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## **Research Title : Halitosis in Malaysia**

### **Objective :**

To find out about halitosis in Malaysia from the perspectives of the public, dental practitioners and those in the dental education system including dental students.

### **Target and Methodology :**

This is a collaboration of a cross sectional study between Department of Dental Public Health, The National University of Malaysia (UKM) and Department of Oral Health Promotion, Tokyo Medical and Dental University on 5 different groups of subjects : Malaysian Dentist, Malaysian Public, Malaysian Dental Schools, UKM dental patients, UKM dental students

#### ***A. Malaysian Dentist & B. Malaysian Public***

A website regarding the research project was set up to give explanation and access to the questionnaire. The project was then advertised through formal letters to the Oral Health Division, Ministry of Health and The Malaysian Dental Association. Social networking site was also used to promote the project.

- i . Study type : Online questionnaire on halitosis experience
- ii . Study population : A : All dentists registered with the Malaysian Dental Council, B : Malaysians with access to internet (56.3% , World bank data, 2010- 15,952,042)

#### ***C. Malaysian Dental Schools***

- i . Study type : Questionnaire interview on teaching of halitosis in the dental faculty
- ii . Study population : Dean/ administrator of Dental Faculties in Malaysia
- iii . Number of dental schools to be included : 12 (6 public, 6 private)

#### ***D. UKM dental patients***

Study type :

- i . Questionnaire
  - Halitosis Questionnaire : Modified from Yaegaki Ken's Questionnaire
  - Liebowitz Social Anxiety Test Scale Questionnaire
  - Index of Dental Anxiety and Fear (IDAF-4C)
  - Visual Analogue Scale for Bad Breath, Face scale for stress
- ii . Clinical examination
  - Oral Health Status

-Breath analysis

#### ***E. UKM dental students***

Study type :

i . Questionnaire

-Halitosis Questionnaire : Modified from Yaegaki Ken's Questionnaire

-Liebowitz Social Anxiety Test Scale Questionnaire

-Dental Environment Stress Questionnaire (DES)

-Visual Analogue Scale for Bad Breath, Face scale for stress

ii . Clinical examination

-Oral Health Status

-Breath analysis

#### **Results and Discussion :**

Data collection was done and only descriptive analysis is available the moment this report is written.

##### ***1. Malaysian Public***

A total of 146 Malaysians participated in the online survey, with mean age 32 years old (min 18, max 61 years old). Participants came from all states in Malaysia except the Federal territory of Labuan. Forty seven (32.2%) participants reported that they were told by others they have bad breath. Almost an equal number of participants (31.5%) think they do have bad breath problem but 26% participants didn't know whether they have it or not. Among the social impacts of bad breath that were strongly felt by those who responded yes to having bad breath problem were : 'Hesitate talking to other people' (63.0%) and 'Don't feel easy being near other people' (80.4%)

##### ***2. Malaysian Dentist***

The number of dentists who participated in the online survey was 104 with mean age of 30.1 (min 23, max 59 years old). Majority were female (80.8%) and are working for the Ministry of Health (79.8%). Practice experience ranges from half a year to 33 years averaging around 6 years. Only slightly more than half (52.9%) agreed that Malaysian patients respond well to oral health education and oral hygiene instruction. A lot of patients are not aware of their halitosis condition. Although more than half of the dentist did not know how to diagnose halitosis according to the International Classification and did not have adequate training to manage halitosis, two third (76.0%) of them manage halitosis patients on their own. Their experience facing patients with halitosis is summed in table 1.

*Table 1 : Experience of Malaysian dentists dealing with halitosis patients*

Experience	Yes	No
1. Have patients complaining about halitosis	89.4	10.6
2. Seen halitosis patients who are unaware of their condition	93.3	6.7
3. Know how to diagnose halitosis according to the International classification	27.9	72.1
4. Have adequate training to treat and manage halitosis	42.3	57.7
5. Refer halitosis patients to other practitioners	15.4	84.6
6. Treat own halitosis patients	76.0	24.0

### **3. Malaysian Dental School**

Ten out of 12 dental schools (6 public, 4 private) responded to the postal survey. Only 3 schools have both undergraduate and postgraduate courses offered at their institutions. Eight schools reported they have elements of halitosis in their undergraduate curriculum, one school only teaches halitosis to their postgraduate students while one more school reported they teach halitosis to both undergraduate and postgraduate students. One school has 30 teaching hours dedicated to teaching halitosis to their students while the rest averages around 2 hours. None of the schools require the students to manage a case of patients with halitosis for graduation requirement. The teaching of halitosis in each school was mainly done by either department of Periodontology, Dental Public Health/ Preventive Dentistry, Oral Medicine/ Oral Pathology or combination of the three departments. Major concerns in teaching halitosis management to students are lack of expertise as reported by 5 schools and lack of supporting manpower as reported by 4 schools.

### **4. UKM Dental Patients**

Informed consent was obtained from 31 UKM dental patients. Almost one third of the patients thought that they have halitosis while 54.8% answered they did not know. The results of malodour measurement performed on the dental patients are as follow :

*Table 2 : Malodour level of UKM dental patients*

Malodour Measurement	No Malodour (%)	With Malodour (%)	Mean (S.D)	Max
H2S (threshold $\geq$ 1.5ng/10ml)	12 (38.7)	19 (61.3)	4.73 (6.1)	22.5
CH3HS (threshold $\geq$ 0.5ng/10ml)	14 (45.2)	17 (54.8)	1.25 (1.8)	6.8
(CH3) 2S (threshold $\geq$ 0.2ng/10ml)	12 (38.7)	19 (61.3)	2.44 (4.6)	16.7
Organoleptic test-mouth (threshold $\geq$ 2)	14 (45.2)	17 (54.8)	1.94 (1.3)	4
Organoleptic test-lung (threshold $\geq$ 2)	14 (45.2)	17 (54.8)	1.90 (1.0)	4

### 5. UKM Dental students

All students at the Faculty of Dentistry, UKM were invited to participate in the study. A total of 206 (74.9%) students turned up for the clinical examination and malodour assessment. Malodour visual assessment scale (VAS) was used to assess students self recognition of their own halitosis problem. There were 19.4% students who chose 50% or more for malodour VAS. The results of malodour measurement performed on the dental students are as follow :

Table 3 : Malodour level of UKM dental students

Malodour Measurement	No Malodour (%)	With Malodour (%)	Mean (S.D)	Max
H2S (treshold $\geq$ 1.5ng/10ml)	72 (35.0)	134 (65.0)	5.26 (6.5)	33.2
CH3HS (treshold $\geq$ 0.5ng/10ml)	100 (48.5)	106 (51.5)	1.46 (2.1)	10.0
(CH3) 2S (treshold $\geq$ 0.2ng/10ml)	92 (44.7)	114 (55.3)	0.779 (1.6)	16.1
Organoleptic test-mouth (treshold $\geq$ 2)	92 (44.7)	112 (54.3)	1.79 (0.9)	4
Organoleptic test-lung (treshold $\geq$ 2)	93 (45.1)	111 (53.9)	1.75 (0.8)	4

From the descriptive analysis obtained, it can be concluded that halitosis is not a foreign problem in Malaysia. The paradox of halitosis can be seen where people with halitosis problem do not know they have the problem while those who do not have halitosis worry that they do. Even dental students who are theoretically better in oral hygiene and self oral care compared to dental patients have halitosis problem. Although dental schools provide education regarding management of halitosis to their students, more than half of the dentists who participated in the questionnaire claimed that they do not have adequate training to manage patients with halitosis problem. This shows that there is ample opportunity for research and development in this area for oral health improvement in Malaysia. However, further statistical analysis of variance and correlations need to be performed to better understand the situation of halitosis in Malaysia through the data collected from this study.

#### Presentation :

Findings will be presented part by part at conferences inside and outside Japan beginning with

1. 62<sup>nd</sup> General Meeting of Japanese Society for Dental Health in Nagano, from 15<sup>th</sup> to 17<sup>th</sup> May 2013