					
Low	6	18.8	26	81.3	0.162
Medium	33	37.1	56	62.9	
High	30	33.7	59	66.3	
Fear of dental care					
a little	52	32.9	106	67.1	0.977
Big	17	32.7	35	67.3	
Level of oral health					
very good	4	6.45	58	93.5	0.040*
Good	27	31.8	58	68.2	
Medium/bad	37	59.7	25	40.3	
The level of wellbeing that is affected by the condition of the oral					
Not at all	22	32.8	45	67.2	0.996
Medium/little	30	32.6	62	67.4	
Much/very much	17	33.3	34	66.7	
Assessment of a self-assessed caries experience					
Unhealthy (subjective feeling)	47	50.0	47	50.0	0.040*
Unhealthy (confirmed by dentist)	8	25.0	24	75.0	
Healthy	14	16.7	70	83.3	
Assessment of self-assessed malocclusion experience					
Unhealthy (subjective feeling)	44	43.6	57	56.4	0.006**
Unhealthy (confirmed by dentist)	2	18.2	9	81.8	
Healthy	23	23.5	75	76.5	

^aChi-square test * Significant p <0.05

samples in the group was slightly fearful of dental care which had high life satisfaction of 106 people (67.1%); p is 0.977 more than 0.05, meaning there was no correlation between fear of dental treatment with life satisfaction in adolescents in urban Gowa regency significantly.

Based on the level of oral health, the highest sample in the group is very good/very good and good i.e. each of 58 people have high life satisfaction with p is 0.040 less than 0.05 which means there is a relationship between the level of dental health with life satisfaction in adolescents in urban Gowa regency significantly. Based on the level of well-being influenced by oral condition, the highest sample in the middle group had high life satisfaction with p is 0.996 more than 0.05 which means no relationship between the level of welfare influenced by oral condition with life satisfaction in adolescents in urban district in Gowa regency significantly.

Based on self-assessed caries experience, the highest sample in healthy group was 70 (59.8%) who had high life satisfaction with p is 0.04 less than 0.05 which means there is a relationship between self-assessed caries experience and life satisfaction in adolescents in urban Gowa district significantly. Based

on the self-assessed assessment of malocclusion, the highest sample in healthy group is 75 people (76.5%) who had high life satisfaction with p is 0.006 less than 0.05 which means there was a relationship between self-assessed malocclusion experience and life satisfaction in adolescents in urban Gowa District significantly.

Table 3 shows the relationship of various characteristics with life satisfaction in adolescent samples in rural Gowa District. Based on the characteristics of family welfare, the highest number of samples in medium welfare group who have low life satisfaction as many as 48 people (58.3%) with p is 0.095 more than 0.05 which means there is no relationship between family welfare level with life satisfaction in adolescents in rural Gowa district significantly. Based on the fear of dental care, the highest number of samples in the group was slightly fearful of dental care with low life satisfaction of 86 people (53.1%) with p is 0.924 more than 0.05, meaning there was no correlation between fear of dental treatment with life satisfaction in adolescents in rural Gowa district significantly.

Based on the level of oral health, the highest sample was in the moderate/poor group, which was 69 people (58.5%) who had low life satisfaction with

Table 3 Relationship of various characteristics with life satisfaction on a sample of adolescents in rural Gowa.

Sample Characteristics	Life Satisfaction				The value of p ^a
	Low		High		
	n	%	n	%	
Family welfare					
Low	46	59.7	31	40.3	0.095
Medium	48	53.3	42	46.7	
High	15	38.5	24	61.5	
Fear of dental care					
a little	86	53.1	76	46.9	0.924
Big	23	52.3	21	47.7	
Level of oral health					
very good	16	51.6	15	48.4	0.096
Good	22	40.7	32	59.3	
Medium / bad	69	58.5	49	41.5	
The level of wellbeing that is affected by the condition of the oral					
Not at all	32	48.5	34	51.5	0.625
Medium/little	37	52.1	34	47.9	
Much/very much	37	56.9	28	43.1	
Assessment of a self-assessed caries experience					
Unhealthy (subjective feeling)	74	56.5	57	43.5	0.281
Unhealthy (confirmed by dentist)	20	51.3	19	48.7	
Healthy	15	41.7	21	58.3	
Assessment of self-assessed malocclusion experience					
Unhealthy (subjective feeling)	57	67.9	27	32.1	0.002 *
Unhealthy (confirmed by dentist)	15	45.5	18	54.5	
Healthy	37	41.6	52	58.4	

^a Chi-Square Test * Significant $p < 0.05$

with p is 0.096 less than 0.05 which means there was no relationship between dental health level with life satisfaction at teenagers in rural Gowa district significantly. Based on the level of well-being influenced by oral condition, most samples were in moderate/small group and many/many had low life satisfaction with p is 0.625 more than 0.05, meaning there was no relationship between the level of welfare influenced by oral condition with life satisfaction in adolescents in rural Gowa District significantly.

Based on self-assessed caries experience, most samples in unhealthy group (subjective feeling) were 74 (56,5%) who had low life satisfaction with p is 0.281 more than 0.05 which means there is no relationship between caries experience assessed themselves with life satisfaction in adolescents in rural Gowa District significantly. Based on the self-assessed assessment of malocclusion, the highest sample in the healthy group was 57 people (67.9%) who had high life satisfaction with p is 0.002 less than 0.05 which means there is a relationship between self-assessed malocclusion experience and satisfaction life in adolescents in rural Gowa District significantly.

Table 4 Pearson correlation between life satisfaction with CPQ in adolescents in urban and rural Gowa regency.

Territory	Variables	r-value	p-value
Urban	CPQ	-0.142	0.040 *
	Life satisfaction		
Rural	CPQ	-0.167	0.017 *
	Life satisfaction		

* significant $p < 0.05$

Table 4 shows the correlation between satisfaction with CPQ in adolescents in rural and urban Gowa. In the urban area, the value of r is -0.142 and the value of p is 0.040 which means there is a negative correlation between CPQ with significant life satisfaction in adolescents in urban Gowa regency. In rural region, r is -0.167 and p is 0.017 meaning there is a negative correlation between CPQ and significant life satisfaction in adolescents in rural Gowa District.

DISCUSSION

This study was conducted to determine the relationship between life satisfactions with oral health conditions in adolescence. The sample in this study was adolescents aged 11-14 years. According to research conducted by Choi et al¹⁴, adolescence is a critical period in life related to social and psychological needs. Oral health problems such as malocclusion, caries, and periodontal disease can affect the quality of life of adolescents. The influence of quality of life rela-

ted to oral health has been done in many countries but no research has been done in Gowa regency, South Sulawesi province.

Tables 2 and 3 show the relationship of family welfare, the level of fear of dental care, the level of oral health, the level of well-being influenced by the oral condition, self-assessed assessment of caries experience and self-assessed malocclusion experience assessed with life satisfaction of adolescents urban and rural Gowa districts. Overall, in urban areas adolescents have more high life satisfaction. This is in accordance with research conducted by Raboteg et al¹⁵ which states that in general, adolescents have a high satisfaction of life. However, it is not in accordance with the satisfaction of living in rural areas of Gowa regency, which has more low life satisfaction.¹⁵

Based on the level of oral health, in the urban areas the most samples were found in very good/excellent and good groups that had high life satisfaction and statistical test showed there was a correlation between dental health level with life satisfaction in adolescents in urban Gowa district significantly. This is in accordance with research conducted by Schuch et al¹⁹ which states that there is a significant relationship between quality of life with oral health conditions such as periodontal conditions, dental caries, trauma teeth, and malocclusion. The research of Sook et al²⁰ also stated a similar thing that there is a significant relationship between quality of life with oral health conditions such as DMFT and CPI. Research conducted by it is also in accordance with the results obtained research Paulo et al²¹ states that dental aesthetic can increase confidence and satisfaction of adolescent life.¹⁶⁻²¹

The results of this study differed from the results of the research in the rural areas with the highest samples in the middle/poor group who had low life satisfaction and based on statistical tests there was no relationship between dental health levels with life satisfaction in adolescents in rural Gowa district significantly. This may be due to urban and rural differences. According to research conducted by Leao et al²², adolescent in rural areas have less motivation with oral hygiene and are also less likely to consult dental and oral health problems with dentists due to lack of dental health workers in rural areas.²²

Based on self-assessed caries experience, most urban samples were found in healthy groups with high life satisfaction and most rural samples were found in unhealthy groups (subjective feelings) with low life satisfaction. In urban areas there is a significant rela-

tionship between self-assessed caries experience and adolescent life satisfaction. This is in accordance with research conducted by Schuch et al¹⁹ which states that there is a significant relationship between quality of life with oral health conditions such as periodontal conditions, dental caries, trauma teeth, and malocclusion. However, in rural areas there was no significant relationship between self-assessed caries experience and adolescent life satisfaction. This may happen because the teenagers left behind in rural areas have less motivation with the health of their teeth and mouth.^{19,22}

Based on self-assessed malocclusion experience, most urban samples were found in healthy groups with high life satisfaction and most rural samples were found in unhealthy groups (subjective feelings) with satisfactory life satisfaction. Based on statistical test there is a significant relationship between self-assessed malocclusion experience and life satisfaction. This is in line with research by Dimberg et al²³, da Rosa et al²⁴, Sibly et al²⁵, and Bittencourt et al²⁶ stating that malocclusions have a negative impact on life satisfaction and happiness, and especially on the domain emotional and social. Based on study conducted by Samohyl et al²⁷ and Mary et al²⁸ stated that orthodontic treatment can improve the quality of life of adolescents.

Table 4 shows the *Pearson* correlation between life satisfaction with CPQ in adolescents in urban and rural Gowa regencies. CPQ is a questionnaire that aims to measure the impact of oral and dental health in children and adolescents.²⁹ CPQ for the age of 11-14 years consists of four health domains, i.e. oral symptoms (6 items), functional limitations (9 items), emotional wellbeing (9 items), social welfare (13 items).³⁰ From the results of this study, it was found that one question of life satisfaction proved to have a negative correlation with CPQ, which has four dental and oral health impact domains. This is in accordance with research conducted by Kavaliauskiene et al.^{1,31-37}

It is concluded that there is a relationship between life satisfaction with oral health conditions in adolescents in urban and rural Gowa regency 2018. In urban areas, there is a significant relationship between life satisfaction with the level of oral health, assessment of self-assessed caries experience, and assessments of self-assessed malocclusion experiences. In rural areas, there is a significant relationship between life satisfaction and self-assessed of malocclusion experience.

CONFLICT OF INTEREST

The author does not have any conflict of interest.

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