

Acknowledgment

We are grateful to Esther Eshkol for her assistance in the preparation of the manuscript.

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Impairment in Quality of Life Among Patients Seeking Surgery for Hyperhidrosis (Excessive Sweating): Preliminary Results

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Abstract: Background: The present paper describes the initial stages of the development and administration of a short, disease-specific, health related questionnaire to assess the impact of suffering from hyperhidrosis (excessive sweating) on the Quality of Life (QoL) of patients who are anticipating surgery for this disorder. Method: The study was performed in two stages: 1. The life domains in which the condition impairs QoL were assessed by in-depth interviews with 10 patients suffering from hyperhidrosis. 2. A questionnaire covering five life domains was built based on these interviews. 3. This questionnaire was administered to 48 patients, 30 females and 18 males between the ages 15 and 48. Results: Results showed that subjective QoL was significantly lower among females in four of the five life areas and that duration of the condition correlates with a lower quality of life. A regression analysis showed that the subjective suffering of the patients was explained mainly by social aspects. Conclusions: The questionnaire is a novel attempt to assess QoL in a disorder with strong esthetic and social consequences and could improve communication between patients and their physicians.

Introduction

Although, intuitively, it seems that essential hyperhidrosis would be accompanied by subjective suffering of the individual in a world in which sweating is considered unesthetic, this issue has not been empirically studied. Hyperhidrosis is a chronic disorder characterized by sweating in amounts greater than that required for insensible loss or physiological needs, most marked on the palms, soles of the feet and axillae (1). The hands are most often affected, so that sweat may drip from the fingers, and handling of paper and other

"...I saw Uriah Heep shutting up the office, and, feeling friendly towards everybody, went in and spoke to him, and at parting, gave him my hand. But oh, what a clammy hand this was! As ghostly to the touch as to the sight! I rubbed mine afterwards, to warm it, and to rub his off. It was such an uncomfortable hand that, when I went to my room, it was still cold and wet upon my memory."

From Charles Dickens'
"David Copperfield," 1859

materials becomes impossible. This is particularly distressing in social situations, but it may also become dangerous and incapacitating (e.g., holding a weapon in the army or touching electrical appliances). Hyperhidrosis usually starts in childhood, though it may be aggravated by puberty, possibly because of emotional factors, and it seems to persist throughout life.

Several authors (2, 3, 4), when addressing surgical aspects of hyperhidrosis, have stated that the condition is disturbing and disrupts both professional and social life; some go so far as to state that the condition has "devastating consequences" for work and social activities (1).

It is unclear whether emotional factors are related to hyperhidrosis. Lerer et al. (5) compared hyperhidrosis patients to normal subjects and to patients with dermatological disorders of nonpsychogenic etiology and found that the former had lower coping abilities and other emotional problems. They suggested that the disorder is based on a genetic predisposition to excessive emotional sweating. Moran and Brady (1) state that there is no evidence that hyperhidrosis is primarily a psychiatric disorder and the psychological disturbances, when present, are caused by difficulties that patients experience in living with the disorder.

Regardless of the etiology, the condition of hyperhidrosis certainly affects the QoL of individuals suffering from it. QoL becomes an important outcome measure in medicine as the patient's viewpoint is becoming more central in medical care (6). This psychosocial aspect has important implications for optimal management of patients. A new method of surgical management has made it possible to relieve larger numbers of patients from the suffering of hyperhidrosis and it is becoming increasingly important to assess the impact of the disease on patients' QoL and eventually to evaluate the subjective impact of surgery.

impairment mentioned by the patients. Four major domains were identified in which the patients reported impairment in QoL and these were: functional, social, interpersonal and emotional. The functional domain included various areas in which the patients reported functional impairment because of hyperhidrosis, such as writing, driving, sports, etc. (e.g., "I have trouble driving"). The social domain included various situations such as shaking hands, social dancing, being with friends, etc. (e.g., "I am bothered when I meet people and I have to shake hands"). The interpersonal domain related to the relationship with spouse/partner and included aspects such as intimate touching, close dancing, etc. (e.g., "I am bothered when I dance closely with my partner"). The emotional domain was divided into two areas, the "emotional-self" evaluation of hyperhidrosis as perceived by the person towards him/herself, (e.g., "I find it disgusting") and the "emotional-other" evaluation relating to the feeling the patient thinks others have about the disorder, (e.g., "Others find it disgusting"). In addition, a domain was defined relating to the various conditions in which hyperhidrosis is more severe, such as before a test or in a closed room (e.g., "I sweat the most when I am tense, such as before a test").

The Questionnaire

From these interviews a questionnaire was composed relating to limitations resulting from hyperhidrosis consisting of 35 questions divided into the above five domains. In addition patients were asked to what degree they suffer from their condition of hyperhidrosis. Response categories were all in a Likert type scale from strongly agree to strongly disagree. The questionnaire can be obtained from the authors upon request.

Subjects
Forty-eight subjects, 18 males and 30 females, between the ages 15 and 48 (\bar{x} =25, sd =8.1), median 22 yrs. participated in the study. Thirty had a partner at the time of the surgery and 14 were alone (four did not answer this question). 19 were either school pupils or university students, 16 were working and five were soldiers (eight did not answer this question). Twenty-nine reported having had hyperhidrosis since childhood and 19 since adolescence. Twenty-two reported that other family members also suffer from hyperhidrosis. Two had hyperhidrosis only in their hands, 18 in their hands and feet, another 26 reported that they suffered from both hands, feet and also in the axilla.

Assessment

Between 6-10 days before surgery, the patients were given the questionnaire by a senior surgeon. Patients were asked to relate to the impact of hyperhidrosis in general with no time frame. The patients participating in the study were the entire population undergoing surgery within a certain time. No patient refused to participate.

Results

The internal reliability as measured by Chronbach's α was .84 for the entire questionnaire. Following this the data was analyzed as to relative impairment in the various domains and items. Table 1 shows the frequencies of the answers in the sample. The 7 impairment categories were grouped as follows: The two categories indicating the highest degree of impairment "low QoL," the three middle categories represented intermediate impairment, "intermediate QoL," and the two categories representing the lowest degree of impairment, "high QoL."

Table 1. Percentage of patients endorsing three degrees of impairment in QoL as a result of the hyperhidrosis (N=32-48*).

Low QoL	Interm. QoL	High QoL	Variable	Domain
71.1	11.2	17.7	Write	Functional
72.8	9.1	18.1	Handicraft	Functional
37.2	46.5	16.3	Be on time	Functional
40.5	45.2	14.3	Hobbies	Functional
44.2	39.6	16.3	Sports	Functional
51.4	33.4	15.2	Drive a car	Functional
59.1	27.3	13.6	Army	Functional
53.8	30.3	15.9	Mean Functional	
76.1	4.4	19.5	Shaking hands	Social
52.2	23.9	23.9	Being with friends	Social
54.3	24.0	21.7	Public places	Social
60.0	17.8	22.2	Social dancing	Social
45.9	17.6	21.8	Mean Social	
72.7	9.0	18.3	Hold hands	Personal
64.3	14.3	21.4	Intimate touching	Personal
59.6	19.0	21.4	Intimate dancing	Personal
65.5	14.1	20.4	Mean Interpersonal	
21.5	9.4	69.1	I explain	Emotional-self
24.1	10.3	65.5	I find excuses	Emotional-self
53.5	21.0	25.5	I find it disgusting	Emotional-self
33.0	26.7	53.4	Mean Emotional-self	
38.6	40.9	20.5	Others find it disgusting	Emotional-other
22.6	38.8	38.6	Others find it abhorrent	Emotional-other
51.4	28.6	20.0	Others react with awe	Emotional-other
26.5	50.1	23.4	Others don't react	Emotional-other
34.8	39.6	25.6	Mean Emotional-other	
57.1	17.2	25.7	When in a closed room	Conditions
77.8	5.6	16.6	When very hot	Conditions
75.0	5.5	19.5	When tense or stressed	Conditions
58.3	16.7	25.0	When I think about it	Conditions
67.6	18.9	13.5	Before a test	Conditions
67.2	12.8	20.1	Mean-Conditions	

* The reason for the changing number of subjects was that not all questions were relevant for all patients. For example, not all had served in the army or had driving licenses

From the table it can be seen that patients felt impaired not only in obvious ways such as shaking hands, intimate touching and dancing, but in many different areas of life. It can also be seen that hyperhidrosis is associated

Table 2. Analysis of variance for the six QoL domains by gender and age of onset (N=32-48)

QoL Domain	Gender F=30 M=18	Onset†	Interaction between gender and onset
Functional	F 7.44**	F 3.99	F 0.58
Social	14.70****	2.45	4.08*
Interpersonal	6.23*	5.34*	0.78
Emotional-self	6.32*	0.40	0.28
Emotional-other	0.06	1.72	0.03
Conditions	5.63*	3.98*	2.30

*p<0.05 **p<0.01 ***p<0.0005 ****p<0.0001
† Since childhood n=29, later onset (earliest adolescence) n=19.

Table 2 shows the analysis of variance for the QoL domains for two independent variables: gender and duration of disorder (patients who suffered from the condition since childhood as opposed to patients in whom the disorder began in the teenage years).

From the table it can be seen that females have a lower QoL than males in all domains except the "emotional-others" domain. Furthermore, patients who have suffered from the disorder since childhood have a lower QoL than patients in whom the disorder occurred during the teenage years in the functional and interpersonal domains and in the conditions related to aggravation of hyperhidrosis. One interaction was significant in the social domain, in that for women it does not make a difference whether the disorder started in childhood or later; for men the social impairment is much less if the disorder started late, i.e., not earlier than adolescence. Other analyses, differences between more serious impairment (hands, feet, axilla) as opposed to a lighter impairment (hands, feet) showed no significant differences except in the functional domain (t=2.19, p=0.03) in which the more seriously affected reported lower QoL. Regarding the age of the patient, no significant differences occurred other than the "emotional-self"

domain in which the older patients expressed a lower QoL (t=2.20, p=0.03). No significant relationship was found between the onset of the disorder and the current age. No difference in QoL could be detected between the occupational groups or between the group that had partners as opposed to the group that reported being without.

Regarding the relationship between subjective suffering and QoL we performed a stepwise regression analysis (free entry) with the item measuring the degree of "suffering" as the independent variable and the five life areas as the dependent variables. The results are shown in Table 3.

Table 3. Multiple regression (free entry) predicting subjective suffering (N=32-48)

Dependent variable	Entry	R ²	t
Social	1	.8165	6.935****
Interpersonal	2	.8472	3.381***
Emotional-other	3	.8685	-2.479*

*p<0.05 **p<0.01 ***p<0.0005 ****p<0.0001
For the whole model F=83.637****

From the table it can be seen that subjective suffering is explained almost entirely (81%) by the social domain. The interpersonal and

the emotional-other domain had some significance.

Discussion

The above data show the wide variety of domains in which hyperhidrosis patients feel impaired. Furthermore, the data show that females are more impaired by hyperhidrosis than males and that patients who acquired the condition early suffer more than patients who acquired hyperhidrosis later. In addition, it was found that subjective suffering is highly related to impairment in the social domain. These findings could be an important aid to the physician, discussing the disorder with patients, to evaluate the possibility of surgery and to measure the impact of the intervention.

The results also provide a framework for the construction of a disease-specific QoL questionnaire for hyperhidrosis. The present survey should be used as a basis for constructing a questionnaire to be administered to post-surgery patients to measure the impact of the intervention. For such a questionnaire to be built it is necessary to know which items and domains change as a result of surgery and what determines individual variability in this change. Such a study is now underway.

The finding that women express a lower QoL is not novel. Kaplan et al. (8), in their analysis of gender differences in health-related QoL, conclude that, although women live longer than men, they usually enjoy a lower QoL even when the adjustment is made for the longevity. They argue this finding possibly reflects differences between sexes in symptom reporting. Women are allowed or expected to express more symptoms, whereas men are expected to be tough and tolerate discomfort. This difference between the sexes may be even more conspicuous in a disorder which has strong

esthetic connotations, such as excessive sweating.

Chronicity of hyperhidrosis and QoL were found to be inversely related, supporting the view that it is a disorder that becomes increasingly difficult to live with and habituation is not likely to occur; the longer one has had the disorder, the more it impairs QoL. This point was further strengthened by the finding that older patients reported more impairment in the "emotional-self" domain. There is conflicting evidence as to whether a person undergoes habituation or develops chronic strain when stress becomes permanent or a steady part of the environment (9). However, hyperhidrosis is a disorder without physical pain and, therefore, is probably different from other diseases. It could be compared to a chronic psychological stress situation in which repeated and/or continuous exposure magnifies the reaction (10).

The results indicate that subjective suffering of the patients is mainly associated with social aspects, i.e., one can assume that the person's motivation for undergoing surgery is social embarrassment and discomfort. This finding gives an indication of what measures to focus on to measure improvement/change after surgery. Although patients reported substantial impairment in most areas of QoL, it seems that the social area is the one causing the patient most suffering.

One limitation of this study is the study population. Only the population awaiting surgery was surveyed, which implies patients supposedly more severely affected and results might be valid only for hyperhidrosis at high severity. It is not clear if the scope of QoL impairment will be the same in less severe cases of hyperhidrosis. Another limitation is that the questionnaire is not "patient-specific," but presents the patient with pre-structured lists of symptoms and as such does not allow for individual expression of idiosyncratic impairments (11). One



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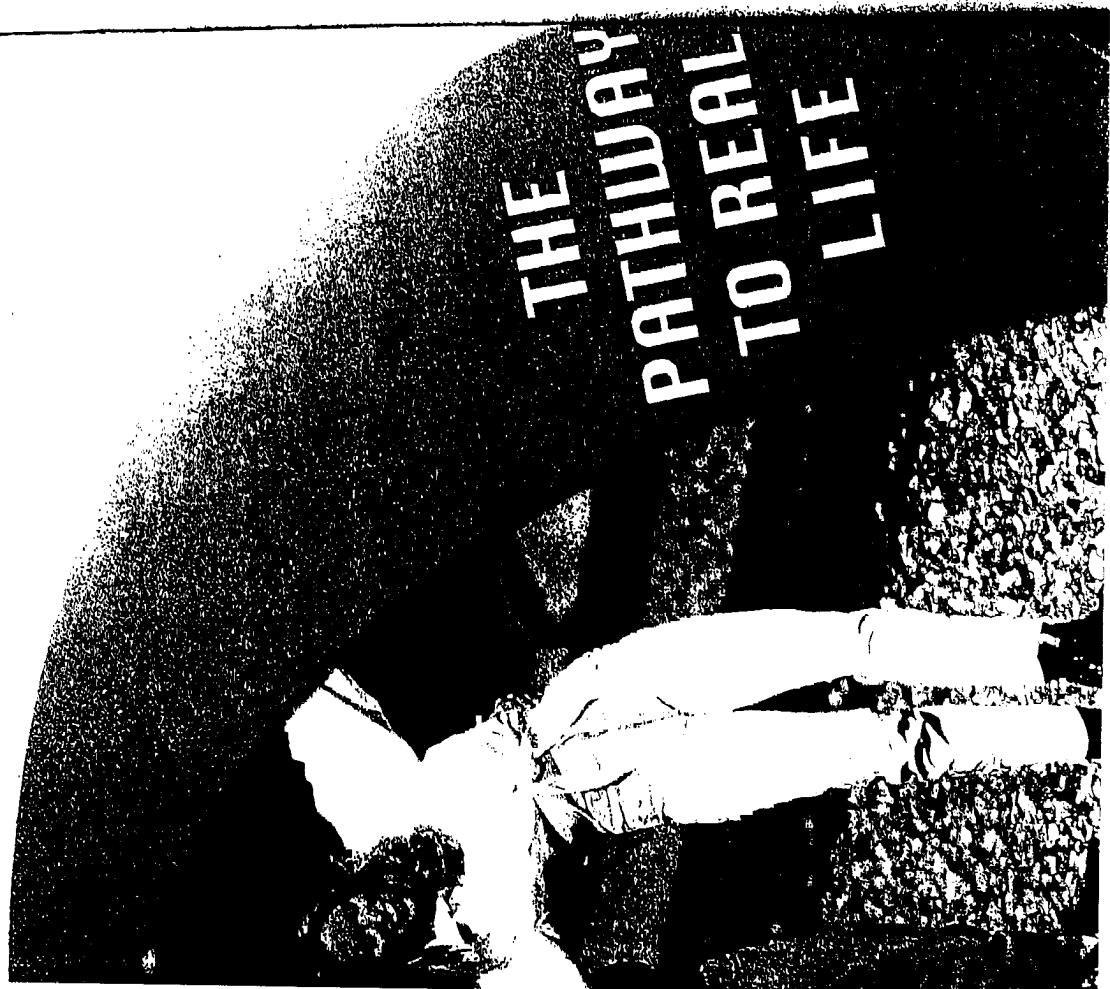
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way to solve this is by asking patients to identify symptoms which trouble them and rank their importance (12). This method, although more cumbersome, also allows for measurement of change over treatment (13). A further problem was that the questionnaire did not relate to a specific time frame, such as last week, etc., which is necessary in questionnaires intended to measure change following interventions, but related to living with hyperhidrosis in general. Further development of the questionnaire should address this issue.

Despite these limitations, our results can provide guidelines for clinicians in dealing with hyperhidrosis patients as evaluating those likely to suffer most from the condition; a better understanding of the disorder could improve the doctor-patient relationship.

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