

CLEMENT C. AZODO<sup>1</sup>  
OSEREMEN G. OGBEBOR<sup>2</sup>

<sup>1</sup> Department of Periodontics,  
University of Benin, Benin  
City, Nigeria

<sup>2</sup> Department of Oral Diagnosis  
and Radiology, University of  
Benin, Benin City, Nigeria

#### CORRESPONDENCE

Dr. Clement C. Azodo  
Department of Periodontics  
Room 21, 2nd Floor  
Prof. A. O. Ejide Dental Complex  
University of Benin Teaching,  
Benin City, Nigeria  
E-mail:  
clement.azodo@uniben.edu  
Tel. 08034051699

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## Social distance towards halitosis sufferers

#### KEYWORDS

Halitosis  
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#### SUMMARY

Halitosis is a frustrating condition that can lead to significant discomforts, negative social and psychological effects including social interaction suppression and self-confidence diminution. The purpose of the study was to assess the social distance attitude towards halitosis sufferers in Nigeria. A cross-sectional survey was carried out among young adult Nigerians recruited from University of Benin, Benin City, Nigeria, as part of a larger-scale halitosis-relational survey. Information obtained were age, gender and social distance attitude. The social distance attitude was measured with the Halitosis Social Distance Scale (HSDS) which was modelled after the seven-item modified Bogardus Social Distance Scale. A total

of 370 out of 400 questionnaires distributed were returned giving a 92.5% participation rate. About one quarter of the participants (23.0%) reported high social distance towards halitosis sufferers. The level of social distance towards halitosis sufferers was seen to be significantly higher among males than females. The closer the suggested relation with the halitosis sufferers, the greater the reported social distance in the HSDS. Data from this study revealed evident social distance towards halitosis sufferers that may be a contributory explanation of social isolation of halitosis sufferers. Community education regarding the aetiology, treatment and prognosis of halitosis may help offset this social distancing attitude.

## Introduction

Halitosis is a frustrating condition that can lead to significant discomforts, negative social and psychological effects including social interaction suppression and self-confidence diminution (AZODO ET AL. 2010). The presence of halitosis is a constant source of unhappiness to the sufferer, which may progress to destroy communication among friends and the pleasures of social contact with attendant social isolation. The burden on family, friends and associates of halitosis sufferers also results

in their limiting and restricting their desires in having contact with the affected one. ZALEWSKA ET AL. cited halitosis as a condition that can significantly impair quality of life and social interactions and consequently leads directly to depression, low self-esteem or other mood disorders. They also posited the high importance of proper identification, treatment and continued halitosis research.

Halitosis creates a social barrier between halitosis sufferers and their friends, relatives, partners or colleagues at school/work

(BOSY 1997). The social barrier created by halitosis between the sufferer and the society is usually in form of distancing, termed social distancing. This social distancing may be engineered by the sufferer or the society or both. The social distancing attitudes of halitosis sufferers retrievable from the literature include hesitation to talk to other people, uneasy feeling when someone is nearby, dislike meeting people, maintaining a distance from other people and outright avoidance of other people (KOLO ET AL. 2015). The societal social distancing attitudes toward halitosis remain unstudied especially regarding the social distance scale even when social distancing may limit proper health seeking potential for the condition. The difficulty in informing halitosis sufferer of their offensive breath and their preference disposition of not being informed of offensive breath if it exists, are the perceived major drives of halitosis social distancing. The social distance attitude is usually measured using a seven-item Bogardus Social Distance Scale (WARK & GALLIHER 2007). The social distance attitude tool used in this study, termed Halitosis Social Distance Scale (HSDS), was modelled after the seven-item Bogardus Social Distance Scale. The objective of this study was to assess the social distance towards halitosis sufferers in Nigeria.

## Materials and Methods

This cross-sectional study was carried out among undergraduates of University of Benin, Benin City, Nigeria, as part of a larger-scale halitosis-relational survey. 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 males and females hostels out of the seven hostels in 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 room were selected based on the average of eight occupants per room and stopped when a maximum of 100 participants were gotten per hostel.

A validated self-administered questionnaire which elicited demographic characteristics and social distance attitude was the data collection tool. The social distance attitude was measured with the Halitosis Social Distance Scale (HSDS) which was modelled after the seven-item modified Bogardus Social Distance Scale (Tab. 1). HSDS measured the individual's willingness to participate in social contacts of varying degrees of closeness with halitosis sufferers:

- as close relatives by marriage
- as my close personal friends
- as neighbours on the same street
- as co-workers in the same occupation
- as a tenant in my compound
- as a visitor in my house
- as a person from my neighbourhood

The scale inquired the extent of willingness on a seven-point Likert scale to which the participants would be accepting halitosis sufferers. A score of 1 depicts extremely unwilling while a score of 7 depicts extremely willing.

The seven-item scores are added together to get a total HSDS score. The minimum score is 7 while the maximum score is 49. A higher score indicated lesser social distance while a lower score indicated greater social distance. The cumulated score was further categorized into high (7-21), medium (22-35) and low (36-49) social distance using the cut-off marks obtained during validation.

Data analysis was done using IBM SPSS version 21.0. The mean score of each scale component was done. The cumulated

**Tab.1** The study questionnaire

1. How willing would you be to accept a person with mouth odour as a close relative by marriage?	Extremely unwilling	1	2	3	4	5	6	7	Extremely willing
2. How willing would you be to accept a person with mouth odour as a close personal friend?	Extremely unwilling	1	2	3	4	5	6	7	Extremely willing
3. How willing would you be to accept a person with mouth odour as a neighbour on the same street?	Extremely unwilling	1	2	3	4	5	6	7	Extremely willing
4. How willing would you be to accept a person with mouth odour as a co-worker?	Extremely unwilling	1	2	3	4	5	6	7	Extremely willing
5. How willing would you be to accept a person with mouth odour as a tenant in your compound?	Extremely unwilling	1	2	3	4	5	6	7	Extremely willing
6. How willing would you be to accept a person with mouth odour as a visitor in your house?	Extremely unwilling	1	2	3	4	5	6	7	Extremely willing
7. How willing would you be to accept a person with mouth odour from your neighbourhood?	Extremely unwilling	1	2	3	4	5	6	7	Extremely willing

HSDS score was categorized and comparison done between it and demographic characteristics (age and gender) using Chi-Square statistics. Statistical significance was set at  $P < 0.05$ .

Ethical approval was obtained from the Ethics and Research Committee of University of Benin Teaching Hospital. Informed consent was obtained from all participants. Written informed consent was obtained from all participants. Participation in the study was voluntary and no incentive was offered.

## Results

A total of 370 questionnaire out of 400 distributed were returned giving a 92.5% participation rate. The majority of the participants were males and aged 20–22 years (Tab. II). The highest social distance attitude was allowing a relative to marry halitosis sufferer with a mean score of 3.13 (Fig. 1). About one quarter of the participants (23.0%) reported high social distance, 60.5% of the participants reported medium social distance towards halitosis sufferers (Fig. 2). Participants aged 23–30 years (27.3%) reported more high social distance towards halitosis sufferers than their younger counterparts but this was not statistically significant ( $P = 0.681$ ). More males (26.6%) reported high social distance towards halitosis sufferers than females (18.6%) which was statistically significant ( $P = 0.044$ ) (Tab. III).

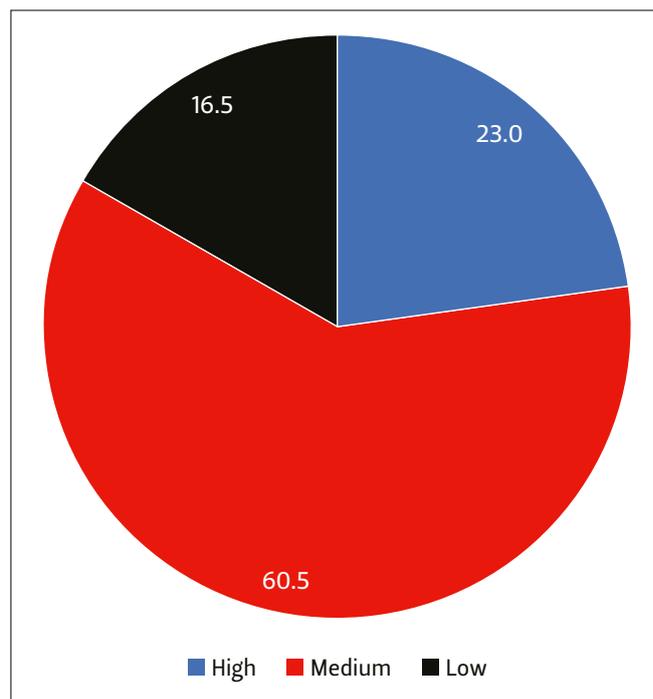


Fig. 2 Social distance attitude toward halitosis sufferers among the participants

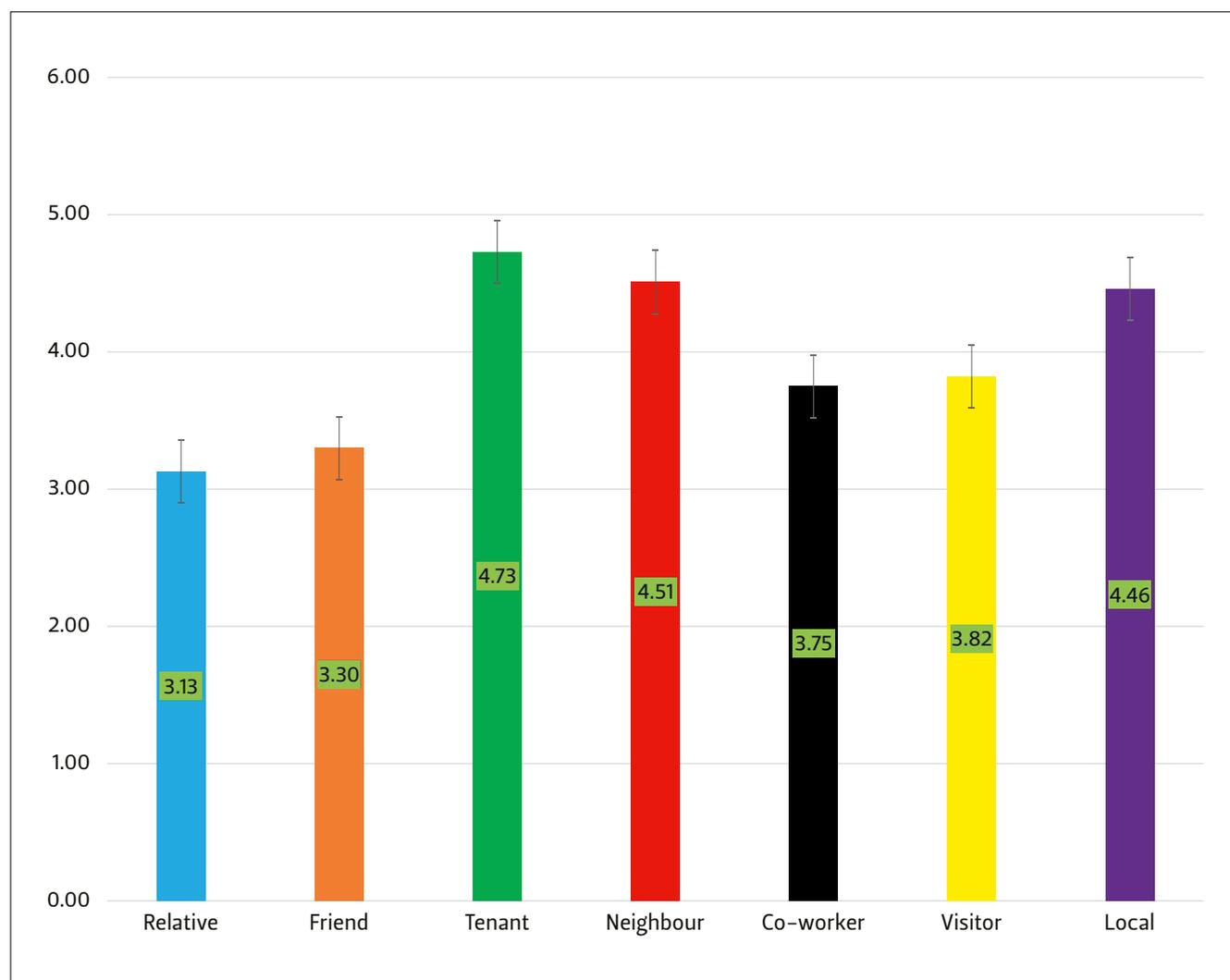


Fig. 1 Mean score of Halitosis Social Distance Scale (HSDS)

**Tab. II** Age and sex of the participants

Characteristics	Number	Percentage
<b>Age (years)</b>		
15–19	121	32.7
20–22	161	43.5
23–30	88	23.8
<b>Sex</b>		
Male	203	54.9
Female	167	45.1
Total	370	100.0

**Tab. III** The effect of age and sex on social distance among the participants

Characteristics	High	Medium	Low	P-value
<b>Age (years)</b>				0.681
15–19	26 (21.5)	72 (59.5)	23 (19.0)	
20–22	35 (21.7)	99 (61.5)	27 (16.8)	
23–30	24 (27.3)	53 (60.2)	11 (12.5)	
<b>Sex</b>				0.044
Male	54 (26.6)	123 (60.6)	26 (12.8)	
Female	31 (18.6)	101 (60.5)	35 (21.0)	
Total	85 (23.0)	224 (60.5)	61 (16.5)	

## Discussion

An unpleasant odour is rarely discussed and investigated despite the adverse consequences it exerts on social interactions especially within workplace, romantic relationships and mate choice decisions (AZODO & UMOH 2017). It repels people, which makes it a social stigma and halitosis sufferers a target of a multi-billion mouth wash/rinse and fresh breath market. This study finding is considered novel based on the fact that no study has been done on the social distance attitude toward halitosis sufferers especially with the application of HSDS which was modelled after the seven-item modified Bogardus Social Distance Scale. More than three quarters of the participants (83.5%) reported medium or high social distance towards halitosis sufferers. The unpleasant nature of halitosis which evokes sickening and disgust feelings that hampers intimate relational bond and pleasures of social contacts may have been the reason behind the reported high and medium social distance towards halitosis sufferers (YAEGAKI ET AL. 1989; DE JONGH ET AL. 2014; AZODO & OGBEBOR 2018). As much as 98% of the participants in a study by YAEGAKI ET AL. reported a sickening feeling when becoming aware of another person's halitosis. DE JONGH ET AL. also stated that the disgust feelings that halitosis evokes in those who are faced with it could create social distance and alienate people from each other. The high social distance attitude towards halitosis may clearly arise from the emotional aspect of odour perception due to its link with the limbic system of the

brain. This also signifies the social impact of halitosis has on close approximation to the social distance attitude to the studied health conditions which include mental illness, epilepsy and HIV/AIDS (ADEWUYA & MAKANJUOLA 2008; ANI ET AL. 2011; TSAI ET AL. 2013). The reluctance to alert a person about the presence of halitosis due to fear of insulting the person, making the person feel uncertain or embarrassed, the unpredictability of reaction of the sufferers and also the consequences on established relationship creates social distance as an escape route for the society. Although, MCKEOWN stated that halitosis sufferers use defence techniques, and may avoid social situations and social relations, thus acknowledging social distance of halitosis are only one side of a coin. This study finding has completed the whole picture of social impact of halitosis by showcasing the other side of the coin. It can now be categorically stated that social avoidance of halitosis has a dual component: the reactionary recoil of the sufferer and the reactionary recoil of the society leaving a huge relational distance.

The level of social distance towards halitosis sufferers was seen to be significantly higher among males than females. Males depend mainly on physical characteristics for attraction, interest cultivation, and acquittance development but further progression of the relationship into friendship and romantic intimate affair is halted by halitosis thereby triggering disappointing and frustrating view which may be the ultimate explanation for the significantly higher social distance attitude towards halitosis sufferers among male participants. The lowered social distance reported among females may be related to the paternalistic nature of our society and the cultural perspective of young females reporting their preferences about men is interpreted as poor upbringing and a cue to prostitution.

The findings of the study showcased a high reluctance in almost all ramifications of relational closeness with the greatest social distance response to having a halitosis sufferer as a relative or friend. Halitosis sufferer as a neighbour was marked with lesser social distance which may be related to exclusion relationship with neighbours in urban centers in modern-day Nigeria unlike in the past where neighbours were rated higher than far away dwelling siblings in relational closeness. Although 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 (HSDS) after an established instrument which has been widely validated is considered helpful in eliciting relatively accurate and standard information.

## Conclusion

Emerging evidence of a reasonable level of social distance towards halitosis sufferers contributorily explains the social isolation of halitosis sufferers. Community education regarding the aetiology, treatment and prognosis of halitosis may help offset this social distancing attitude.

## Zusammenfassung Einleitung

Die Halitosis ist ein frustrierender Zustand, der zu signifikantem Unbehagen und negativen sozialen und psychologischen Effekten wie dem Vermeiden von Sozialkontakten und verminderter Selbstbewusstsein führen kann. Sie führt zu Barrieren zwischen Betroffenen und ihren Freunden, Verwandten, Partnern und Kollegen in der Schule und/oder auf der Arbeit, normalerweise in der Form von sozialem Abstandnehmen. Die gesell-

schaftlichen Aspekte und vor allem das Ausmass dieses Abstandnehmens sind schlecht untersucht, obwohl genau dieser Abstand es den Betroffenen schwer macht, eine entsprechende Behandlung zu erhalten. Die vorliegende Studie untersuchte soziales Abstandnehmen gegenüber Halitosisbetroffenen in Nigeria.

## Material und Methoden

Eine Querschnittuntersuchung wurde bei jungen Erwachsenen an der University of Benin, Benin-Stadt, Nigeria, als Teil einer gross angelegten Beobachtungsstudie zum Thema Halitosis durchgeführt. Die Tendenz, Abstand zu nehmen, wurde mittels der Halitosis-Social-Distance-Skala (HSDS) gemessen, die eine modifizierte Version der Bogardus-Social-Distance-Skala darstellt.

## Resultate

Ein Total von 370 von 400 der verteilten Fragebögen wurde retourniert, was einer Partizipationsrate von 92,5% entspricht. Etwa ein Viertel der Befragten (23,0%) gab an, von Halitosisbetroffenen grossen Abstand zu nehmen. Dieses Abstandnehmen war unter männlichen Befragten signifikant grösser als unter weiblichen. Je sozial näher man den Halitosisbetroffenen stand, umso grösser die Abstandnahme auf der HSDS.

## Diskussion

Die Daten dieser Studie zeigen ein klare Tendenz auf, von Halitosisbetroffenen Abstand zu nehmen, was die soziale Isolation dieser Betroffenen teilweise erklären könnte. Es darf kategorisch gesagt werden, dass der soziale Abstand zwischen Halitosisbetroffenen und der Gesellschaft zwei Komponenten hat: das Sich-Zurückziehen dieser Betroffenen selbst wie auch ein Abstandnehmen der Nichtbetroffenen von diesen Mitmenschen.

## Résumé

### Introduction

L'halitose est un problème frustrant, qui peut entraîner une gêne importante et des répercussions sociales et psychologiques

négatives, telles que l'évitement des contacts sociaux et la perte d'estime de soi. Elle crée des barrières entre les personnes atteintes et leurs amis, parents, partenaires et collègues, à l'école et/ou au travail, généralement sous forme de distanciation sociale. Les aspects sociaux, et en particulier l'ampleur de cette distanciation, sont peu étudiés, bien que ce soit précisément cette prise de distance qui empêche les personnes atteintes de bénéficier d'un traitement approprié. L'étude présentée ici, réalisée au Nigéria, a investigué la prise de distance sociale par rapport aux personnes souffrant d'halitose.

## Matériel et méthodes

Une étude transversale a été réalisée sur de jeunes adultes à l'Université du Bénin, à Benin-City, au Nigeria, dans le cadre d'une étude observationnelle à grande échelle sur l'halitose. La tendance à la prise de distance a été évaluée à l'aide de la *Halitosis Social Distance Scale (HSDS)*, une version modifiée de la *Bogardus Social Distance Scale*.

## Résultats

Au total, 400 questionnaires ont été distribués, dont 370 ont été retournés, ce qui correspond à un taux de participation de 92,5 %. Environ un quart (23,0 %) des répondants ont déclaré prendre une grande distance des personnes atteintes d'halitose. Cette prise de distance était significativement plus grande chez les hommes interrogés que chez les femmes. Plus le répondant était socialement proche de la personne atteinte d'halitose, plus la prise de distance mentionnée sur la HSDS était grande.

## Discussion

Les données de cette étude montrent une nette tendance à se distancer des personnes atteintes d'halitose, ce qui pourrait expliquer en partie l'isolement social de ces personnes. On peut dire qu'indubitablement, la distance sociale entre les personnes souffrant d'halitose et la société a deux composantes: le retrait « actif » des personnes atteintes, d'une part, et la distanciation des personnes non affectées par rapport aux halitotiques, d'autre part.

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