Association between dental anxiety and periodontal attachment loss

Sam K. S. NG[1,2], W. Keung LEUNG[1]*
[1]Faculty of Dentistry, The University of Hong Kong &
[2]Department of Psychiatry, Tuen Mun Hospital,
Hong Kong SAR, China

INTRODUCTION

- Dental anxiety

  - Significant health issue across different nations:

    Canada – Maggirias & Locker, 2002;

    Demark – Moore et al., 1993;

    Hong Kong – Ng et al., 2004;

    Netherlands – Stouthard & Hoogstraten, 1990;

    Norway – Skaret et al., 1998;

    Sweden – Hakeberg et al., 1992;

    UK - Green & Green, 1985;

    US – Smith & Heaton, 2003

INTRODUCTION

- **Dental anxiety**

  – Defined as situation-specific trait anxiety and as the disposition to experience anxiety in dental situations

  – Can lead to avoidance/delay of necessary dental care

  – Affected individuals have poor actual and perceived dental health and inferior OH-QoL (McGrath & Bedi, 2004)

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OBJECTIVE

- To investigate the relationship between dental anxiety and both DMFT and periodontal status of Hong Kong people
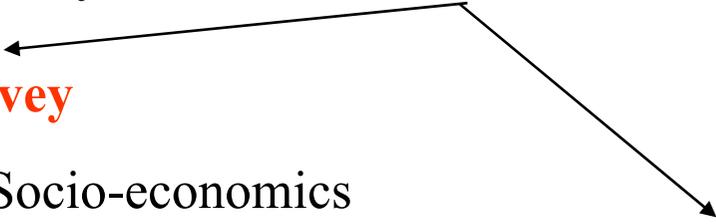
HYPOTHESIS

- An association exists between the construct of dental anxiety and:
  - Periodontal status, and
  - DMFT

METHOD (1)

3 general dental practices:
Hong Kong Island, Kowloon and New Territories
n = 1000; 25-64 year, dentate individuals (Ng & Leung, 2006)

Questionnaire survey

1. Demographics/Socio-economics

2. Medical history

3. Dental habits and dental care utilization

4. Smoking

5. Dental Anxiety instrument

   • Chinese Dental Anxiety Inventory short form (SDAxI, Ng et al., 2004)

Dental examination

• DMFT (WHO 1997)

Periodontal examination

• Full mouth, 6 sites per tooth:

   • PPD, CAL

• Full mouth mean CAL: Healthy, Low, Moderate, High, Severe (Genco et al., 1999)

METHOD (2)

- Dichotomize full mouth mean CAL:

  0 = healthy/low mean CAL categories,

  1 = high/severe mean CAL categories

  – Stepwise ordinal logistic regression analysis of potential risk indicators for CAL (n = 767)

- Correlation analysis between SDAxI and DMFT

RESULTS

West Lamma Channel, Hong Kong

Table 1. Demographic characteristics of subjects

Demographic characteristics	Sample		Population
	n	%	(%)
Gender			
Male	469	46.9	48.5
Female	531	53.1	51.5
Age in years			
25 to 34	292	29.2	28.2
35 to 44	355	35.5	34.6
45 to 54	233	23.3	24.4
55 to 64	120	12.0	12.8
Education			
None/pre-school	38	3.8	3.8
Primary	213	21.3	21.4
Secondary	576	57.6	48.0
Tertiary (non-degree)	45	4.5	12.7
University degree or above	128	12.8	14.1
Monthly household income (in Hong Kong Dollars)			
≤ $ 4,999	100	10.9	14.9
$ 5,000 - $ 9,999	277	30.2	29.4
$ 10,000 - $ 14,999	236	25.7	23.6
$ 15,000 - $ 19,999	128	13.9	11.8
$ 20,000 - $ 24,999	73	8.0	8.2
$ 25,000 - $ 29,999	32	3.5	3.8
≥ $ 30,000	72	7.8	8.2

Table 1. Demographic characteristics of subjects – cont'd

Demographic characteristics	Sample	
	n	%
Time since last dental visit		
1 year or less		
for check-up and professional cleaning	249	24.9
for dental problem	112	11.2
1 to 3 years	317	31.7
More than 3 years	252	25.2
Never visited dentist	59	5.9
Could not remember	11	1.1
Tooth brushing habit		
Three times daily	15	1.5
Twice daily	707	70.7
Once daily	263	26.3
Brushed occasionally	7	0.7
Never brushed	8	0.8

Table 2. Prevalence of systemic diseases, smoking habits in the study sample (*n* = 1000)

	Prevalence (n)	Percentage (%)
Systemic diseases		
Allergy	110	11.0
Diabetes	62	6.2
Hypertension	77	7.7
Cardiovascular	26	2.6
Anaemia	27	2.7
Asthma	51	5.1
Others	23	2.3
Hepatitis B carrier	98	9.8
Smoking habit		
None	860	86.0
Very light	11	1.1
Light	39	3.9
Moderate	35	3.5
Heavy	55	5.5

Table 4. Prevalence, extent of probing pocket depth, recession and clinical attachment level of the subjects surveyed in ascending order of severity

Periodontal variable	Age (years)	n	≥4 mm Prevalence (% persons)	≥4 mm Extent (mean no. of teeth)	≥6 mm Prevalence (% persons)	≥6 mm Extent (mean no. of teeth)	≥9 mm Prevalence (% persons)	≥9 mm Extent (mean no. of teeth)
Probing depth	25–34	292	58.9	2.1	12.7	1.2	1.7	1.6
	35–44[a]	355	61.7	4.6	17.5	2.1	2.3	1.8
	45–54	233	68.2	4.7	28.8	1.8	3.4	1.1
	55–64	120	59.2	4.5	20.0	2.0	1.7	1.5
	Overall	1000	62.1	3.9	19.0	1.8	2.3	1.5
Recession	25–34	292	15.4	2.1	3.8	2.6	0.0	0.0
	35–44[a]	355	49.0	3.1	12.4	1.8	0.6	1.0
	45–54	233	57.1	3.0	15.5	1.7	2.6	1.2
	55–64	120	60.8	3.4	25.0	2.1	4.2	1.2
	Overall	1000	42.5	3.0	12.1	1.9	1.3	1.2
Clinical attachment level	25–34	292	61.6	4.8	19.5	1.8	2.1	6.0
	35–44[a]	355	71.8	8.0	33.8	3.2	6.8	2.5
	45–54	233	79.8	8.2	45.1	3.2	14.2	1.9
	55–64	120	85.8	8.8	50.8	4.1	16.7	2.2
	Overall	1000	72.4	7.4	34.3	3.1	8.3	2.4

[a]Similar to corresponding data from a Hong Kong periodontal health survey (38); 35–44 age group (i) ≥4 mm (PPD/REC/CAL): 81/22/74% persons, 7.3/4.1/8.0 teeth; (ii) ≥6 mm (PPD/REC/CAL): 20/3/33% persons, 2.8/2.2/3.3 teeth; (iii) ≥9 mm (PPD/REC/CAL): 2/0/7% persons, 1.7/1.2/2.2 teeth.

Table 3.　　　**Mean DMFT score according to age groups**

Age group	D	F	M	DMFT
25-34	0.62	2.05	3.92	6.59
35-44	0.75	2.51	4.43	7.69
(35-44)*	(0.7)	(2.8)	(3.9)	(7.4)
45-54	0.92	3.89	7.96	12.77
55-64	1.04	2.91	9.93	13.88
Total	0.79	2.75	5.76	9.30

*Hong Kong oral health survey 2001

SDAxI

- No. of items = 9
- Mean = 15.8 ± 5.5 (population norm: 15.2 ± 6.0, Ng et al., 2005)
- Internal consistency (Cronbach's α) = 0.81
- Item-scale correlation coefficients: 0.91-0.94

Victoria Harbour, Hong Kong

Table 5. Stepwise ordinal logistic regression analysis of potential risk indicators for clinical attachment levels.

	Estimated odds ratio	95% confidence interval
Heavy Smoker	4.61	2.88 - 5.68
Age 55-64	4.07	2.89 - 5.81
Age 45-54	3.50	2.50 - 4.92
Moderate smoker	2.69	1.39 - 4.31
Light smoker	2.33	1.32 - 3.52
Age 35-44	2.24	1.05 - 3.87
Diabetes	2.15	1.31 - 2.87
Depression (Trait)	1.62	1.15 - 2.35
Anxiety (Trait)	1.51	1.09 - 2.72
Job strain	1.47	1.21 - 2.01
Depression (SCL-90)	1.41	1.17 - 2.78
Financial strain	1.38	1.13 - 1.71
Gender (male)	1.27	1.05 - 1.65
Emotion-focused coping	1.21	1.09 - 1.73
Dental Anxiety (SDAxI)	1.20	1.10 – 1.50
Problem-focused coping	0.85	0.71 - 0.90
Allergy	0.77	0.58 - 0.96
Education	0.75	0.59 - 0.91

Table 6. Correlation between SDAxI and DMFT

	r	P
DT	0.325	> 0.05
FT	-0.150	< 0.05
MT*	0.128	< 0.05
DMFT	0.117	< 0.05

Adjusted for sex, age, smoking and education

*Adjusted for sex, age, smoking, education and CAL

DISCUSSION

- Among the Hong Kong subjects surveyed who attended general dental practice, the dentally anxious individuals:
    - had poorer dental and periodontal health in terms of significantly more MT, less FT and worse CAL
    - did not have more DT, for they were postulated to seek treatment when pain arises
    - Might resort to a more definitive treatment option, i.e. extraction rather than choose an option involving continued care for their dental or periodontal problem

CONCLUSION

- The maladaptive trait disposition of dental anxiety among people living in Hong Kong:
  - was among the significant risk indicators of periodontal attachment loss
  - was significantly associated with MT and DMFT while negatively associated with FT
  - may indicate a need in those affected for more attention and extra resources to maintain their oral health and OH-QoL

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Faculty of Dentistry, HKU
Prince Philip Dental Hospital

Victoria Harbour, Hong Kong