Self-Perception of Halitosis among Undergraduate Students of Kathmandu University School of Medical Sciences - A Questionnaire Based Study

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ABSTRACT

Background

Halitosis is a frequently reported oral health problem worldwide with a prevalence rate of 10-30% in the general population. It is defined as the disagreeable or foul smelling breath originating consistently from a person's oral cavity. It not only effects the normal daily life activities of the patient but also bring humiliation, reduced self-esteem, ultimately resulting into decreased quality of life.

Objective

To determine the self-perception of halitosis among undergraduate students of different medical branches of Kathmandu University School of Medical Sciences (KUSMS); Kavre, Nepal.

Method

A descriptive cross-sectional epidemiological survey was conducted among undergraduate students of Physiotherapy, B.Sc Nursing, Bachelor of Nursing Sciences (BNS), MBBS and BDS program of Kathmandu University School of Medical Sciences, Dhulikhel. A self-administered questionnaire was developed and were distributed among 500 undergraduate students.

Result

Out of total 500 distributed questionnaires, 406 were completely filled and returned giving an overall response of 81.2%, in which 70 (89.7%) male and 280 (85.4%) female students from different medical branches were aware of the term halitosis. Among them 29 (7.14%) of students think that they suffer from halitosis. Similarly 178 (43.84%) students had severe impact of halitosis on their social life while 153 (37.68%) and 62 (15.27%) students had moderate and mild impact respectively.

Conclusion

Due to the multifactorial complexity of halitosis, further longitudinal studies including objective assessment of malodor are required to determine its prevalence and to further investigate the association of this problem with other etiological factors in the context of Nepal. Also, curriculum of different fields should be modified to include this simple but very necessary topic.

KEY WORDS

Halitosis, Multifactorial complexity, Self-perception

INTRODUCTION

Halitosis is a frequently reported oral health problem worldwide with a prevalence rate of 10-30% in the general population.[1-4] The term "halitosis" is originated from Latin and Greek word "halitus" and "osis" respectively collectively meaning "abnormal breath".[5] It is defined as the disagreeable or foul smelling breath originating consistently from a person's oral cavity.[6] Other synonyms used for halitosis include bad breath, breath odor, foul breath, fetor ex ore or oral malodour.[4]

Halitosis is a condition with complex etiology including extrinsic causes (like tobacco, alcohol or odoriferous foods) and intrinsic causes. Intrinsic causes include oral and systemic conditions. Poor oral health care, xerostomia, caries, periodontal diseases, impacted food/debris, faulty prosthesis, ulcers, infected surgical oral wounds or coated tongue is responsible for 80-90% of halitosis from oral conditions.[4,7] Systemic conditions like gastrointestinal conditions (GERD, diaphragmatic hernia etc), hepatocellular failure, renal failure, diabetic ketoacidosis or upper respiratory diseases constitute rest of the intrinsic causes for halitosis.[8]

Halitosis, not only effects the normal daily life activities of the patient but also bring humiliation, reduced self- esteem, ultimately resulting into decreased quality of life. In Nepal, data on self-perception of halitosis among undergraduate students of different medical branches are not available.

Hence, objective of this study was to determine the self-perception of halitosis among undergraduate students of different medical branches of Kathmandu University School of Medical Sciences (KUSMS); Kavre, Nepal.

METHODS

A descriptive cross-sectional epidemiological survey was conducted from February 2016 to April 2016, over the period of 3 months, among undergraduate students of Physiotherapy, B.Sc Nursing, Bachelor of Nursing sciences (BNS), MBBS and BDS program of Kathmandu University School of Medical Sciences, Dhulikhel . Approval was taken from institutional review board of KUSMS. All the participants were explained about the survey, and informed consent were taken.

A self-administered questionnaire was developed and the validity was checked via pilot study in 30 randomly selected subjects to ensure practicality of the questionnaire and accordingly modifications were done. These subjects were not included in the study.

A total of 500 questionnaires were distributed among 115 male and 385 female undergraduate students. The data were transferred to a computer for analysis using Statistical Package for Social Sciences program for Windows (version 21 SPSS Inc., Chicago, IL, USA). Simple descriptive statistics as frequency distributions and percentages were calculated for the study variables.

Table 1. Branch, year and gender- wise distribution of the subjects

Branches	Year	Gender		Total	
		Male	Female	Year wise	Branch wise
Physiotherapy	Second	05	28	33	**72 (17.73%)**
	Third	04	20	24	
	Fourth	03	12	15	
B.Sc (Nursing)	Second	00	28	28	**86 (21.18%)**
	Third	00	30	30	
	Fourth	00	28	28	
Bachelor (Nursing Sciences)	Second	00	18	18	**44 (10.84%)**
	Third	00	26	26	
MBBS	Third	36	36	72	**106 (26.11%)**
	Fourth	17	17	34	
BDS	Second	06	31	37	**98 (24.14%)**
	Third	03	21	24	
	Fifth	04	33	37	
Total		**78 (19.21%)**	**328 (80.79%)**	**406 (100%)**	

Table 2. Awareness of term "halitosis" among male/female students of different medical branches

Branches/Gender	Male		Female	
	Yes	No	Yes	No
Physiotherapy	08	04	24	36
B.Sc (Nursing)	00	00	86	00
Bachelor(Nursing Sciences)	00	00	39	05
MBBS	50	03	50	03
BDS	12	01	81	04
Total (406)	**70**	**08**	**280**	**48**

RESULTS

Out of total 500 distributed questionnaires, 406 were completely filled and returned giving an overall response of 81.2%. Among 406 returned questionnaires, 78 (19.2%) were males and 328 (80.8%) were females. Branch, year and gender-wise distribution of the subjects who filled the questionnaires completely are mentioned in Table 1. Out of 406 respondent 70 (89.7%) male and 280 (85.4%) female students from different medical branches were aware of the term halitosis as depicted in Table 2. Amoung all 350 (86.21%) students different branches were acquainted with the term halitosis as shown in Table 3. Table 4 showed that 145(35.71%) students of different medical branches were not using any other oral hygiene aids other

than tooth brush and tooth paste. Assessing the use of oral hygiene aids other than toothbrush and paste, 89 (21.92%), 66 (16.25%) and 25 (6.2%) students were using mouth wash, tongue scrapper and interdental brushes respectively. Severe impact of halitosis on their social life was noticed by 178 (43.84%) students, while 153 (37.68%) and 62 (15.27%) students had moderate and mild impact respectively (Table 5). Most of the students, 352 (86.69%) students were aware that dentist is the best care provider against halitosis as depicted in Table 6.

Table 3. Awareness of term "halitosis" among students of different medical branches

Branches	Year	Answer		Total
		Yes	No	
Physiotherapy	Second	11	22	33
	Third	20	04	24
	Fourth	01	14	15
B.Sc (Nursing)	Second	28	00	28
	Third	30	00	30
	Fourth	28	00	28
Bachelor(Nursing Sciences)	Second	15	03	18
	Third	24	02	26
MBBS	Third	70	02	72
	Fourth	30	04	34
BDS	Second	32	05	37
	Third	24	00	24
	Fifth	37	00	37
Total		350	56	406

Table 4. Oral hygiene aids other than tooth brush/paste used by students of different medical field

Branches	Year	Mouth Wash	Tongue Scrapper	Interdental Brush	Others	No other oral hygiene aids	Total
Physiotherapy	II	01	07	01	05	19	33
	III	06	03	02	05	08	24
	IV	04	00	01	00	10	15
B.Sc (Nursing)	II	01	01	01	13	12	28
	III	10	08	01	06	05	30
	IV	09	05	00	02	12	28
Bachelor (Nursing Sciences)	II	06	04	02	00	06	18
	III	12	01	02	06	05	26
MBBS	III	11	15	07	09	30	72
	IV	02	04	01	18	09	34
BDS	II	09	08	04	03	13	37
	III	12	04	02	03	03	24
	V	06	06	01	11	13	37
Total		89	66	25	81	145	406

Table 5. Impact of halitosis at social life of students of different medical branches

Branches	Year	Severity of impact of halitosis on social life				Total
		Mild	Moderate	Severe	Not answered	
Physio-therapy	Second	05	14	14	00	33
	Third	02	07	15	00	24
	Fourth	00	03	02	10	15
B.Sc (Nursing)	Second	06	10	12	00	28
	Third	06	14	10	00	30
	Fourth	07	07	14	00	28
Bachelor (Nursing Sciences)	Second	03	07	08	00	18
	Third	09	04	12	01	26
MBBS	Third	09	30	33	00	72
	Fourth	04	15	15	00	34
BDS	Second	07	15	15	00	37
	Third	00	08	16	00	24
	Fifth	04	19	12	02	37
Total		62	153	178	13	406

DISCUSSION

Halitosis is a complex condition with multifactorial etiology. It is the most common complaint worldwide among the both genders.[9] American Dental Association (ADA) stated that 50% of the adult population suffered from episodic halitosis while 25% have halitosis as a chronic problem.[10] According to a survey in United States, around 1 billion dollar is spent on over- the- counter products like mouth rinses, mint etc. to manage this problem.[11] It is not only an indicator of poor oral hygiene, but has a significant social, economic and psychological aspect. It can be manifested by lack of confidence, isolation, reduced social contact, problems in relationships, less talking by an unwillingness to speak or by keeping a distance to others.[12]

Loesche and Kazor had demonstrated that the mouth is the origin for the majority of halitosis.[13] Principle components of oral halitosis are volatile sulfide compounds (VSC), especially hydrogen sulfide, methyl mercaptan, and dimethylsulfide or compounds such as butyric acid, propionic acid, putrescine, and cadaverine. These compounds result from the proteolytic degradation by predominantly anaerobic Gram negative oral microorganisms of various sulfur-containing substrates in food debris, saliva, blood, and epithelial cells.[14,15]

In Nepal, data on awareness and self-perception of halitosis is quite rare. Hence, we conducted this questionnaire based study to evaluate the awareness and self-perception of halitosis undergraduate students of different medical branches. Our study included undergraduate students of physiotherapy, B. Sc (Nursing), Bachelor of Nursing Science (BNS), MBBS, and BDS program. Our data suggests that 350

Table 6. **Best care provider against halitosis according to the students of different medical branches**

Branches	Year	Halitosis will be best taken care by					Total
		General physician	ENT specialist	Dentist	Others	Don't know	
Physiotherapy	Second	00	00	30	03	00	33
	Third	00	00	21	03	00	24
	Fourth	00	02	12	00	01	15
B.Sc (Nursing)	Second	01	00	25	02	00	28
	Third	00	01	25	04	00	30
	Fourth	00	00	25	03	00	28
Bachelor (Nursing Sciences)	Second	00	00	11	07	00	18
	Third	01	00	20	01	04	26
MBBS	Third	03	01	63	03	02	72
	Fourth	05	04	24	01	00	34
BDS	Second	00	00	37	00	00	37
	Third	01	00	23	00	00	24
	Fifth	00	00	36	01	00	37
Total		**11**	**08**	**352**	**28**	**07**	**406**

(86.21%) students among different branches were aware of the term halitosis. Among which, 223 (54.92%) of students get to know about halitosis through lectures/books. 29 (7.14%) of students think that they suffer from halitosis. However, several studies using different methodologies (self-reported halitosis or objective assessment of VSCs) depicted incidence of 50% with variable degree of intensity.[11] Most of these studies are done on general population in comparison to our study which was done on undergraduate students of different medical branches.[16] Our study also showed that 244 (60.09%) students brushes tooth daily for more than 2-5 minutes daily. It might be another reason for lower prevalence of oral halitosis. Lesser intake of alcohol/ cigarettes and minimal oral diseases are other reasons of minimal halitosis in our study population.

Limitation of our study was that it was a questionnaire based study and no objective assessment of VSCs or oral examination were done. Self-perception of halitosis can vary from individual to individual; no matters if the study includes students from different branches of medical field.

CONCLUSION

Hence to conclude, due to the multifactorial complexity of halitosis, further longitudinal studies including objective assessment of malodor are required to determine its prevalence and to further investigate the association of this problem with other etiological factors in the context of Nepal. Also, curriculum of different fields should be modified to include this simple but very necessary topic. It will not only enlighten the upcoming generation about the importance of oral health but, can also help in earlier determination and prevention of numerous systemic diseases.

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