The Othmer and DeSouza test for screening of somatisation disorder: is it useful in general practice?

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SUMMARY

Background: *Somatisation disorder is an underdiagnosed and difficult problem for family physicians. Early diagnosis of somatisers is a very important factor in improving health outcomes.*

Aim: *To assess the validity of the Othmer and DeSouza test (a seven-item questionnaire) used by general practitioners as a screening instrument for the diagnosis of somatisation disorder in primary care.*

Design of study: *A cross-sectional study of patients presenting with unexplained multiple chronic physical symptoms.*

Setting: *A total of 149 patients were selected for the study by 29 family physicians in the primary health care centres of the Basque Health Service in the metropolitan area of Bilbao, Bizkaia, Spain.*

Methods: *Participating patients completed the Othmer and DeSouza test, carried out by family physicians. Their answers were compared with the results of the Schedules for Clinical Assessment in Neuropsychiatry (SCAN). This psychiatric interview was administered blind to 144 patients by trained psychiatrists.*

Results: *A total of 19% of patients were diagnosed as having somatisation disorder by the SCAN psychiatric interview. The discriminating capacity of the Othmer and DeSouza test for all possible screening thresholds (≥ 1, ≥ 2,... ≥ 6 symptoms) was very low and positive predictive values ranged between 19% and 33%. With respect to negative predictive values, even in the absence of affirmative responses to all seven questions, the pretest probability of being a non-somatiser case remained unchanged.*

Conclusion: *Our data indicate that the Othmer and DeSouza test does not present clinically useful predictive values in primary care patients with suggestive symptoms of somatisation disorder.*

Keywords: *Othmer and DeSouza test; somatisation disorder; SCAN; sensitivity; specificity; predictive values.*

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Introduction

SOMATISATION disorder is a condition characterised by multiple recurrent unexplained somatic symptoms for which patients seek medical attention. It is a prevalent, expensive, and difficult problem for general practitioners (GPs). Although it has been estimated that 5% of patients in general practices present with severe forms of somatisation,[1] this disorder is clearly underdiagnosed and on many occasions physicians tend to repeatedly pursue an organic aetiology for the patients' complaints using multiple test procedures, medication, and surgical operations instead of recognising a somatisation disorder.[2,3]

An important dilemma facing the attending physician is the lack of simple and effective strategies for the rapid detection of patients with somatisation disorder. From the GP's point of view a full diagnosis of the syndrome according to DSM-III-R criteria is too complex and time-consuming.[4-6] The detailed assessment of the lifetime presence and characteristics of a long list of symptoms is a cumbersome task. Since early diagnosis of somatising patients is crucial in decreasing the risk of iatrogenic harm from somatic overtreatment and in reducing the economic costs derived from the frequent use of primary health care services,[7-10] different authors have shortened the DSM-III somatisation disorder symptom list in order to develop a practical and valid screening tool for the clinician.[11-14] The most simple and sensitive of these screening proposals is that developed by Othmer and DeSouza,[12] who in 1985 described a screening index based on seven symptoms of the DSM-III complete list with the highest discrimination index (93% sensitivity). The usefulness of this instrument has been recognised in different studies[13-15] and, in DSM-III-R, it was recommended that these seven symptoms be used for screening with a threshold of two symptoms.[5] Although, according to the study of García-Campayo *et al,*[16] a Spanish version of the Othmer and DeSouza test with a threshold of three symptoms showed 88% sensitivity for the diagnosis of somatisation disorder in medical and primary care settings in Spain, bias in the selection and verification procedures may question the validity of its conclusions.[17]

This study was conducted to assess the validity and clinical usefulness of the Spanish version of the Othmer and DeSouza screening index for the diagnosis of somatisation disorder in the primary care setting.

Method

A cross-sectional study was designed in which the Othmer and DeSouza test (i.e. the instrument to be tested) and the Schedules for Clinical Assessment in Neuropsychiatry

HOW THIS FITS IN

What do we know?
Somatisation disorder is a diffcult con-
dition to diagnose in general practice.
Previous studies argued that the Othmer and
DeSouza test was a useful tool for the screening
of this disorder. In fact, this test was recommended by the
DSM III-R criteria of the American Psychiatric Association.

What does this paper add?
Our results contradict these findings and bring into question
the usefulness of the Othmer and DeSouza test as a valid
screening instrument for somatising patients. The test does
not solve the diagnostic difficulties of somatisation disorder in
general practice.

(SCAN),[18] (i.e. the diagnostic gold standard) were adminis-
tered independently and in a blind fashion to all participants.

The study was carried out in primary health care centres
of the Basque Health Service in the metropolitan area of
Bilbao, Bizkaia (Spain). The Basque Health Service is a pub-
lic organisation in which universal free health care services
are provided to every citizen of the Basque Country (popu-
lation over 2 100 000). Primary care professionals act as
gate-keepers to other health care levels and work in group
practices, that are responsible for the medical care offered
to people living in a given geographical area.

Between May 1996 and September 1997, 35 GPs were
invited to enrol patients aged 18 years or older who met the
following inclusion criteria: (a) a history of at least three med-
ically unexplained somatic symptoms beginning before age
30 years — these symptoms should cause the patient to see
a physician or take medication, or should interfere with his
or her functioning; (b) some of the somatic complaints had
to be present over the past three years. A total of 149
patients recruited by 29 family physicians gave the informed
consent to take part in the study. One patient of less than 18
years of age and four patients who refused the psychiatric
interview were excluded, so that data from 144 (97%)
patients were analysed.

The 35 GPs that were invited to participate in the study
belonged to the health care area of Bizkaia, one of the three
provinces of the Basque Country. We contacted these physi-
cians because they had already participated in previous
studies of other research projects under the auspices of the
Primary Care Research Unit of Bizkaia and 29 of them
recruited patients at this time. The disparity in the number of
patients recruited by each family physician, which ranged
between 1 and 16, could be explained by reasons of work-
load differences or personal motivations for this particular
disorder.

Measures

In order to reproduce the actual working conditions of gen-
eral practices, patients were interviewed by their primary
care physician during a spontaneous consultation (approxi-
mate mean time = six minutes) in relation to the presence of
seven symptoms of the Othmer and DeSouza test as fol-
lows: 'have you ever had trouble breathing?'; 'have you ever

had frequent trouble with menstrual cramps?'; 'have you
ever had a burning sensation in your sexual organs, mouth,
or rectum?'; 'have you ever had difficulties swallowing or
had an uncomfortable lump in your throat that stayed with
you for at least an hour?'; 'have you ever found that you
could not remember what you had been doing for hours or
days at a time? If yes, did this happen even though you had
not been drinking or taking drugs?'; 'have you ever had trou-
ble from frequent vomiting?'; and 'have you ever had fre-
quent pain in your fingers or toes?'. Transcultural adaptation
of the Othmer and DeSouza test for its use in Spanish
included translation of the original questionnaire from
English into Spanish by two interpreters whose native
tongue was Spanish followed by retro-translation from
Spanish into English by two Anglo-Saxon interpreters. To
assess the reliability of the test, this was repeated (retest) by
the same family physician at least 15 days (median = 26
days) after the initial administration.

Psychiatric diagnoses were established using the psychi-
atric interview SCAN,[18] a semi-structured psychiatric inter-
view recommended by the World Health Organization.[19]
Interviews were conducted in the general practices by seven
psychiatrists trained in administering the SCAN who were
blind with respect to Othmer and DeSouza test and retest
results. The family physician provided a short report that
included the active organic pathology of each patient to help
the psychiatrist at the time of considering whether a particu-
lar symptom was organic or not. In all cases, items of the
somatoform disorders group of the 10th edition of the
Present State Examination (PSE-10) were assessed.[20] Other
symptom sections of the PSE-10 were evaluated at the dis-
cretion of the attending psychiatrist. Final diagnoses were
based on DSM-III-R and International Classification of
Diseases, 10th edition (ICD-10) criteria.

Statistical analysis

The test-retest reliability was analysed by calculating kappa
statistics and 95% confidence intervals (CI) for each of the
seven symptoms (kappas: 0.0–0.2 'slight' agreement,
0.2–0.4 'fair', 0.4–0.6 'moderate', 0.6–0.8 'substantial', and
0.8–1.0 'almost perfect')[21] and by the intraclass correlation
coefficient. The validity of the questionnaire as a screening
instrument was assessed using 2x2 tables of misclassifica-
tion by cross-tabulation of questionnaires with psychiatric
interviews. According to the number of affirmative respons-
es (≥1, ≥2,... ≥6), six screening thresholds were considered.
The sensitivity, specificity, likelihood ratios, and positive and
negative predictive values for each question and for each
screening threshold with the 95% CI were calculated. The
Epi Info statistical programme was used for these analy-
ses.[22] The receiver operating characteristics (ROC) curve of
the test was also calculated.

Results

There were 25 men and 119 women with a mean (standard
deviation) age of 43.6 (14.7) years. Overall, there were 24 dif-
ferent presenting physical symptoms, the most common
being dizziness, abdominal discomfort, headache, breathing
trouble, chest pain, and back pain. The diagnosis of somati-
sation disorder was established in 27 patients (18.7%, 95%

Table 1. Psychiatric diagnosis in the study population.

Diagnosis	Total patients n (%) (n = 144)	Somatisation disorder n (%)	
		Yes (n = 27)	No (n = 117)
Dysthymia	32 (22.2)	3 (11.1)	29 (24.8)
Generalised anxiety	29 (20.1)	3 (11.1)	26 (22.2)
Panic disorder	25 (17.4)	2 (7.4)	23 (19.7)
Undifferentiated disorder	23 (15.9)	0	23 (19.7)
Hypochondriasis	12 (8.3)	1 (3.7)	11 (9.4)
Major depression	7 (4.9)	1 (3.7)	6 (5.1)
Personality disorder	4 (2.8)	2 (7.4)	2 (1.7)
Somatoform pain	2 (1.4)	0	2 (1.7)
Unspecified disorder	2 (1.4)	0	2 (1.7)
Other disorders	60 (41.7)	13 (48.1)	47 (40.2)
Without diagnosis	14 (9.7)	0	14 (11.9)

Table 2. Test-retest reliability[a] of the Othmer and DeSouza test for the detection of somatisation disorder.

Symptom present	Test 'yes'/total (%)	Retest 'yes'/total (%)	Kappa (95% CI)
Shortness of breath	98/136 (72.1)	96/136 (70.6)	0.68 (0.54 – 0.81)
Dysmenorrhoea	52/114 (45.6)	54/114 (47.4)	0.89 (0.81 – 0.98)
Burning sensation in sex organs	53/135 (39.3)	48/135 (35.6)	0.76 (0.65 – 0.88)
Lump in throat	69/135 (51.1)	67/135 (49.6)	0.73 (0.62 – 0.85)
Amnesia	47/135 (34.8)	47/135 (34.8)	0.74 (0.62 – 0.86)
(if yes) without drinking or taking drugs	32/37(86.5)	31/37 (83.8)	0.89 (0.69 – 1.0)
Vomiting	22/136 (16.2)	18/136 (13.2)	0.65 (0.47 – 0.83)
Painful extremities	48/132 (36.4)	51/132 (38.6)	0.79 (0.68 – 0.90)

[a]Intraclass correlation coefficient between the number of affirmative answers of the test and retest: 0.77.

Table 3. Discriminant capacity of the Othmer and DeSouza test as screening index for somatisation disorder in the primary care setting.

	Somatisation disorder		
Symptom present	Present (n = 27) 'yes'/total (%)	Absent (n = 117) 'yes'/total (%)	Likelihood ratio positive
Shortness of breath	20/27 (74.1)	82/116 (70.7)	1.05
Dysmenorrhoea	13/24 (54.2)	41/94 (43.6)	1.24
Burning sensation in sex organs	13/27 (48.1)	41/115 (35.6)	1.35
Lump in throat	12/26 (46.1)	62/116 (53.4)	0.86
Amnesia	7/27 (25.9)	35/116 (30.2)	0.86
Vomiting	5/27 (18.5)	18/116 (15.5)	1.19
Painful extremities	12/26 (46.1)	35/113 (30.90)	1.49

Table 4. Validity of the Othmer and DeSouza test for the detection of somatisation disorder in the primary care setting.

Screening threshold	Sensitivity (95% CI)	Specificity (95% CI)	Positive predictive value (95% CI)	Negative predictive value (95% CI)	Likelihood ratio
≥1 symptom	96.3 (79.1 – 99.8)	6.0 (2.6 – 12.4)	19.1 (13.1 – 26.9)	87.5 (46.7 – 99.3)	1.02
≥2 symptom	85.2 (65.4 – 95.1)	20.5 (13.8 – 29.2)	19.8 (13.2 – 28.5)	85.7 (66.4 – 95.3)	1.07
≥3 symptom	59.3 (39.0 – 77.0)	46.2 (37.0 – 55.6)	20.3 (12.4 – 31.1)	83.1 (71.3 – 90.9)	1.10
≥4 symptom	37.0 (20.1 – 57.5)	72.6 (63.5 – 80.3)	23.8 (12.6 – 39.8)	83.3 (74.4 – 89.7)	1.35
≥5 symptom	18.5 (7.0 – 38.70)	90.6 (83.4 – 95.0)	31.1 (12.1 – 58.5)	82.8 (74.9 – 88.7)	1.97
≥6 symptom	7.4 (1.3 – 25.8)	69.6 (91.0 – 98.9)	33.3 (6.0 – 75.9	81.9 (74.2 – 87.7)	2.18

CI = confidence interval.

CI = 13 to 25.7%). The prevalence of other psychiatric diagnoses among subjects with and without definite somatisation disorder is shown in Table 1. Dysthymia was the most prevalent diagnosis followed by generalised anxiety disorder, panic disorder, and undifferentiated somatoform disorder.

Although the intraclass correlation coefficient for the overall number of affirmative responses in the two administrations of the questionnaire was 0.77 and kappa statistics for test-retest agreement ranged between 0.68 and 0.89 (Table 2), the capacity of the seven symptoms to discriminate patients with definite somatisation disorder from those without this diagnosis was very poor (likelihood ratio between 0.86 and 1.49 — Table 3). To assess the clinical usefulness of the test as a screening instrument, Table 4 shows the sensitivity, specificity, likelihood ratio for a positive test, and positive and negative predictive value for each screening threshold. The screening threshold of at least one symptom showed 96% sensitivity, 6% specificity, 19% positive predic-
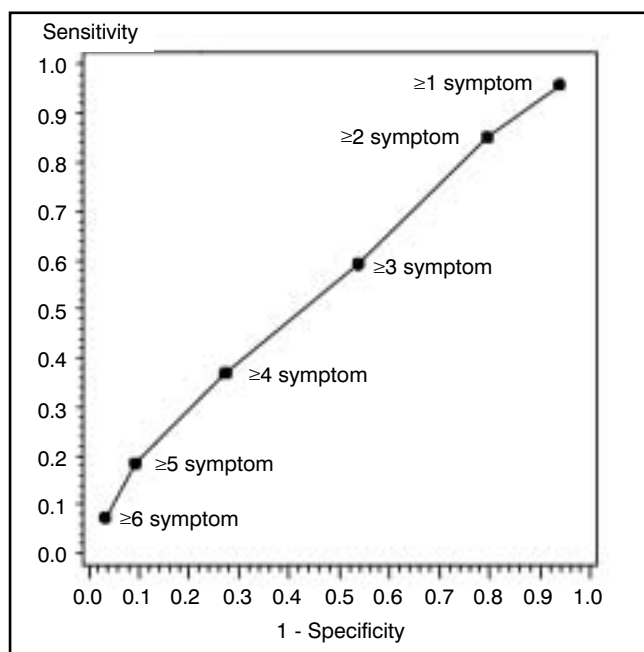
Figure 1. Receiver operating characteristics (ROC) curve (area under the curve = 0.56, standard error = 0.06).

tive value, and 87% negative predictive value. Even with a screening threshold of at least six symptoms relevant changes in the positive and negative predictive values of the test were not found (Table 4). The poor discriminating capacity of the test for the diagnosis of somatisation disorder is shown by an area under the ROC curve of 0.56 (standard error = 0.06 — Figure 1). The area under the ROC curve was smaller in men than in women (0.37 versus 0.59, $P = 0.07$).

Discussion

The diagnostic problem of somatisation disorder in primary care settings is even more complicated than in psychiatric practice; i.e. in primary care somatisation is rarely a fixed pattern and has many manifestations, which is reflected by the heterogeneity of the ways it is presented to the GP. This study confirms that the Othmer and DeSouza test is of limited value as a screening index for somatisation disorder in a primary care population. Changes between pre-test and post-test probabilities were very low for the six screening thresholds. In our sample, with 18.7% prevalence of somatisation disorder — similar to the prevalence figure of 15–25% reported by others,[15,23] the positive predictive value increased from just 19.1% for one or more symptom to 33.3% for six or more symptoms. Even among the few subjects that answered negatively to all questions of the test, the probability of not suffering from a somatisation disorder (87.5%) was similar to the pre-test probability of not having the disorder (81.3%). However, a high test-retest reliability was found.

Othmer and DeSouza[12] reported a sensitivity of 93% and specificity of 59% for two symptoms. Although the screening test was developed according to symptoms with a discriminant index higher than 3.0, the likelihood ratio for a positive answer in our population ranged from 1.49 to 0.86. Methodological differences could explain these results. Othmer and DeSouza[12] derived their index from psychiatric outpatients and it has been shown that somatisation patterns are influenced by cultural and social factors,[24] which may be very different in the USA and Spanish populations.

In a previous study carried out in Spain in a family practice outpatient setting, García-Campayo et al[16] reported 88% sensitivity, 78% specificity, and 80% positive predictive value for the Othmer and DeSouza test with a threshold of three symptoms. Predictive values reported by these authors[16] were estimated without taking into consideration the study design, i.e. selection of two independent samples; a group of somatisation disorder patients, and a control group. According to this design direct calculation of misclassification rates and predictive values is inadequate[17] and should be corrected according to the prevalence of somatisation disorder found in a primary care population. Considering a prevalence of somatisation disorder of 18.7% found in our study, the corrected positive predictive value of the test for the three-symptom threshold would not have reached 50%. Moreover, sensitivity and specificity indexes reported by these authors[16] may be overestimated by the fact that it is not mentioned whether or not administration of the test and psychiatric diagnoses were blind.

It should be argued that somatisers who accept more easily the psychological origin of their symptoms may be over-represented in our sample because patients included in the study gave their consent for the psychiatric interview. However, this selection bias exerted only a small effect because the prevalence of somatisation disorder of 18.7% is similar to that reported in similar studies with primary care populations.[15,23] Accordingly, results of the present study can be generalised to other general practices since the study population acceptably represents those primary care patients with somatising processes in which family physicians would consider this diagnostic possibility and actually try to make the diagnosis.

Because of the low accuracy of our estimators, 95% confidence intervals of predictive values should be considered. A five-symptom threshold would be necessary for the upper limit of the positive predictive value to exceed a cut-off point of 50% in the post-test probability of suffering a somatisation disorder. However, this extreme situation in which the test would be useful for making a decision is fairly rare in clinical practice. Only 11% of the patients fulfilled the five-symptom screening threshold; for the remaining cases, e.g. a patient that had answered affirmatively to four or more questions, it is less probable to suffer from a somatisation disorder than not to suffer from it.

Conclusions

In our experience, the Othmer and DeSouza test was not a valid index for screening somatisation disorder in the daily practice of primary care physicians. This may be owing to the fact that symptoms through which a particular group of human beings express somatisation may differ between different cultures, so that another combination of symptoms may discriminate this pathology more usefully in Spain.

However, given the complexity and abundance of manifestations characterising these clinical pictures, it is difficult to believe that a short test would be valid for their detection. In the primary care setting in recent years there has been a tendency towards the use of new abridged definitions for the concept of somatisation.[25] Rather than concentrating on the psychiatric diagnosis of a somatisation disorder, our interest should be focused on the detection of incipient forms in which correct managerial strategies can improve the prognosis of the disease.[26]

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