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Journal of Psychosomatic Research 51 (2001) 361–367

Journal of Psychosomatic Research

Medically unexplained symptoms An epidemiological study in seven specialities

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Received 11 October 2000; accepted 5 March 2001

Abstract

Objectives: This study aimed to estimate the prevalence and risk factors for medically unexplained symptoms across a variety of specialities. **Methods:** A cross-sectional survey was conducted at two general hospitals in southeast London between 1995 and 1997. Eight hundred and ninety consecutive new patients from seven outpatient clinics were included. Demographic and clinical characteristic variables were assessed. **Results:** Five hundred eighty-two (65%) of the subjects surveyed returned completed questionnaires. A final diagnosis was available in 550 (62%). Two hundred twenty-eight (52%) fulfilled criteria for medically unexplained symptoms. The highest prevalence was in the gynaecology clinic (66%). After adjustment for confounders, medically unexplained symptoms were associated with being female, younger, and currently employed. Psychiatric morbidity per se was not associated with the presence of medically unexplained symptoms, but was more likely in those complaining of multiple symptoms. Those with medically unexplained symptoms were less disabled, but more likely to use alternative treatment in comparison with those whose symptoms were medically explained. Patients with medically unexplained symptoms were more likely to attribute their illness to physical causes as opposed to lifestyle factors. **Conclusions:** Medically unexplained symptoms are common across general/internal medicine and represent the most common diagnosis in some specialities. Medical behavior, training, and management need to take this into account.

Keywords: Medically unexplained symptoms; Somatization; Somatoform disorders; Prevalence; Illness behavior

Introduction

Medically unexplained symptoms are a common problem across general medicine. They can be presentations of recognised psychiatric disorders such as anxiety or depression; a part of operationally defined unexplained syndromes such as chronic fatigue syndrome, irritable bowel syndrome, or fibromyalgia; or simply exist as symptoms in the absence of a defined organic diagnosis. Medically unexplained symptoms are an important problem in general medicine not only because of their prevalence but also on account of the high associated consumption of health service resources.

Medically unexplained symptoms are reported to be more common among women, younger age groups, and those from lower socioeconomic backgrounds [1–7], and are associated with the presence of psychiatric disorders [8,9]. Those without conventional medical explanation for their symptoms are about twice as likely to fulfill criteria for psychiatric disorders [10]. Another study of specialist care showed the number of lifetime somatic symptoms was significantly and positively related to the increase in the number of current and past episodes of anxiety and depression [11]. Kisely et al. [12] also found that the presence of somatic symptoms, whether medically explained or unexplained, was associated with psychiatric morbidity.

Many questions about medically unexplained symptoms remain unanswered. Most studies have taken place in one or only a few clinics; the number of variables under study have been limited; and researchers often tend to concentrate on single specific symptoms or syndromes as

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0022-3999/01/$ – see front matter
PII: S0022-3999(01)00223-9

opposed to looking at medically unexplained symptoms as a whole. Most research has focussed on variables such as demographic factors and psychiatric morbidity. Other variables such as illness cognitions and the social consequences of the illness have tended to be ignored.

We conducted a cross-sectional study of medically unexplained symptoms in the general hospital, which included the principal medical specialities and used the same assessment across all settings. In this paper, we report the prevalence and associations of medically unexplained symptoms in general hospital outpatients.

Methods

Sample

Consecutive new patients residing in southeast London and referred by their general practitioners to outpatient clinics at King's College and Dulwich Hospitals between 1995 and 1997 were recruited. The clinics were gastroenterology, gynaecology, neurology, rheumatology, chest, cardiology, and dentistry. Subjects were eligible for inclusion if they were aged between 16 and 65 years. Subjects who could not read or speak English; and those with psychotic illnesses or organic brain syndromes were excluded.

Sample size

Sample size was estimated using Statcalc program in Epi Info for a descriptive population study. The confidence level required at the end of the study was set at 95%. The maximum allowable difference between the estimate and the true prevalence was set at 10%. The rate of medically unexplained symptoms from our pilot study at the gastroenterology clinic at King's College and Dulwich Hospitals was estimated at 58% (see below). With an allowable difference between the estimate and the true prevalence set at 10%, the value of sample size then was 94. An expected response rate was set at 70%. The required sample size was therefore 940 for all clinics.

Case definition

For this study, medically unexplained symptoms were defined as any current principal somatic complaint reported by patients for which no definite medical diagnosis could be found by physical examination and appropriate investigation. To make this judgement, we used investigation results and physicians' opinions. The physician's opinion was determined by the final diagnosis stated in the clinical case notes. If the physicians gave a diagnosis of ''functional,'' or continued to defer the diagnosis because of no detected abnormality, we considered these as indicating that the symptoms were medically unexplained. We have shown elsewhere that this method has acceptable interrater reliabilities with kappa values ranging from 0.76 to 0.88 [13].

Data collection

Patients attending the above clinics were given a questionnaire with a return-stamped addressed envelope. Two postal reminders and one telephone were used to increase response rate. Case notes were reviewed to ascertain the final diagnosis approximately 3 months after the initial visit.

Measures

Information on the following variables was collected in the questionnaire.

Demographic data

Age, gender, marital status, educational level (recorded as number of years of full-time education), ethnicity, work status (defined by paid and unpaid work, students, and housewives were designated in the working group), and occupation.

Symptom review questionnaire (SRQ)

This was developed for the current investigation. It consists of 11 main symptoms, which correspond to 13 recognised Functional Somatic Syndromes, with 25 additional symptoms, including somatic symptoms, sleep, and psychological complaints. A total of 27 individual somatic symptoms were inquired about. In this report, the number of somatic complaints regardless of their nature (medically explained or unexplained) was used as an explanatory variable.

Illness cognition

This three-page self-report questionnaire covered the patients' own ideas on the nature of their illness, how that information was acquired, and their illness attribution. Attribution was classified into three main categories: psychological factors (stress, depression, personality, and overwork); pattern of behaviors or habits (smoking, and drinking); and physical factors (accident or injury, infectious causes, toxins, and allergy). We applied a factor analytic technique to support the classification. The result showed three factors that accounted for 52% of variance. Although the factors extracted seemed to correspond with the categories proposed, some responses were removed and changed. ''Accident or injury'' was dropped because of low correlation value with all others and ''overwork'' was moved to the psychological dimension which proved a better fit. These three factors were then used as three explanatory variables in the analysis. Additional questions were asked about use of alternative medicines and receipt of state benefits.

Psychiatric morbidity

We used the Hospital Anxiety and Depression Scale (HADS) to detect anxiety and depression. It is a 14-item

self-assessment scale designed to be used in the medical settings [14]. The subscale of anxiety and depression were used rather than combining both into a total score. Responses to each question were scored from 0 to 3, giving a maximum score of 21 for each subscale. We applied a cut-off of 10/11 for caseness as originally proposed [14].

Functional impairment

Functional impairment was assessed by the Brief Disability Questionnaire (BDQ) [15] in the recoded version proposed by Ormel et al. [16], which consisted of four level categories; none, mild, moderate, and severe disability.

Other measures to be reported elsewhere covered patient satisfaction, medical perceptions, and the use of investigations.

Analysis

The prevalence of subjects with medically unexplained symptoms were calculated according to clinic and gender. Odds ratio and 95% confidence intervals were used as the main measurement of the association between dependent and independent variables. Univariate analyses were used to examine the association of the outcome variables with each variable of interest in turn. The chi-square test was used. Logistic regression modeling, adjusting for the effect of many variables simultaneously was used for multivariate analysis. We grouped dependent variables into three main categories: (1) demographic and clinic variables; (2) number of symptoms and psychiatric morbidity; and (3) illness cognitions. We then performed logistic regression modeling in steps, starting with demographic and clinical variables and then adding the two other categories in sequence. All modeling was performed by STATA software package (Stata, College Station, TX). Chi-square values were based on likelihood ratio statistics.

Results

Baseline characteristics

During the period of the study, 890 new patients attended the seven clinics. A total of 582 valid responses were obtained (65%). There was a significant association between clinics and response rate ($P=.01$). The dental clinic had the highest response rate (75%) while gastroenterology had the lowest (55%). Nonresponders did not differ from responders in terms of ethnicity. However, responders were more likely to be female (62% responders vs. 53% nonresponders, $P=.02$) and older (mean = 43.2, S.D. = 12.6 responders vs. mean = 39.5, S.D. = 11.8 nonresponders, $P<.01$).

Table 1 shows the characteristics of samples by clinic. Of 582 respondents, 32 case notes were missing, leaving 550 subjects to be included in analysis. We found that the clinics differed in a number of demographic variables previously

Table 1
Baseline characteristics of sample by clinic ($N=550$)

	Chest, $n=59$	Cardio, $n=92$	GI, $n=52$	Rheum, $n=91$	Neurol, $n=103$	Dental, $n=71$	Gynae, $n=82$	P value
Age, %								
16–25	5	5	12	4	13	11	10	<.001
26–35	17	14	23	17	32	23	43	(Kruskal–Wallis)
36–45	22	20	15	26	20	11	24	
46–55	22	27	29	35	24	31	18	
56–65	34	34	21	18	11	24	5	
Sex								
Percent female	54	53	62	68	63	78	NA	.02
Marital status								
Percent not married	37	47	58	52	54	36	53	.07
Work status								
Percent without work	42	33	35	39	28	24	19	.04
Ethnicity								
Percent white	73	65	80	68	78	75	52	.004
Years of leaving full-time education								
Percent years >16	56	51	57	37	46	50	67	.01
Social class								
Percent professional	47	43	51	28	40	49	44	.65
Percent skilled	38	41	35	54	42	37	40	
Percent partly skilled/unskilled	16	16	14	18	18	14	16	

Table 2
Prevalence of medically unexplained symptoms by clinic and gender ($N=550$)

	Male		Female		Total	
	Subjects with MUS (total)	Percent cases of MUS (95% CI)	Subjects with MUS (total)	Percent cases of MUS (95% CI)	Subjects with MUS (total)	Percent cases of MUS (95% CI)
Dental	8 (16)	50 (25–75)	18 (55)	33 (21–45)	26 (71)	37 (25–48)
Chest	7 (27)	26 (9–43)	17 (32)	53 (35–70)	24 (59)	41 (28–53)
Rheumatology	9 (29)	31 (14–48)	32 (62)	52 (39–64)	41 (91)	45 (35–55)
Cardiology	18 (43)	42 (27–57)	31 (49)	63 (50–77)	49 (92)	53 (43–63)
Gastroenterology	10 (20)	50 (28–72)	20 (32)	63 (46–80)	30 (52)	58 (44–71)
Neurology	21 (38)	55 (39–71)	43 (65)	66 (55–78)	64 (103)	62 (52–72)
Gynecology	–	–	54 (82)	66 (56–76)	54 (82)	66 (56–76)
Total	73 (173)	42 (35–50)	215 (377)	57 (52–62)	288 (550)	52 (48–57)

identified as associated with medically unexplained symptoms. Although there were no interclinic differences in marital status and social class, there were differences in gender, age, ethnicity, and work status. For example, gynecology patients were significantly younger than cardiac clinic attendees, and more likely to belong to ethnic minorities. For these reasons, clinics are considered as a potential confounder in the analyses.

Prevalence and risk factors of medically unexplained symptoms (univariate analysis)

Approximately half (52%) of new attenders to the above clinics had at least one medically unexplained symptom (Table 2). The gynecology clinic had the highest prevalence while the dental clinic had the lowest. The chi-square test results showed a significant association between referral clinics and the prevalence of medically unexplained symptoms (Table 3). Using the dental clinic as the reference (because this had the lowest prevalence of medically unexplained symptoms), cardiology and gastroenterology had approximately 100% increased risk; neurology and gynaecology had approximately 200% increased risk. In all clinics, the prevalence of medically unexplained symptoms was significantly higher in females. Patients with medically unexplained symptoms were more likely to be younger, to be with work, and to have higher educational attainment.

Table 4 shows the clinical characteristics of patients with medically unexplained symptoms. Although there was no overall association between unexplained symptoms and total somatic symptoms, patients in the top quartile for somatic complaints (18 or more) were marginally more likely to have medically unexplained symptoms (OR = 1.3, 95% CI = 0.9, 2.0). Contrary to expectation, psychological symptoms on the HADS were not associated with an increased risk of having medically unexplained symptoms. The mean HADS score for patients with unexplained symptoms was 13.4 as opposed to 12.9 for the group with explained symptoms ($P=.5$).

A physical attribution was associated with an increased risk of having medically unexplained symptoms, but not psychological attributions. Subjects who believed their illness to be the result of lifestyle factors were approx-

Table 3
Univariate associations between medically unexplained somatic symptoms and explanatory variables ($N=550$)

Explanatory variables	No. of subjects[a] (% case with medically unexplained symptoms)	OR (95% CI), P value
Demographic variables		
Age		
16–25	47 (72)	4.6 (2.2–9.7)
26–35	134 (57)	2.3 (1.4–3.9)
36–45	112 (60)	2.6 (1.5–4.5)
46–55	147 (48)	1.6 (1.0–2.7)
56–65	110 (36)	reference, $P<.001$[b]
Gender[c]		
Male	173 (42)	
Female	295 (55)	1.7 (1.1–2.4), $P=.01$
Marital status		
Married	281 (50)	
Nonmarried	263 (55)	1.2 (0.9–1.7), $P=.29$
Ethnicity		
Nonwhite	166 (52)	
White	379 (52)	1.0 (0.7–1.4), $P=.97$
Work status		
With work	371 (58)	
Without work	167 (39)	0.5 (0.3–0.7), $P<.001$
Age of leaving full-time education		
16 or less	249 (47)	
17 or more	258 (57)	1.5 (1.1–2.2), $P=.02$
Social class		
Semiskilled/unskilled	69 (45)	reference
Skilled	178 (55)	1.5 (0.9–2.6)
Professional	180 (57)	1.6 (0.9–2.9), $P=.11$[b]
Clinic		
Dental	71 (37)	reference
Chest	59 (41)	1.2 (0.6–2.4)
Rheumatology	91 (45)	1.4 (0.8–2.7)
Cardiology	92 (53)	2.0 (1.1–3.7)
Gastrology	52 (58)	2.4 (1.1–4.9)
Neurology	103 (62)	2.8 (1.5–5.3)
Gynecology	82 (66)	3.3 (1.7–6.5), $P=.001$

[a] Total number of subjects for each variable varies because of missing data.
[b] Test for trend.
[c] Exclude gynaecology.

imately 40% less likely to have medically unexplained symptoms compared to those who did not (P=.02). Having obtained information from health professionals decreased the risk of having medically unexplained symptoms.

Receiving alternative treatment was associated with a 30% increased odds of having medically unexplained symptoms (P=.13) while receiving benefits was associated with a 30% decrease (P=.06). Medically unexplained symptoms were most common in the group with no disability, compared to groups with increasing levels of disability (P=.003).

Table 4
Clinical characteristics of patients with medically unexplained symptoms

Explanatory variables	No. of subjects[a] (% case with medically unexplained symptoms)	OR (95% CI), P value
Number of symptoms and psychiatric morbidity		
Total number of symptom complaints (quartiles)		
1–9	150 (51)	reference
10–13	137 (50)	0.9 (0.6–1.5)
14–17	119 (50)	0.9 (0.6–1.5)
18–27	144 (58)	1.3 (0.8– 2.1), P=.25[b]
Sleep problems		
None	155 (50)	reference
Mild	137 (56)	1.3 (0.8–2.0)
Moderate	136 (51)	1.0 (0.6–1.6)
Severe	122 (53)	1.1 (0.7–1.8), P=.93[b]
Anxiety (HAD-A)		
Noncase (<11)	388 (51)	
Case (≥11)	144 (56)	1.3 (0.9–1.8), P=.26
Depression (HAD-D)		
Noncase (<11)	472 (53)	
Case (≥11)	60 (47)	0.8 (0.5–1.3), P=.34
Illness cognitions		
Lifestyle attributions		
Unlikely	384 (56)	
Likely	128 (44)	0.6 (0.4–0.9), P=.02
Physical attributions		
Unlikely	375 (50)	
Likely	135 (60)	1.5 (1.0–2.3), P=.04
Psychological attributions		
Unlikely	367 (51)	
Likely	142 (56)	1.2 (0.8–1.8), P=.30
Source of information about illness before visiting the clinic		
Others	159 (57)	
Health professionals	321 (48)	0.7 (0.5–1.0), P=.08
Consequences of the illness		
Alternative treatment		
None	294 (49)	
Received	215 (56)	1.3 (0.9–1.9), P=.13
Disability (BDQ score)		
None	193 (63)	reference
Mild	69 (44)	0.5 (0.3–0.8)
Moderate	136 (46)	0.5 (0.3–0.8)
Severe	125 (48)	0.6 (0.4–0.9), P=.004[b]
Benefits		
None	294 (55)	
Received	208 (47)	0.7 (0.5–1.0), P=.06

[a] Total number of subjects for each variable varies because of missing data.
[b] Test for trend.

Table 5
Adjusted odds ratio for the association between medically unexplained symptoms and explanatory variables

Explanatory variables	Adjusted OR (95% CI)
Age[a]	
16–25	4.4 (1.5–13.3)
26–35	1.5 (0.8–3.0)
36–45	1.9 (0.9–3.9)
46–55	1.2 (0.6–2.3)
56–65	reference, P=.04
Sex[a]	
Male	
Female	2.0 (1.3–3.2), P=.003
Work status[a]	
With work	
Without work	0.6 (0.4–1.0), P=.06
Clinic[a]	
Dental	reference
Chest	1.8 (0.8–4.1)
Rheumatology	1.9 (0.9–4.0)
Gynaecology	2.5 (1.1–5.5)
Cardiology	2.6 (1.2–5.6)
Gastroenterology	3.4 (1.4–7.8)
Neurology	3.4 (1.6–7.2), P=.03
Total number of symptom complaints[b]	
≤17	
>17	1.4 (0.9–2.2), P=.10
Illness cognitions	
Lifestyle attributions[c]	
Unlikely	
Likely	0.6 (0.4–1.0), P=.05
Physical attributions[c]	
Unlikely	
Likely	1.9 (1.2–3.0), P=.009

[a] Model 1 variables include age, sex, work status, educational level, social class, and clinic (n=409).
[b] Model 2 variables include age, sex, work status, clinic, and total number of symptoms (n=521).
[c] Model 3 variables include age, sex, work status, clinic, total number of symptoms, lifestyle attributions, and physical attributions (n=449).

Logistic regression model

Table 5 shows the association between the outcome and relevant variables after logistic regression modeling. The first model included demographic factors and the clinic in which patients were seen. Being female, younger, and presenting to certain clinics were still independently associated with medically unexplained symptoms.

Because of missing data for some variables, further modeling only included age, gender, work status, and clinic as demographic variables. The second model assessed the association between total somatic symptoms and having

unexplained symptoms, and found that there was still a weak association. The third model controlled for model 2 variables and added illness cognitions. This found an association between unexplained symptoms and making physical attributions, and a tendency for those with explained symptoms to report more lifestyle attributions.

Comment

Medically unexplained symptoms were defined as current somatic complaints reported by patients, for which conventional biomedical explanation could not be found on routine examination or investigations, rated 3 months after the initial appointment. Previous studies have rated symptoms as medically explained/unexplained on either patient self-report or the clinician's impression on the initial visit [1,17,18]. In this study, medically unexplained symptoms were judged as present on the final decision made 3 months later, after review of all the available information. We consider this to be an improvement on previous work, which may also explain why we found a different pattern of associations to previous studies. Furthermore, most previous studies have been limited to one or two clinics [4,19,20]. In this study, we have sampled six different medical specialities plus dentistry.

Our results show that between one-third and two-thirds of patients attending general medical clinics do not receive a biomedical explanation for their distress. Previous studies have suggested this in individual clinics — for example, only 16% of one series of new outpatients attendees to a US internal medicine clinic was a definite biomedical cause identified for symptoms [21]. Van Hemert et al. [10] conducted a survey in a Dutch medical outpatient clinic showed that 52% of new referrals remained medically unexplained. We have now extended this using a uniform methodology across a large number of medical specialities. We conclude that it is now time to acknowledge that the management of medically unexplained symptoms is one of the important tasks facing the specialist in internal medicine — indeed, in some clinics, it constitutes the majority of the work.

As expected, we confirmed that medically unexplained symptoms are more common in females and younger age groups [6,7,22]. However, perhaps the most relevant clinical finding is that the chance of finding a biomedical cause does not increase with the number of somatic complaints as many think, but rather the reverse. Our results also support the idea that patients with medically unexplained symptoms tend to attribute their illness to physical causes [23]. The findings also show that patients who attribute their illnesses to lifestyle factors are less likely to have medically unexplained somatic symptoms.

More surprisingly, we failed to confirm previous reports that those with medically unexplained symptoms have higher level of disability, psychiatric morbidity, and state benefits, and are less likely to be in work [2,10,17,18,24,25]. We found the reverse for most of these variables. We also found that the psychiatric morbidity was similar (approximately 50%) in both medically explained and medically unexplained categories. We did not use a psychiatric interview, and it is possible that an interview would have revealed differences in rates of current or lifetime diagnoses, however, the HADS is a sensitive questionnaire that has been widely used in these populations. A possible explanation for the differences in the results may be due to the population studied. Patients with medically unexplained symptoms may request referral for vague or unexplained symptoms, while patients with medically explained symptoms only seek referral or continuing evaluation and treatment for symptoms due to serious medical disorders. Because our study is based in a tertiary care hospital, patients with medical diagnoses (compared to those with unexplained symptoms) may have more severe illnesses than those encountered in primary care settings. Approximately 63% of the sample reported at least some disability and this rate is higher than primary care samples — for example, the World Health Organisations International Study on Psychological Problems in General Health Care found rates of disability in the Manchester center of 45% [26]. Levels of psychological distress were also high in our sample. As commented by McDaniel et al. [27], the prevalence of psychiatric morbidity is increased with the increase severity of medical illness. This explanation, however, needs to be investigated further.

This study has limitations. Firstly, the required sample size was not obtained due to the low response rate. Secondly, although we considered using the diagnosis stated in case notes 3 months after the initial visit as an improvement in defining medically unexplained symptoms, the final diagnosis is still subject to change afterwards. This may cause overdiagnoses of medically unexplained symptoms which later may be reversed. Finally, patients may endorse a number of symptoms provided in the questionnaires where some of them are not clinically relevant. This may underestimate the strength of association between the number of symptoms complaints and medically unexplained symptoms due to (undifferentiated) misclassification bias. The results therefore need to be interpreted in the light of these limitations.

Acknowledgments

Dr. Nimnuan is supported by Thai government as a part of a PhD program. We are particularly grateful to the following consultants who allow access to their clinics: Dr. W. Gardner, Dr. I. Forgacs, Dr. M. Blott, Dr. D. Scott, Prof. N. Johnson, Dr. C. Pankhurst, Dr. T. Britton, Dr. D. Jewitt, Prof. J. Moxham. We thank all patients and medical staff who took part.

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