

Original article

EVALUATION OF PATIENTS' COMPLIANCE TO A 'STOPGAP TREATMENT PROTOCOL IN THE INITIAL MANAGEMENT OF PSYCHOLOGICAL HALITOSIS

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ABSTRACT

OBJECTIVE: This study evaluates patients' compliance to a 'stopgap treatment protocol' for initial management of psychological halitosis and compares the findings with the treatment outcome in a Tertiary Hospital in Nigeria.

METHOD: A 4-year prospective study of patients' compliance to a 3-step 'stopgap treatment protocol' for initial management of psychological halitosis was performed.

RESULTS: Sixty five (65) patients were diagnosed of psychological halitosis within the study period. Most of the patients filled the halitosis questionnaire (n=43, 66.2%). The mean duration of bad breath complaint was 5 ($\pm$ 0.7 S.E.) years. The mean psychological score was 4 ($\pm$ 0.4 S.E.). No clinical oral malodour was observed in all the patients. Microscopy, culture and sensitivity were performed for 45 (69.2%) patients and most of the patients had a normal oral flora 36 (55.4%). Screening for volatile sulphur compound (VSC) was performed for 23 (35.9%) patients and the mean VSC level was 8.3 ($\pm$ 1.9 S.E.) ppb. Fifty-two (80.0%) patients came for follow up and counseling visit, and the mean duration of follow up was 21 ($\pm$ 6.4 S.E.) weeks. Fifty two (80.0%) patients complied with warm saline mouth rinse instructions, while scaling and polishing procedure was performed for 49 (75.4%) of the patients. There were 42 (64.6%) diagnosed pseudohalitosis cases and 30 (46.2%) cases had improved oral malodour, significantly associated with normal oral flora (p=0.008) and compliance to scaling and polishing procedure (p=0.000). The 23 (35.4%) patients diagnosed of delusional halitosis had persistent oral malodour.

CONCLUSION: The study showed overall high patients' compliance to the 'stopgap treatment protocol' and improved oral malodour was observed in patients with pseudohalitosis.

Key words: Psychological halitosis, compliance, 'Stopgap', Protocol

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INTRODUCTION

Halitosis is classified for the ease of treatment into genuine halitosis, pseudo-halitosis, delusional halitosis (halitophobia).^{1,2} Pseudo-halitosis and delusional halitosis are subtypes of psychological halitosis.³ Pseudo-halitosis is characterized by persistent bad breath complaint that is made worse by patients' perceived aversive behaviour of people around them, a borderline or a high psychological score of 3 and above, no clinically obvious oral malodour, a normal breath measurement (VSC) and resolves completely after performing simple oral hygiene measures and counselling of the patients.¹

Whereas, the delusional type¹⁻⁵ is characterized by persistent chronic bad breath that is also made worse by the patients' perceived aversive behaviour of people around them, a high psychological score of 4 to 10, no clinical sign of oral malodour, a normal breath measurement (VSC), and no reliable third party (close relation, partner/spouse, or friend) to confirm the patients' claim of bad breath.⁶ Further evaluation with mental health assessment questionnaire may show tough-mindedness, emotionality, suspiciousness, poor self-esteem and high anxiety to a specific situation.⁷ The complaint of oral malodour is persistent even after carrying out simple oral hygiene measures and the condition may improve with counseling (psychotherapy) and antipsychotic therapy.^{8,9}

The role of dentists in the management of dental patients with psychological problems include counseling with literature support, education, and clinical findings, as well as treatment with anti-anxiety drugs if necessary.¹⁰⁻¹⁶ Recent study from this Centre proposed a 3-step 'stop gap treatment protocol' for initial management of delusional halitosis, which dental practitioners can apply where multidisciplinary team of dentists and mental health experts (psychiatrist and psychologist) cannot be assembled.¹⁷ The first step is the diagnostic step, when the patient's history of chronic bad breath is elicited, using a standard halitosis questionnaire. This is followed by clinical examination, oral microbiological assessment of tongue swab; screening for volatile sulfur compounds (VSC); and interview of the third party (persons suggested by the patient to

have perceived their oral malodor). Mental health assessment instruments are administered to the patient and analyzed by the clinical psychologist. The second step is counseling of the patient based on the results from the diagnostic step. The third step involves drug therapy and referral of patients to mental health experts. As a follow up to this report, this study evaluates patients' compliance to the 'stopgap treatment protocol' for initial management of psychological halitosis and compares the findings with the treatment outcome in a Tertiary Hospital in Nigeria.

MATERIALS AND METHODS

Approval was obtained from the Hospital Ethical Committee to perform a prospective study of patients suffering from psychological halitosis, which was managed with the 'Stop-gap protocol' in the Oral Medicine Clinic of the Department of Oral Pathology and Oral Medicine, University of Benin Teaching Hospital, Benin City, Nigeria. A 4-year (January 2009 to December 2012) prospective study of patients' compliance to the 3-step 'stopgap treatment protocol' for initial management of psychological halitosis was performed.

The patients' compliance was compared with the treatment outcomes, which was subjectively graded into persistent, improved oral malodour or cured based on patients' assertion.¹⁸ The data collected were analyzed with Statistical Package for Social Sciences (SPSS) version 16 (SPSS Inc, Chicago, IL). Bivariate analysis and statistical testing were used to estimate the strength of correlation of the variables analyzed (using Pearson's correlation). The confidence level was set at 95% and probability values (P-value) of $P < 0.05$ was regarded as significant.

RESULTS

Sixty five (65) patients were diagnosed of psychological halitosis within the study period. There were 36 (55.4%) males and 29 (44.6%) females, giving a male to female ratio of 1.2:1. Most of the patients were in the 3rd decade of life ($n=28$, 43.1%), with a mean age of 36 ± 1.6 (SE) years (Table 1).

Table 1: Age distribution of the patients

Age group	Frequency	%
11-20	2	8.7
21-30	10	43.5
31-40	7	30.4
41-50	1	4.3
51-60	1	4.3
61-70	2	8.7
Total	23	100.0

Forty three (66.2%) of the patients filled the halitosis questionnaire. The mean duration of bad breath complaint was 5 ± 0.7 (SE) years and the mean psychological score was 4.2 ± 0.4 (SE). No clinical oral malodour was observed in all the patients. Microscopy, culture and sensitivity were performed for 45 (69.2%) patients and 36 (55.4%) of the patients had a no growth / normal oral flora. Screening for volatile sulphur compound (VSC) was performed for 23 (35.9%) patients and the mean VSC level was 8.3 ± 1.9 (SE) ppb.

Most of the patients (n=52, 80.0%) came for follow up / counseling visit, with a mean of follow up duration of 21 ± 6.4 (SE) weeks. Scaling and polishing procedure was performed for 49 (75.4%) patients. Fifty two (80.0%) patients complied with warm saline mouth rinse instructions. Most of the patients were initially diagnosed as a psychological halitosis case (n=33, 50.8%) [Table 2].

There was significant association of initial clinical diagnosis of pseudohalitosis (n=18, 27.7%) and delusional halitosis (n=14, 21.5%) with final diagnosis of pseudohalitosis (n=15, 23.1%) and delusional halitosis (n=10, 15.4%) [$p=0.004$] respectively. Of the 42 (64.6%) diagnosed pseudohalitosis cases, 32 (49.2%) of the patients had improved oral malodour, significantly associated with normal oral flora (n=23, $p=0.008$), compliance to warm saline mouth rinse (n=32, $p=0.000$), scaling and polishing procedure (n=32, $p=0.000$), and counseling / treatment review visits (n=32, $p=0.000$). The 23 (35.4%) patients diagnosed of delusional halitosis with persistent complaint of oral malodour (Table 2).

There was claims of improvement in psychosocial disturbance among the patients who participated in counseling / treatment review visits (n=21, 32.3%). Three (4.6%) patients with delusional halitosis responded to referral to the joint clinic of dentists and mental health experts and they were diagnosed and treated for delusion (anxiety disorder).

DISCUSSION

Although recent study³ has subdivided psychological halitosis into pseudohalitosis and delusional halitosis, proper evaluation using the recommended diagnostic criteria listed in the 'stopgap protocol was useful to identify the subtypes of psychological halitosis in this study. There was predilection of psychological halitosis among young adult males, which is consistent with previous reports.¹⁻⁵ However, female predilection for psychogenic halitosis has been reported in a study conducted in a halitosis clinic.¹⁸ There was also a high patients' compliance to the 'stopgap treatment protocol' in this study. This may be attributed to the simplified 3-step approach in the management of these patients outlined in the 'stopgap protocol'.

Patients' response to follow up / counseling visits was high (80.0%) and a mean follow up duration of over 5 months were observed in this study. Previous reports have shown that these patient are frequently engaged in 'doctor shopping' and respond poorly to follow up because they are often mismanaged.⁶ However, the use of an evaluation form for the 'stopgap' protocol is recommended as check list for dentists with a view to improving the level of compliance to the protocol (Table 3).

Previous study of the treatment outcome of psychogenic halitosis patients reported that pseudohalitosis patients were convinced that they have no bad breath after treatment. However, there was persistent claim of bad breath in halitophobia patients and recommended referral of the patients to psychotherapist.¹⁸

Table 2: Correlation of treatment outcome with initial clinical diagnosis and final diagnosis

Treatment Outcome	Initial Diagnosis		Final Diagnosis		Total	%
			pseudohalitosis	delusional halitosis		
persist bad breath		psychological halitosis	5	10	15	23.1
		pseudohalitosis	4	3	7	10.8
		delusional halitosis	1	10	11	16.9
		Total	10	23	33	50.8
improved bad breath		psychological halitosis	18	--	18	27.7
		pseudohalitosis	11	--	11	16.9
		delusional halitosis	3	--	3	4.6
		Total	32	--	32	49.2
Total	Initial Diagnosis	psychological halitosis	23	10	33	50.8
		pseudohalitosis	15	3	18	27.7
		delusional halitosis	4	10	14	21.5
		Total	42	23	65	100

(p = 0.004)

Similarly, the 'stopgap protocol' was effective in the treatment of the pseudohalitosis cases. This was significantly associated with compliance to MCS of tongue swab, saline rinse, scaling and polishing, and counseling / treatment review visits. However, the use of W.H.O. (World Health Organization) Wellbeing Index Questionnaire for objective assessment of these psychological patients' response to treatment is recommended.¹⁹ The delusional halitosis cases had persistent complaint of oral malodour, though there was improvement of the psychosocial problems. This is characteristic of delusional patients, which supports the need for intervention by mental experts in the treatment of these patients, preferably within the dental clinic setting.¹⁷

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In conclusion, this study is limited by the small sample size and the failure to use to W.H.O. Wellbeing Index questionnaire for objective assessment of patient's response to treatment. However, the findings are preliminary and this study showed a high patients' compliance to the 'stopgap treatment protocol'. There was improved oral malodour in patients with pseudohalitosis, which was significantly associated with compliance with oral assessment with MCS of tongue swab, saline mouth rinse, scaling and polishing procedure and response to counseling / treatment review.

Conflict of Interest: None declared

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Table 3: Check list for evaluation of treatment protocol and treatment outcome for patient with halitosis

A. BIODATA: Name, age, gender, contact address, phone number, religion B. TREATMENT PROTOCOL: 1) HISTORY a) Bad breath complaint and duration b) Aetiological /Precipitating Factors (Specify) c) Oral hygiene habit (i) Tooth brushing, (ii) Mouth rinsing (iii) Dental flossing d) Halitosis questionnaire administered: Yes/No (i) Third party (ii) Psychological score, (iii) trigger factor(s) 2) CLINICAL EXAMINATION (clinical findings) a) Oral malodour: Yes/No (specify method used), b) Aetiological (oral) factor identified, c) Initial clinical diagnosis: 3) INVESTIGATION (test findings) a) MCS, b) VSC screening (Halimeter), c) Others (specify) 4) FIRST COUNSELING a) Review of test results b) Antibiotics (specify) c) Warm saline mouth rinse: Yes.../No.....(frequency), d) Scaling and polishing: Yes/ No. e) Filling of self-assessment form, f) Invitation of third party 5) SECOND COUNSELING a) Review treatment, b) Review of self-assessment questionnaires, c) Final diagnosis, d) WHO wellbeing questionnaire administered, e) Filling of mental health assessment, f) Interaction with third party 6) THIRD COUNSELING a) Review mental health questionnaire report, b) Antianxiety /anti-depressant therapy, c) Counseling on trigger/psychological problems (in a Joint clinic with mental health experts) d) Review of diagnosis, e) Review of treatment oral hygiene measures and drugs, f) Cognitive behavioral therapy. C. TREATMENT OUTCOME: 1. Duration of follow up: (i) Duration of treatment, (ii) Duration of response to treatment, 2. Oral malodour assessment: (i) improved(ii) cured(iii) persistent..... 3. Assessment of psychological wellbeing (using WHO questionnaire)
