

Discrimination towards People with Halitosis in Nigeria

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ABSTRACT

Objective: To assess the levels of discrimination towards people with halitosis among Nigerian undergraduates.

Methods: This cross-sectional study was conducted among undergraduates in Benin City, Nigeria as part of a larger scale halitosis relational survey. Information was obtained on individual characteristics and level of discriminatory attitudes. The information was measured on a halitosis discriminatory scale (HDS). The HDS had 18 items on usual everyday interactions and specific domains such as employment, education, housing and interactions such as with law enforcement and service providers.

Results: Of the participants, 38.7% reported moderate/major discrimination towards halitosis sufferers. This discrimination was not significantly associated age and sex. The mean score for threat/harassment was 3.04 ± 0.06 and that of insult was 3.11 ± 0.07 under everyday interactions. Regarding domains, employment was the most discriminatory domain (recruitment for a new job > being dismissed from a job > promotion denial) and the least discriminatory domain was housing.

Conclusion: Discrimination exists towards people with halitosis in Nigeria, especially regarding everyday interactions and employment. A community based success oriented halitosis preventive and curative approach will help offset this inequality tag.

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INTRODUCTION

In humans, the sense of olfaction, which detects odours, is vital for survival because it aids in finding food, avoiding predators and disease, and facilitates social communication (Stevenson, 2013). Odour perception is a potent affector in various domains of human psychological functioning, ranging from perception and mood to cognitive processes, memory retrieval and behaviour (Herz&Schooler, 2002; Jacob et al.,2002). Odour, which may be pleasant or unpleasant, influences mood, pain tolerance and judgment of faces in terms of attractiveness, interactions and behaviour (Foster 2008). People use smell to assess the likability, sexual attractiveness and emotional state of individuals.

For example, one report showed that people whose clothes smell of pine were perceived to be more successful, intelligent, sociable, sanitary, and attractive than those whose clothes smell of lemon, onion, or smoke (Kerr et al., 2005)

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Pleasant ambient odours result in a positive mood, which is linked with setting higher goals, increased self-efficacy, greater likelihood to employ efficient work strategies, increased productivity and performance, improved prosocial behaviour and greater tendency to help others (Herz, 2009). Pleasant ambient odours have also been found to enhance vigilance during

tedious tasks, and improve creative problem solving and performance on anagrams and word completion tests. Conversely, the presence of unpleasant odours reduces subjective judgments and lowers tolerance for frustration (Herz, 2009). Unpleasant odours also result in negative psychological states, including stress, anxiety or depression and reduced well-being (Azodo et al., 2010). The emerging concept of "smell harassment", which constitutes olfactory assaults in the workplace without hurting the feelings of the concerned staff, is emphasizing the effect of halitosis on workplace freedom (Havlicek, 2005). Several studies on halitosis have been done to ascertain the prevalence, aetiology, diagnosis and treatment of halitosis, as well as characteristics of and perceived effects on halitosis sufferers (McKeown, 2003; Arowojolu & Dosumu, 2004; Arinola & Olukoju, 2012; de Jongh et al., 2012; de Jongh et al., 2014; Azodo & Umoh, 2013; Umeizudike et al., 2016; Oyetola et al., 2016; Isere & Azodo, 2016; Azodo & Umoh, 2017; Azodo & Ogbemor, 2018). These studies revealed psychological and social impacts on sufferers but research into the effect of halitosis on relatives/friends and others appears scanty. The few available studies (de Jongh et al., 2012; de Jongh et al., 2014; Azodo & Umoh, 2017; Azodo & Ogbemor, 2018) on emotions and reactions towards halitosis sufferers revealed that ideas and moods towards halitosis will invariably affect the impressions and social judgments of others in terms of friendliness toward and likeability of halitosis sufferers. Hence, the objective of this study was to assess Nigerian undergraduates' levels of discrimination towards people with halitosis.

MATERIAL AND METHODS

The protocol for this study was reviewed and approval granted by the Research and Ethics Committee of the University of Benin Teaching Hospital, Benin City, Nigeria. This study was conducted in full accordance with the World Medical Association Declaration of Helsinki. Written informed consent was obtained from all participants and corresponding verbal consent was also obtained from parents/guardians of participants who were under 18 years of age as approved by the university's Ethics Committee in

line with the Nigerian National Health Ethics code

The cross-sectional study conducted among the Ugbowo campus residential undergraduates of the University of Benin was part of a larger scale halitosis relational study. The multistage sampling technique was used to recruit 400 participants, which exceeded the minimum sample size of 218 calculated using Cochran's formula for epidemiological studies (Cochran, 1977). $n = z^2 p(1-P) / d^2$, where n = sample size, z = z statistics for a level of confidence (set at 1.96 corresponding to 95.0% confidence level), p = prevalence = 17.1% (0.171) (Azodo & Umoh, 2013), $q = 1-P$ and d = degree of accuracy desired (error margin) = 5% (0.05)

In the first stage, the four main male (2) and female (2) hostels of the seven hostels on the Ugbowo campus were selected because the residents of these hostels comprised students of all faculties in the university. In the second stage, 13 rooms were selected from the 240 rooms that constituted a hostel using systemic sampling technique with the first room and every subsequent thirteenth room selected. In the third stage, occupants of the rooms were selected based on the average of eight occupants per room until 100 participants per hostel were selected. Written informed consent was obtained from the participants. Participation in the study was voluntary and no incentive was offered. Bonafide students who were occupants of the hostel and consented to participate in the study were included and visitors were excluded.

The data collection tool was a 22-item self-administered questionnaire. This anonymous questionnaire without any identifiers elicited information on the demographic characteristics and discriminatory attitude towards people with halitosis. Discriminatory attitude was assessed with the halitosis discriminatory scale (HDS), which was modelled after the modified everyday discrimination scale (Williams et al., 1997) and Major Experiences of Discrimination Scale (Kessler et al., 1999).

The scale included 18 items representing usual everyday interactions (e.g., courtesy, respect, service, insult, threat) and domains in (1) employment (unfairly dismissed, not selected for employment, denied a promotion), housing (unfairly prevented from moving into a

neighbourhood, neighbours make life difficult), education (unfairly discouraged by a teacher, denied a scholarship), police and courts (unfairly stopped, searched, or questioned by police), and services (unfairly denied a bank loan, provided worse care than others, received inferior service from a plumber or car mechanic). Using a 5-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree), the participants indicated the extent to which they would react in the situations presented. The minimum and maximum score was 19 and 95, respectively. The lower scores indicated a higher discrimination attitude. The discriminatory score was further categorized using cumulative scores divided into major (18-42) moderate (43-67) and minor (68-90) discrimination. The data were subjected to chi-squared and independent t-test statistics using IBM SPSS version 20.0 (IBM Corp.

Armonk, NY). Statistical significance was set at $P < 0.05$.

RESULTS

A total of 370 undergraduates of the 400 recruited participated in the study. Participants aged 15–20 years constituted the majority (53.2%) of the participants. More than half (54.9%) of the participants were males (Table 1). More than one-third (38.7%) of the participants reported moderate to major discrimination but only 0.3% had major discrimination (Figure 1). Participants aged 15–20 years reported more major/moderate discrimination and those aged 21–30 years reported more minor discrimination, but this was not statistically significant ($P = 0.069$). Male participants reported more moderate discrimination and female participants reported more major/minor discrimination, but this was also not statistically significant ($P = 0.481$) (Table 2).

Table 1: Age and sex of the participants

Age (years)	Male n (%)	Female n (%)	Total n (%)
15–20	99 (50.3)	98 (49.7)	197 (100.0)
21–30	104 (60.1)	69 (39.9)	173 (100.0)
Total	203 (54.9)	167 (45.1)	370 (100.0)

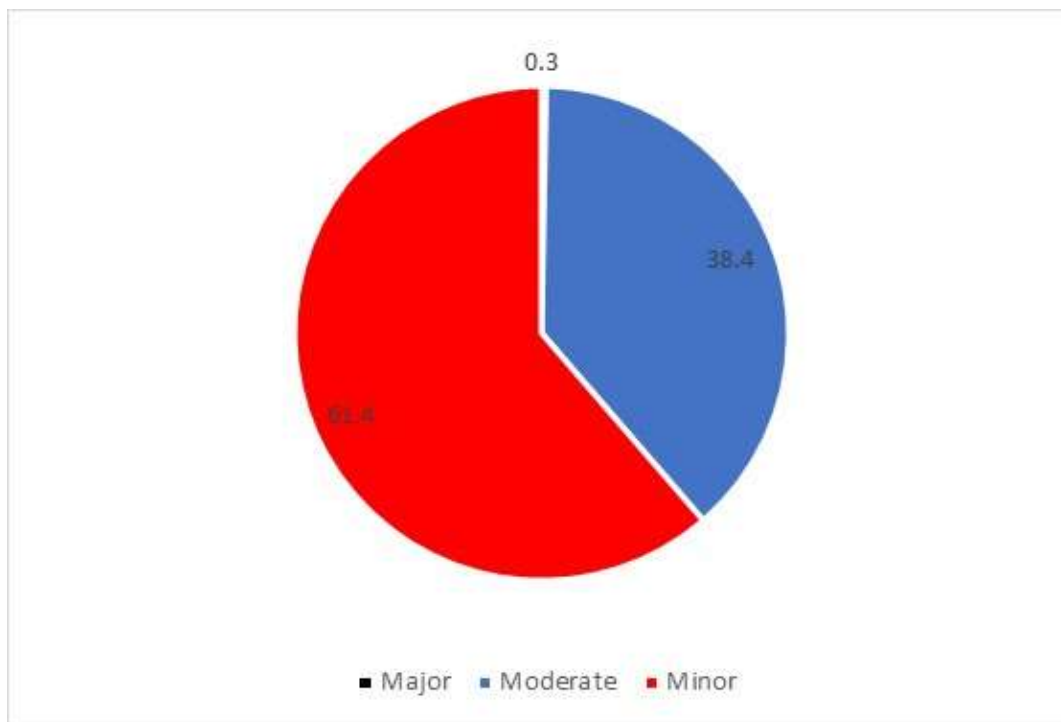


Figure 1: Participants' level of discrimination towards people with halitosis

Participants aged 15–20 years had a mean discrimination score of 68.59 ± 0.73 and male participants had a mean discrimination score of 68.36 ± 0.66 . The discrimination score was not significantly associated age and sex (Table 3). The mean score for threat/harassment was 3.04 ± 0.06

and that of insult was 3.11 ± 0.07 . In terms of domain, refusal of employment, intention to dismiss and promotion denial scores were 3.55 ± 0.06 , 3.78 ± 0.05 and 3.91 ± 0.05 , respectively (Table 4)

Table 2: The effect of participants' age and sex on the level of discrimination towards people with halitosis

Characteristics	Major n (%)	Moderate n (%)	Minor n (%)	P-value
Age (years)				0.069
15–20	1 (0.5)	84 (42.6)	112 (56.9)	
21–30	0 (0.0)	58 (33.5)	115 (66.5)	
Sex				0.481
Male	0 (0.0)	81 (39.9)	122 (60.1)	
Female	1 (0.6)	61 (36.5)	105 (62.9)	
Total	1 (0.3)	142 (38.4)	227 (61.4)	

Table 3: Participants' mean discrimination scores towards people with halitosis

Characteristics	Mean \pm SEM	P-value
Age (years)		0.194
15–20	68.59 ± 0.73	
21–30	69.90 ± 0.67	
Gender		0.065
Male	68.36 ± 0.66	
Female	70.22 ± 0.76	
Total	69.20 ± 0.50	

DISCUSSION

The Halitosis Discriminatory Scale (HDS), which was modelled after the everyday discrimination scale and Major Experiences of Discrimination Scale with some modifications, is a considered a standard instrument to identify discrimination toward people with halitosis. To the best of our knowledge, this is the first study that investigates the discriminatory attitude towards halitosis sufferers. Participants of diverse backgrounds and ethnicities, who are potential managers and leaders of tomorrow, were recruited from a highly competitive university in Nigeria. The results indicated that more than half of the participants reported a major to moderate discriminatory attitude toward halitosis sufferers. This result clearly showed that halitosis is an impediment to success because the scale that was used was a cumulation of responses to usual

everyday interactions and five domains. The discrimination in everyday interactions revealed threat/harassment and insults were the highest ranked form of discrimination. The feeling of disgust evoked by halitosis may explain the reactions of threat/harassment and insults toward halitosis sufferers (de Jonghet al., 2014). The most common domain for discrimination was employment (recruitment for a new job > sack from job > promotion denial) and the least common domain for discrimination was regarding housing. Being denied recruitment for new job, followed by being dismissed from job and promotion denial satisfactorily situates halitosis as a serious limiting factor in professional and career growth. It is therefore necessary for job seekers, those seeking promotion and other categories of workers to seek routine help from dentists to prevent or

manage their halitosis. This will facilitate the chance of being recruited for a new job for the unemployed or changing to a preferred job for the employed. It will also decrease the chance of being dismissed or denied promotion, either of which will halt or slow down professional and career growth. The emerging concept "smell

harassment", which constitutes olfactory assaults in the workplace without hurting the feelings of the concerned staff and emphasizing the effect of halitosis on workplace freedom.

Table 4: Participants' mean scores of components of HDS towards people with halitosis

Characteristics	Mean±SEM
Would you treat people with mouth odour with less courtesy than other people?	3.46±0.06
Would you treat people with mouth odour with less respect than other people?	3.69±0.05
Would you render poorer services to people with mouth odour than other people?	3.63±.06
Do you feel that people with mouth odour are not smart as other people?	3.92±.05
Do you feel more afraid of people with mouth odour than other people?	3.78±.05
Do you feel that people with mouth odour are more dishonest than other people?	4.20±.05
Do you feel that people with mouth odour are generally worse than other people?	4.29±0.04
Do you feel that people with mouth odour are insulted more than other people?	3.11±0.07
Do you feel that people with mouth odour are threatened or harassed more than other people?	3.04±0.06
If you are an employer, would you dismiss your worker because of mouth odour?	3.78±0.05
If you are an employer, would you refuse to employ a qualified person because of mouth odour?	3.55±0.06
If you are an employer, would you deny a qualified person a promotion because of mouth odour?	3.91±0.05
If you are a police officer, would you unfairly stop, search, question, physically threaten or abuse an innocent person because of mouth odour?	4.23±0.06
If you are a teacher or advisor, would you unfairly discourage a person from continuing his or her education because of mouth odour?	4.08±0.06
If you are a landlord, would you refuse to rent a house or apartment to person because of mouth odour?	4.05±0.05
Would you make life difficult for your neighbours if they had mouth odour?	4.31±0.04
If you are a bank manager, would you unfairly deny a loan to a client because of mouth odour?	4.10±0.05
If you are a plumber or car mechanic, would you render poorer service to someone because of mouth odour?	4.06±0.05

The discriminatory attitude towards the halitosis sufferers was not significantly associated age and sex, which may be explained as the negative emotions evoked by halitosis in form of anger, disgust, and sickening feelings toward halitosis sufferers in general. Unpleasant odours have been reported to activate negative psychological states, including stress, anxiety or depression, and feelings of reduced well-being (Azodo et al., 2010).

The data from this study may be limited based on the self-reporting nature of the information, which may contain some level of underestimation or overestimation. However, the modelling of this study tool (HDS) after an established instrument (the everyday discrimination scale and Major Experiences of Discrimination Scale), which have been widely validated, situates the obtained information as accurate and standard.

CONCLUSION

Data from this study revealed that a level of major/moderate discrimination towards people with halitosis in Nigeria exists, especially in the domain of employment. A community-based success-oriented halitosis preventive and curative approach will help offset this inequality tag.

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Conflict of interest

The authors declare that they have no conflicts of interest.

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