

OVERVIEW OF KNOWLEDGE OF HALITOSIS AMONG EMPLOYEES IN FACULTY OF DENTISTRY, MOESTOPO UNIVERSITY

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ABSTRACT

Background: Halitosis is an unpleasant mouth odor exhaled during breathing. Approximately 80% of halitosis can originate from the oral cavity, while about 10-20% may arise from sources outside the oral cavity. Halitosis has psychological impacts on individuals, leading to poor social communication and reduced social activities.

Objective: To assess the overview of knowledge and information regarding halitosis among employees in the environment of Faculty of Dentistry, Moestopo University. **Methods:** This study employs a descriptive research design with a cross-sectional approach. The sampling technique employed is Purposive sampling, the sample size consists of 58 respondents who participated in the study through a questionnaire distributed using Google Forms and paper-based formats, consisting of 15 closed-ended questions. Respondents' knowledge is categorized into three levels: good, fair, and poor. **Results:** Based on the distributed questionnaires, 30 respondents (51.7%) demonstrated good knowledge, 18 respondents (31%) had fair knowledge, and 10 respondents (17.2%) exhibited poor knowledge of halitosis. **Conclusion:** the analysis data concerning the overview of halitosis knowledge among employees in the environment of Faculty of Dentistry, Moestopo University, it can be concluded that the knowledge of halitosis among employees in the Faculty of Dentistry, Moestopo University environment is categorized as good, with a percentage (51.7%).

INTRODUCTION

Dental and oral health problems in Indonesia currently still require special attention. Almost all humans experience dental and oral health problems such as cavities, periodontal disease, and bad breath

(Adnyani & Artawa, 2016). Halitosis or bad breath is a general description that has often been used to define unpleasant odors originating from the oral cavity (Ratih, 2021). According to the American Dental Association (ADA), halitosis is the main problem after

periodontal disease and dental caries experienced by American society (Irianti et al., 2015). 90% of halitosis cases are caused by lack of oral hygiene (Yulimatussa'diyah et al., 2016). One effort that can be made to maintain healthy teeth and mouth is to clean and freshen the oral cavity (Anindita et al., 2018).

According to (Vali et al., 2015), halitosis had an impact on a person's psychology which resulted in a person's social communication becoming poor and decreasing social activity. By 2022, 95.2% of people have experienced bad breath in other people (Aylıkçı & Çolak, 2013).

According to the American Dental Association (ADA), >50% of adults worry about bad breath, but only 25% of them suffer from chronic halitosis (Kementrian Kesehatan Republik Indonesia, 2019). (Almadhi et al., 2021) conducted research in Saudi Arabia in 2021 regarding the prevalence of halitosis and self-perception of halitosis in people adults by 21% and 41%. The prevalence of halitosis in children in various countries ranges from 8% to 24% using different assessment methods. Research conducted in Saudi Arabia using organoleptic methods in children aged 4-7 years and 55% of participants declared halitosis (Aninda et al., 2022).

Education level is one of the factors that can assess a person's knowledge about halitosis. Research conducted by Rizkia Irianti et al, in 2015 in Manado, obtained a percentage of knowledge about halitosis among elementary school workers from 36 samples of 36.1%. At the junior high school level it was 25% with 24 respondents and at the high school level it was 47.0% with 17 respondents. Based on research results, the higher the level of education, the wider the knowledge gained (Irianti et al., 2015).

Knowledge about halitosis has different percentages in each country. (Aninda et al., 2022) conducted research on knowledge about halitosis in the people of Arjuna Village, Bandung, and found that 23.8% admitted to suffering from halitosis and another 76.2% admitted that they did not

suffer from halitosis. Based on the results of this research, the knowledge of the community in Arjuna Village, Bandung, is in the "good" category (Aylıkçı & Çolak, 2013). According to (Harmouche et al., 2021), the results of research in France showed that 22% of the sample of 4817 subjects experienced bad breath while in Lebanon, 44% of men and 54% of women from a sample of 498 subjects experienced bad breath based on their own self-perception (Almadhi et al., 2021).

Research on knowledge of halitosis was carried out on workers in Manado Province which was conducted by Rizkia Irianti on 77 respondents with results of 39 respondents 50.7% having sufficient knowledge, 27 respondents 35% having good knowledge, and 11 respondents 14.5% having poor knowledge (Irianti et al., 2015). Based on the description above, researchers are interested in knowing the description of knowledge about halitosis among employees within the Faculty of Dentistry, Moestopo University.

METHOD

This type of research is descriptive with a cross sectional design. Carried out in May-June 2023. The research instrument is a questionnaire containing 15 closed-ended statements. The research population is employees in Faculty of Dentistry, Moestopo Univesity environment. The formula used was Slovin with the results of 58 respondents consisting of dental nurses, office boys, academic employees.

The data analysis used was univariate. This research is presented in the form of tables and bar charts. Sampling was carried out using purposive sampling. This research has received approval from the Moestopo University Health Research Ethics Committee No.34/KEPK/FGKUPDMB/V/2023.

RESULT AND DISCUSSION

The characteristics of research subjects are distributed based on gender, age, education level, type of work and length of

work. The distribution of research subjects based on gender can be seen in table 1. The number of male respondents was 32 respondents (55.2%) and 26 female respondents (44.8%).

Table 1. Distribution of research subjects based on gender

Gender	Amount	Percentage (%)
Woman	26	44,8
Man	32	55,2
Amount	58	100

The distribution of research subjects based on age can be seen in table 2. Respondents in the age range ≤ 25 years (adolescents) were 9 respondents (15.5%), in the age range 26 - 45 years (adults) there were 44 respondents (75.9%) and in the age range 46 - 65 years (elderly) there were 5 respondents (8.6%).

Table 2. Distribution of research subjects based on age

Age (years)	Amount	Percentage (%)
≤ 25 (teenager)	9	15,5
26-45 (adult)	44	75,9
46-65 (elderly)	5	8,6
Amount	58	100

The distribution of research subjects based on educational level can be seen in table 3. Respondents based on elementary education level were 0 respondents (0%), junior high school were 1 respondent (1.7%), high school were 19 respondents (32.8%), DIII were 17 respondents (29.3%), and undergraduates were 21 respondents (36.2%).

Tabel 1. Distribution of research subjects based on education level

Level of education	Amount	Percentage (%)
Elementary School	0	0
Junior High School	1	1,7
Senior High School	19	32,8
Diploma	17	29,3
Bachelor	21	36,2

Amount	58	100
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The distribution of research subjects based on type of work can be seen in table 4. The number of respondents based on type of work was academic employees with 28 respondents (48.2%), OB and dental nurses had a percentage (25.9%) with 15 respondents each.

Tabel 2. Distribution of research subjects by type of work

Type of work	Amount	Percentage (%)
Academic employees	28	48,2
Office Boy	15	25,9
Nurse Dentist	15	25,9
Amount	58	100

The distribution of research subjects based on length of work can be seen in table 5. The number of respondents based on length of work at 0 - 5 years was 33 respondents (56.9%), at 6 - 10 years there were 13 respondents (22.4%), at 11 - 15 years were 3 respondents (5.2%), and at ≥ 16 years there were 9 respondents (15.5%).

Tabel 3. Distribution of research subjects based on length of work

Length of work (years)	Amount	Percentage (%)
0-5	33	56,9
6-10	13	22,4
11-15	3	5,2
≥ 16	9	15,5
Amount	58	100

The results of the distribution of halitosis knowledge among employees in the FKG UPDM (B) environment based on gender are shown in table 6. 13 male respondents had good knowledge (40.7%), 10 respondents (31.2%) had sufficient knowledge. and 9 respondents (28.1%) lacked knowledge. 17 female respondents (65.3%) had good knowledge, 8 respondents (30.8%) had sufficient knowledge and 1 respondent (3.9%) had poor knowledge.

The results of the frequency of knowledge of halitosis among employees in the Faculty of Dentistry, Moestopo University environment based on age are shown in table 7. Respondents aged ≥ 25 years (teenagers)

had good knowledge as many as 0 respondents (0%), sufficient knowledge as many as 6 respondents (10.3%) and 3 respondents (5.17%) lacked knowledge. Respondents aged 26 - 45 years (adults) had good knowledge as many as 27 respondents (46.55%), sufficient knowledge as many as 12 respondents (20.7%) and poor knowledge as many as 5 respondents (8.62%). Respondents aged 46 - 65 years (elderly) had good knowledge as many as 3 respondents (5.17%), sufficient knowledge as many as 0 respondents (0%) and poor knowledge as many as 2 respondents (3.45%).

The results of the frequency of knowledge of halitosis among employees in the Faculty of Dentistry, Moestopo University environment based on education level, can be seen in table 8. Respondents with a junior high school/equivalent education level had good knowledge as much as 1 respondent (1.72%), respondents with a high school/equivalent education level had good knowledge. 4 respondents (6.90%) had good knowledge, 7 respondents had sufficient knowledge (12.07%), and 8 respondents had poor knowledge (13.79%). Respondents with DIII education level had good knowledge as many as 12 respondents (20.69%), sufficient knowledge as many as 5 respondents (8.62%), and insufficient knowledge as many as 0 respondents (0%). Respondents with undergraduate education levels had good knowledge as many as 13 respondents (22.41%), sufficient knowledge as many as 6 respondents (10.34%), and poor knowledge as many as 2 respondents (3.45%).

The results of the distribution of halitosis knowledge among employees in the Faculty of Dentistry, Moestopo University environment based on type of work, can be seen in table 9. Academic employees have good knowledge as many as 17 respondents (60.8%), sufficient knowledge as many as 7 respondents (25%), and knowledge is poor as many as 4 respondents (14.2%). OB had good knowledge as many as 2 respondents (13.3%), sufficient knowledge as many as 7 respondents (46.7%), and poor knowledge as

many as 6 respondents (40%). Dental nurses had good knowledge as many as 11 respondents (73.3%), sufficient knowledge as many as 4 respondents (26.7%), and poor knowledge as many as 0 respondents (0%).

The results of the distribution of halitosis knowledge among employees in the Faculty of Dentistry, Moestopo University environment based on length of work, can be seen in table 10. Respondents with good knowledge based on length of work 0 - 5 years were 13 respondents (39.4%), with sufficient knowledge were 14 respondents (42.5%), and 6 respondents (18.1%) lacked knowledge. Respondents with good knowledge based on years of work for 6 - 10 years were 9 respondents (69.2%), 2 respondents had sufficient knowledge (15.4%), and 2 respondents had insufficient knowledge (15.4%). Respondents with good knowledge based on length of work for 11 - 15 years were 2 respondents (66.7%), 0 respondents had sufficient knowledge (0%), and 1 respondent had insufficient knowledge (33.3%). Respondents with good knowledge based on length of work for ≥16 years were 6 respondents (66.7%), 2 respondents had sufficient knowledge (22.2%), and 1 respondent had insufficient knowledge (11.1%).

The results of the frequency description of halitosis knowledge among employees in the Faculty of Dentistry, Moestopo University environment based on filling out the questionnaire, can be seen in table 11.

Tabel 4. Distribution of respondents' knowledge based on gender

Gender	Knowledge Category						
	Good		Fair		Poor		Amount
	n	%	n	%	n	%	
Man	1	40,	1	31,	9	28,	32
	3	7	0	2		1	
Woman	1	65,	8	30,	1	3,9	26
	7	3		8			

Tabel 5. Frequency of knowledge by age

Age (year)	Knowledge Category							
	Good		Fair		Poor		Amount	Percentage
	n	%	n	%	n	%	n	%
≤ 25								
Teenager	0	0,00	6	10,34	3	5,17	9	15,52
26-45								
adult	27	46,55	12	20,7	5	8,62	44	75,86
46-65								
elderly	3	5,17	0	0,0	2	3,45	5	8,62
Total	30	51,72	18	31,0	10	17,24	58	100,00

Tabel 6. Frequency of knowledge based on education level

Level of education	Knowledge Category						Amount	Percentage
	Good		Fair		Poor			
	n	%	n	%	n	%		
Junior High School	1	1,72	0	0,0	0	0,00	1	1,72
Senior High School	4	6,90	7	12,07	8	13,79	19	32,76
Diploma	12	20,69	5	8,62	0	0,00	17	29,31
Bachelor	13	22,41	6	10,34	2	3,45	21	36,21
Total	30	51,72	18	31,0	10	17,24	58	100,00

Tabel 7. Distribution of knowledge by type of work

Type of work	Knowledge Category						
	Good		Fair		Poor		Amount
	n	%	n	%	n	%	
Academic	17	60,8	7	25	4	14,2	28
employees	2	13,3	7	46,7	6	40	15
Office Boy	11	73,3	4	26,7	0	0	15
Dentist Nurse							

Tabel 8. Distribution of knowledge based on length of work

Length of work (years)	Knowledge Category						
	Good		Fair		Poor		Amount
	n	%	n	%	n	%	n
0-5	13	39,4	14	42,5	6	18,1	33
6-10	9	69,2	2	15,4	2	15,4	13
11-15	2	66,7	0	0	1	33,3	3
≥ 16	6	66,7	2	22,2	1	11,1	9

Tabel 9. Frequency of knowledge regarding the description of halitosis knowledge among employees in the Faculty of Dentistry environment

No.	Knowledge about halitosis	n	(%)
1.	Did you know that bad breath is related to lack of oral hygiene?		

	Know	55	(94,8%)
	Don't know	3	(5,2%)
2.	Did you know that cavities can cause bad breath?		
	Know	53	(91,4%)
	Don't know	5	(8,6%)
3.	Did you know that leftover food that is not cleaned can cause bad breath?		
	Tahu	55	(94,8%)
	Tidak Tahu	3	(5,2%)
4.	Apakah anda tahu sisa makanan pada lidah dapat menyebabkan bau mulut?		
	Know	50	(86,2%)
	Don't know	8	(13,8%)
5.	Did you know that bad breath can reduce a person's self-confidence?		
	Know	58	(100%)
	Don't know	0	(0%)
6.	Did you know that drinking lots of water can reduce the symptoms of bad breath?		
	Know	42	(72,4%)
	Don't know	16	(27,6%)
7.	Did you know that brushing your teeth regularly can reduce bad breath?		
	Know	56	(96,6%)
	Don't know	2	(3,4%)
8.	Did you know that consuming alcohol and smoking can cause bad breath?		
	Know		
	Don't know	52	(89,7%)
		6	(10,3%)
9.	Did you know that dentures that are not cleaned can cause bad breath?		
	Know		
	Don't know	47	(81%)
		11	(19%)
10.	Did you know that systemic diseases such as chronic kidney disease can cause bad breath?		
	Know	26	(44,8%)
	Don't know	32	(55,2%)
11.	Did you know liver disease can cause bad breath?		
	Know	23	(39,7%)
	Don't know	35	(60,3%)
12.	Did you know that lung and nose diseases can cause bad breath?		
	Know	23	(39,7%)
	Don't know	35	(60,3%)
13.	Did you know that bad breath can come from stomach problems?		
	Know	41	(70,7%)
	Don't know	17	(29,3%)
14.	Did you know that using mouthwash can get rid of bad breath?		
	Know		
	Don't know	58	(100%)

	0	(0%)
15. Did you know that using certain medications can cause bad breath?		
Know	35	(60,3%)
Don't know	23	(39,7%)

The results of the frequency distribution of knowledge of halitosis among employees in the Faculty of Dentistry environment can be seen in table 12. Good knowledge is 30 respondents (51.7%), sufficient knowledge is 18 respondents (18%), poor knowledge is 10 respondents (17.2%).

Tabel 10. Frequency distribution of halitosis knowledge among employees in the Faculty of Dentistry environment

Knowledge	Amount	%
Poor (<55%)	10	17.2
Fair (56-74%)	18	31.0
Good (≥75%)	30	51.7
Amount	58	100.0

Discussion

Research was conducted in the FKG UPDM (B) environment by distributing paper questionnaires and links to academic employees, dental nurses and OBs with a total of 58 respondents. The questionnaire used is closed. The data taken is grouped into respondent characteristics starting from gender, age, education level, type of work, and length of work.

The results of the distribution of halitosis knowledge based on gender among employees showed that women had the highest knowledge, 17 respondents (65.3%). According to the Ministry of Health of the Republic of Indonesia in 2021, more women are continuing their education to a higher level than men, so knowledge about halitosis is higher among female respondents than male respondents. 11 The research results are in line with research by Rizkianto MA., et al. in 2020 in Surabaya among medical students regarding knowledge of halitosis with a total of 100 respondents, where the knowledge of women was 74% with a total of 74 respondents while the knowledge of men was 26% with a total of 26 respondents (Hendrawan et al., 2019).

The results of the frequency of knowledge of halitosis based on age among

employees found that the age range 26 - 45 years (Adult) had the highest knowledge of 27 respondents (46.55%). According to the Ministry of Health of the Republic of Indonesia, in 2021, ages 26 - 45 years are included in the productive age category (Harmouche et al., 2021). At this age, employees do a lot of activities and gain experience, so that employees gain a lot of knowledge. The research results are different from the research of Irianti R, et al. In 2015, there were 11 respondents (39.3%) aged 37 - 48 years and the majority of the respondents studied, namely workers at the Manado Port management, were aged 25 - 60 years. The research consisted of 21 respondents aged 25 - 36 years, 28 respondents aged 37 - 48 years, 28 respondents aged 49 - 60 years. This is due to the different population in the study involving workers at the Port of Manado, but this population difference is only used to vary the comparison of research results (Irianti et al., 2015).

The results of the frequency of halitosis knowledge based on the level of education among employees showed that 13 respondents (22.41%) had the highest knowledge. Based on the results of Rizkia Irianti's research in 2015, the final level of education can influence knowledge about halitosis because respondents get information from formal education which adds knowledge to their lives, so that the higher the level of education, the wider the knowledge gained (Irianti et al., 2015). The research results are different from research by Aninda R, in 2022 where the latest education in the research has different categories, namely undergraduate with 3 respondents, high school with 15 respondents, and junior high school with 12 respondents, but this difference is only used to vary the comparison of research results (Aylıkçı & Çolak, 2013).

The results of the distribution of halitosis knowledge based on type of work among employees showed that nurses had the highest knowledge with 11 respondents

(73.3%). As a result of the interviews conducted, dental nurses have experience in assisting doctors in dental and oral care, so this makes it possible why dental nurses' knowledge is better than academic employees. There has been no research regarding halitosis in the Faculty of Dentistry environment which is influenced by work.

The results of the distribution of research based on length of work regarding knowledge of halitosis found that 9 respondents (69.2%) had good knowledge based on length of work, namely 6 - 10 years. The results of Vera Sesrianty's research in 2018 stated that the longer the period of work, the more knowledge and experience one has (Darsini et al., 2019). According to Setiawati in 2020, the length of work of respondents has an effect on knowledge, respondents who have worked ≥ 10 years have good knowledge, namely (72.2 %).14 There has been no research regarding halitosis in the Faculty of Dentistry environment which is influenced by length of work.

The questionnaire in the form of questions regarding knowledge of halitosis among employees in the Faculty of Dentistry, Moestopo University environment consists of 15 closed questions. The first most frequent answer "know" was in knowledge question number 5 as many as 58 respondents (100%), where the majority of respondents knew that bad breath can reduce a person's self-confidence. According to (Vali et al., 2015), halitosis had an impact on a person's psychology which resulted in a person's social communication becoming poor and also decreasing social activity (Riset Kesehatan Dasar (Riskesdas), 2018). The research results are in line with research by Vinita Mary A. et al in 2020 which was conducted in Indian society with a total of 512 respondents, where In the research results, (64.6%) respondents knew that bad breath can have an impact on a person's social and psychological life (Ridwan et al., 2021). The research results are also in line with Alshehri FA's research in 2016 which was conducted on people in Saudi Arabia with a total of 130 respondents, where in the results His research shows that bad breath has an impact on social life, such as feeling embarrassed to talk to other people ($p=0.018$), refusing to

meet other people because of bad breath ($p=0.032$) (Widakdo et al., 2021).

The questions with the highest "don't know" answers were in questions number 11 and 12 regarding systemic diseases such as liver, lung and nose diseases that can cause bad breath for 35 respondents (60.3%) respectively. The results of this research are different from research by Vinita Mary A. et al in 2020 which was conducted on Indian society with a total of 512 respondents, where in the research results 316 respondents (61.7%) knew that bad breath can be caused by liver disease (Ridwan et al., 2021). The results of this research different from Rizka Irianti's 2015 research on workers at Manado Harbor with a total of 77 respondents, 45 respondents (58.4%) knew that bad breath can be caused by lung and nose diseases (Irianti et al., 2015).

According to researchers, knowledge of halitosis, especially which is caused by systemic factors in Indian society and workers at the Port of Manado, is relatively high, this is due to the possibility that educational and counseling activities are often carried out, so it is hoped that educational and counseling activities can be carried out among employees in the Faculty of Dentistry, Moestopo University environment regularly to increase knowledge about dental and oral health, especially halitosis which is caused by systemic factors such as liver, lung and nose diseases.

Based on the overall research results, the overall picture of halitosis knowledge among employees in the Faculty of Dentistry, Moestopo University environment is included in the good category where good knowledge is 30 respondents (51.7%), sufficient knowledge is 18 respondents (31%), poor knowledge is 10 respondents (17.2%). According to (Darsini et al., 2019), external factors such as environment, education, work influence a person's knowledge (Al Amin & Juniati, 2017). The high knowledge of employees in the Faculty of Dentistry, Moestopo University environment is due to good environmental factors and the final level of education of bachelors and nurses as respondents with the highest knowledge is one of the main causes high level of knowledge among employees, resulting in high awareness of dental and oral health. This

research is in line with previous research conducted by (Aninda et al., 2022) which was carried out on the Arjuna Bandung community with a total of 30 respondents. It was found that the results of community knowledge regarding the definition of halitosis were known to be in the good category (80.83%) (Aylıkçı & Çolak, 2013).

CONCLUSION

Data processing and research results regarding the description of knowledge of halitosis among employees in the Faculty of Dentistry environment which was carried out on 58 respondents. Knowledge of halitosis among employees in the Faculty of Dentistry, University Moestopo environment is classified as good with 30 respondents (51.7%). The highest knowledge of halitosis based on gender was among women, 17 respondents (65.3%). The highest knowledge of halitosis based on age was in the adult category 26 – 45 years with 27 respondents (46.55%). Knowledge of halitosis based on the highest level of education was a bachelor's degree with 13 respondents (22.41%). Knowledge of halitosis based on type of work was highest among nurses with 11 respondents (73.3%). Knowledge of halitosis based on length of work was highest at 6 - 10 years with 9 respondents (69.2%). A good environment can increase awareness of dental and oral health.

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