

Hidden psychiatric illness: use of the general health questionnaire in general practice

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SUMMARY. A 10% random sample comprising 234 adults attending a general practitioner was studied to obtain an estimate of conspicuous and hidden psychiatric morbidity and to determine the value of the general health questionnaire in improving case recognition in general practice. Patients completed the 28-item general health questionnaire before seeing the general practitioner, who completed a rating sheet without seeing the general health questionnaire score. The doctor identified a psychiatric component in 38% of men and 53% of women and diagnosed psychiatric disorder in 22% of men and 31% of women. Using a cut off point of nine or above, high general health questionnaire scores were found in 25% of men and 29% of women. Agreement between the general health questionnaire and the doctor's assessment was better for males (misclassification rate 16%) than for females (20%). A subsample of patients scoring over the recommended threshold (five or above) on the general health questionnaire were interviewed by the psychiatrist to compare the case detection of the general practitioner, an independent psychiatric assessment and the 28-item general health questionnaire at two different cut-off scores. The general health questionnaire may be a useful tool for improving recognition of psychiatric morbidity in general practice if the cut-off point is raised above that recommended for epidemiological research.

Introduction

It is estimated that between 10% and 20% of the general practice population are mentally or emotionally disturbed¹ and the satisfactory management of patients with psychological symptoms is particularly difficult in general practice, given the constraints of limited consulting time. Continuing care of some such patients may be stressful and unrewarding for both doctor and patient in terms of the inability of the doctor to achieve a 'cure' or to intervene to the same extent as with major physical illness.

There is considerable evidence²⁻⁵ to suggest that many patients with significant psychiatric illness attending their general practitioner are unrecognized as such. In 1970 Goldberg and Blackwell² coined the term 'hidden psychiatric morbidity' and found that these patients were distinguished by their attitude to their illness and by usually presenting a physical symptom to the general practitioner.

In 1984 Skuse and Williams⁶ investigated psychiatric morbidity in a consecutive series of 303 patients attending an experienced south London general practitioner. The doctor

classified 24% of these patients as psychiatric cases while the estimated true prevalence of psychiatric cases in the sample was 34%. The discrepancy was largely owing to the general practitioner regarding expected depressives as normal rather than as cases and giving them a different diagnosis.

The development of the general health questionnaire by Goldberg⁷ has been a significant advance in psychiatric epidemiology. The questionnaire may also have a value in assisting a doctor to identify psychiatric illness in his patients so that appropriate treatment may be begun. The general health questionnaire⁸⁻¹² is a self-reporting screening questionnaire which identifies individuals who have a high probability of suffering from psychological illness. It has been well validated and correlates well with the assessments of consultant psychiatrists. The scoring distinguishes between chronic stable complaints and recent exacerbations; an item being counted if the patient thinks there has been a change from his/her 'usual self' over the last week. The questionnaire is specifically designed for use in community settings.

The aims of this study were to obtain an estimate of conspicuous and hidden psychiatric morbidity in a general practice and to estimate the value of the general health questionnaire in improving case recognition in a clinical setting.

Method

The study population was drawn from patients attending one general practitioner in a health centre group practice over a period of five months in 1985. A sample was selected so that all the consulting sessions in the week were represented by a 10% random sample of patients attending that session and no patient was included more than once. The sample comprised 234 patients who were over 17 years of age but under 65 years. House calls, which account for approximately 8% of the workload, were excluded.

All 234 adult patients were asked to complete the 28-item version of the general health questionnaire and to answer supplementary questions on social and employment status before seeing the doctor. Without seeing the general health questionnaire score the general practitioner completed a rating sheet after seeing each patient. The rating sheet consisted of three assessments: (1) the reason for consultation using the categories of Goldberg and Blackwell; (2) the degree of psychiatric disorder, on a five-point scale; (3) the diagnosis (up to two items) and a list of known chronic conditions (up to four).

A 20% random subsample of respondents scoring five or over on the 28-item general health questionnaire were seen by the psychiatrist who completed the general practice research unit's clinical interview schedule.^{7,13} The clinical interview schedule is a semi-structured interview intended for use in the community by trained psychiatrists. Section 1 includes 10 symptoms, each rated 0-4. A morbid score (2, 3 or 4) in this section defines a 'case'. The clinical interview schedule concentrates mainly on neurotic symptoms but the psychiatrist is free to explore the possibility of psychosis or organic impairment as in a normal clinical interview. The sum of section 1 and section 2 scores gives an overall severity score. In addition, where appropriate, the psychiatrist records a diagnosis using the ninth revision of the *International classification of diseases*.¹⁴

Because of limited resources and the time required for psychiatric interviews, no attempt was made to validate the general health questionnaire in this population against the psychiatrist's diagnosis. Instead, the psychiatric interviews were used to provide a limited comparison between the case detection of the general practitioner, an independent psychiatric assessment and the general health questionnaire at two different cut-off points.

Results

All 234 general health questionnaires were returned but seven were rejected for analysis. One had not been filled in as the patient spoke only Mandarin Chinese, and six had many missing answers. Twenty four questionnaires had one or two answers missing but these appeared to have been overlooked and not avoided intentionally. Therefore 227 questionnaires (97%) were analysed — 115 from men and 112 from women.

Sixty-nine per cent of the men and 71% of women classified themselves as married and 13% and 14% respectively as divorced, separated or widowed. Five per cent of men and 4% of women classified themselves as unemployed while 5% of husbands or male partners were unemployed. Past history of psychiatric illness was admitted by 54% of women and 31% of men; 25% of women and 8% of men had been treated for this in the previous year.

Diagnoses made by the general practitioner were classified according to the classification of the Royal College of General Practitioners.¹⁵ The most common primary reason for consulting in female patients was psychiatric illness (19%) followed by maternity services (16%). Women who made an appointment for a child in order to consult indirectly about their own emotional problems were not counted in the total for psychiatric illness. For men, respiratory illness was the most common reason for consulting (15%) while psychiatric illness was in fourth position.

The general practitioner's assessment of the type of disturbance is given in Table 1. Taking categories 2 to 6 inclusive as indicating a psychiatric component to the consultation, the doctor identified a psychiatric component in 38% of men and 53% of women.

The doctor also assessed the degree of disturbance, identifying as cases those patients who had distressing psychological symptoms and also some disturbance of normal social functioning. Clinical psychiatric illness was diagnosed by the doctor in 22% of men and 31% of women. While mild psychiatric disturbance was more common in women, the percentage of moderate and severe psychiatric illness was the same (12%) in both sexes.

Table 1. The general practitioner's assessment of the type of disturbance suffered by respondents.

Category	Number (%) of respondents	
	Men	Women
1. Entirely physical complaint	68 (59)	28 (25)
2. Physical complaint in neurotic person	8 (7)	19 (17)
3. Physical complaint plus associated psychiatric illness	17 (15)	17 (15)
4. Psychiatric illness plus somatic symptoms	0 (0)	4 (4)
5. Unrelated physical and psychiatric complaints	7 (6)	5 (4)
6. Entirely psychiatric illness	11 (10)	15 (13)
7. Not ill, unclassifiable	4 (3)	24 ^a (21)
Total	115 (100)	112 (100)

^aIncludes 12 antenatal patients.

Misclassified patients using a threshold score of nine

The manual for the 28-item general health questionnaire¹⁶ recommends a threshold score of five, threshold being defined as 'just significant clinical disturbance' or that point where the probability of being a 'case' is 50%. In general practice it would be more clinically useful for the test to have high specificity (that is relatively few false positives), thus excluding patients whose symptoms are so mild that no therapeutic action is called for.

The general health questionnaire results obtained here have been used as the standard against which the doctor's assessment is compared and as the basis of calculations of sensitivity and specificity for different threshold scores. Based on these calculations (Figure 1) it is suggested that a cut-off point of nine is best suited for clinical use in general practice.

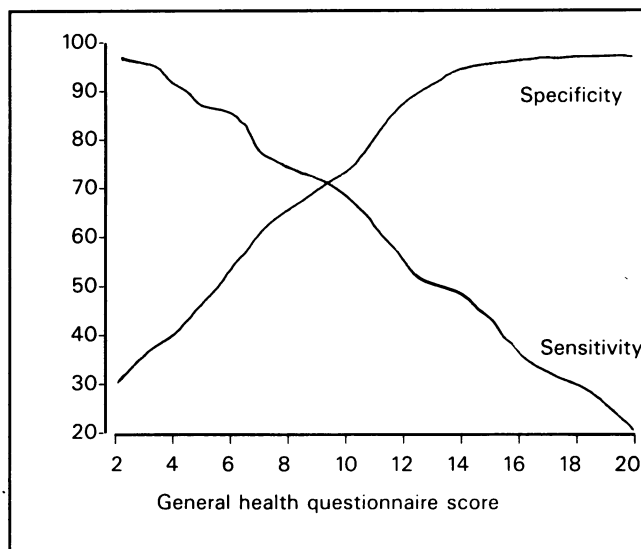


Figure 1. Sensitivity and specificity of the general health questionnaire versus the general practitioner's assessment.

Using this cut-off point high scores on the general health questionnaire were found for 25% of men and 29% of women. Misclassification of patients is given in Table 2 and a definition of the statistics used for the analysis is also given. Correlation between the general health questionnaire and the doctor's assessment was better for men than for women. The overall misclassification rate was 16% for men and 20% for women. Similarly specificity was high at 88% and 87% respectively and sensitivity was acceptable at 72% and 66% respectively. The positive predictive value, that is the probability of a high score being a case, was 62% and 70% respectively.

Results of psychiatric interviews

Nineteen patients were referred for standardized psychiatric interview.¹³ Two male patients failed to attend — 10 women and seven men were interviewed. Some patients were seen the same day and most within a week of seeing the general practitioner.

Three female patients regarded as cases by the doctor were not judged as cases by the clinical interview schedule. In two of these patients, the doctor's background knowledge may have biased judgement in favour of a psychiatric condition. One male patient, not regarded by the doctor as a case, was regarded as a case by the clinical interview schedule. This man's long history of physical illness and tendency to complain may also have influenced the doctor's judgement. The general health questionnaire scores for these patients were in the range 10–13.

Using a cut-off score of five on the general health question-

Table 2. Comparison of the doctor's assessment and the general health questionnaire (GHQ) score for male and female respondents using a threshold score of nine.

GHQ score	Doctor's assessment					
	Number of men			Number of women		
	Not a psychiatric case	Psychiatric case	Total	Not a psychiatric case	Psychiatric case	Total
<9	79	7	86	67	12	79
≥9	11	18	29	10	23	33
Total	90	25	115	77	35	112

$$\text{Misclassification rate} = \frac{\text{false negatives} + \text{false positives}}{\text{grand total}} \times 100$$

$$\text{Specificity} = \frac{\text{true negatives}}{\text{true negatives} + \text{false positives}} \times 100$$

$$\text{Sensitivity} = \frac{\text{true positives}}{\text{true positives} + \text{false negatives}} \times 100$$

$$\text{Positive predictive value} = \frac{\text{true positives}}{\text{false positives} + \text{true positives}} \times 100$$

naire (17 patients, a 20% subsample) the clinical interview schedule detects 10 cases (59%) and the doctor 12 (71%). However using a cut-off score of nine (14 patients, no longer a random sample) the clinical interview schedule detects 10 cases (71%) and the doctor nine (64%).

Clinical implications

The doctor took the opportunity to review his diagnosis retrospectively when his assessment did not agree with the general health questionnaire score.

Seven men with low scores had been classified as cases by the doctor. Four had a diagnosis of depression (taking high dose antidepressant drugs) or anxiety state while one other had a past history of recurring psychosis. One of the remaining two patients had Paget's disease of bone and Parkinson's disease and the other had dyspepsia and long-standing marital problems. While the doctor may have been unduly influenced by his personal knowledge of the patients and their psychiatric histories, it seems more likely that the discrepancy was due to the general health questionnaire failing to identify chronic stable complaints, for which it was not designed. Similarly, 12 women with low scores had been classified as cases by the doctor. One patient was a delusional schizophrenic, four had anxiety states and four others had 'panic attacks', 'tension headaches', 'personality disorder' and 'unexplained abdominal pains'. The remaining three had come respectively because of coryza, dyspepsia and a recent sterilization operation.

More important clinically are the 11 men and 10 women identified as cases by the general health questionnaire and missed by the doctor. Five of the men had serious chronic physical illness, one had very bad psoriasis and one (with a score of 19) had a long history of unexplained abdominal pain. Of the four men without chronic conditions one had a recent myocardial infarct, one a pilonidal sinus and the other two apparently minor infections. The women had lower scores than the men and six had chronic physical illnesses. Of the other four, two had migraine and the others were seen for infertility and a doubtful cervical smear. None of these patients, male or female, was known to suffer from chronic or recurrent psychiatric illness.

Discussion

In the UK, the great majority of patients with psychological symptoms are treated solely by their general practitioner. It is therefore pertinent to ask how common is psychiatric illness in patients attending their general practitioner and what can be done to improve recognition by the general practitioner.

The first aim of this study was to obtain an estimate of conspicuous and hidden psychiatric morbidity. There are major difficulties in defining what doctors mean by 'psychiatric disorder', in particular in limiting the term so that it does not become so broad as to be meaningless. The identification of a case by the general practitioner depended on the presence of distressing psychological symptoms and some disturbance of normal social functioning.

The second aim was to estimate the value of the general health questionnaire to the general practitioner in clinical practice rather than to validate the instrument in this population against psychiatric interview. It proved impracticable to arrange psychiatric interview of a large enough sample of all attending patients so our limited resources were directed to a comparison of the case-detecting behaviour of the doctor (who was actively looking for psychiatric disturbance) and independent psychiatric assessment.

Using the psychiatric interview as the ultimate criterion in diagnosing psychiatric illness, Skuse and Williams⁶ pointed out that the general health questionnaire tended to over-identify and the general practitioner under-identify, while Goldberg and Bridges¹⁷ showed that there is not complete agreement between psychiatric research interviews about what is thought to constitute a psychiatric case. General practitioners will have their own views and it may be that the doctor who is seeing eight patients in an hour finds it more profitable to make a prognostic assessment based on the patient's personality, social functioning and previous illness behaviour, whereas the psychiatric interview places more emphasis on diagnosis and psychiatric symptomatology.

The results found in this study are not dissimilar to those found in other published work.^{2,18} Hoepfer and colleagues¹⁹ found that 27% of patients attending their general practitioner had psychiatric illness and 30% had high general health questionnaire scores. Goldberg and Blackwell² estimated that hidden psychiatric morbidity accounted for one third of all disturbed patients.

Goldberg²⁰ suggests that 'When a patient is found to have a high score the most natural response by the clinician is to look at the questionnaire with the patient and ask additional probe questions suggested by particular symptoms'. This course was followed by the general practitioner, but it was obvious early in the study that using the recommended threshold score of five seemed to produce more false positives than true positives. Raising the cut-off point to nine seemed to make the test more useful clinically. A similar conclusion is reported by Nott and Cutts²¹ who studied 200 post-partum women from five Southampton general practices. They conclude that 'Slight modification of the content and a raised cut-off point of the general health questionnaire-30 make it a useful screening instrument for post-partum psychiatric disorder'.

The threshold score of nine or above seemed to give the best trade-off between sensitivity and specificity: the inevitable loss of sensitivity may not be important clinically as many low scorers may have only mild or transient disturbances.¹⁷ Ultimately, the threshold score used is a matter of judgement, a compromise between cost and benefits and this compromise may vary from practice to practice. We suggest that a cut-off score of nine is a useful starting threshold which can be 'fine-tuned' on implementation in a particular practice.

Goldberg and Bridges¹⁷ have shown that the use of the general health questionnaire by general practitioners could improve their ability to recognize hidden psychiatric morbidity in new episodes of illness. We have highlighted a clinically important group with chronic illness, whose physical disease was well known to the doctor, but whose psychiatric disturbance went unrecognized. It seems that the doctor's personal knowledge of his patient, normally so valuable in managing illness, may be a two-edged sword making the recognition of concurrent emotional illness less likely. In these circumstances the general health questionnaire would seem to have an important role in alerting the doctor.

The diagnosis and management of psychiatric illness in general practice presents formidable practical problems to the practitioner, particularly when seeing eight patients per hour. Assessment by standardized clinical interview schedule is very demanding of the psychiatrist's time and referral to a psychiatrist, for validation of the general practitioner's opinion, is not always clinically desirable. A simple test, a kind of 'psychiatric ESR', would be invaluable. When the test result differed from clinical opinion then it would be a warning to see the patient again. Clinicians are accustomed to using biological tests as diagnostic aids and, while these estimations are subject to various errors and require clinical interpretation, they are more readily accepted as useful than are the screening tests familiar to consultant psychiatrists.

Experience from this study suggests that the general health questionnaire is simple to use in general practice and may prove useful in assessing patients with physical symptoms not conforming to any recognizable clinical pattern, and also frequent attenders. It may uncover unsuspected psychiatric illness, particularly in patients with chronic physical disease. It may even have a use in following progress in chronic psychiatric illness using a different scoring method as suggested by Goodchild and Duncan-Jones²² though this has not been tested in the present work.

It is as yet uncertain whether improved recognition of psychiatric illness would necessarily improve treatment. Indeed, Freeling and colleagues²³ studied unrecognized depressives and concluded that they seemed to suffer rather than benefit from continuing care. What is clear is the need for further systematic study of these disorders in general practice. The patients in this study have been followed-up for a year and outcome is being assessed in terms of a second general health questionnaire, consulting and referral patterns and prescribing of psychotropic drugs.

Clarification of the outcome of these disorders in patients seen by general practitioners would provide a better definition of what constitutes a psychiatric 'case' than psychiatric interview alone.

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Risk of stroke in smokers

From 1965 to 1968, the Honolulu Heart Program began following 8006 men of Japanese ancestry in a prospective study of cardiovascular disease. Of the subjects who had not had a stroke by the time of study entry, 3435 were cigarette smokers and 4437 were non-smokers. In 12 years of follow-up, 171 smokers and 117 non-smokers had a stroke. As compared with non-smokers, cigarette smokers had two to three times the risk of thromboembolic or haemorrhagic strokes, after control for age, diastolic blood pressure, coronary heart disease, and other risk factors ($P < 0.001$). Subjects who continued to smoke in the course of follow-up had the highest risk of stroke. When these subjects were compared with those who never smoked, their risk of haemorrhagic events was increased four- to six-fold ($P < 0.001$). Subjects who were smokers at entry but stopped smoking in the course of follow-up had a slight excess risk of stroke. When these subjects were compared with those who continued to smoke, however, their risk was reduced by more than half after adjustment for risk factors ($P < 0.05$), indicating that stopping smoking had significant benefits.

Source: Abbott RD, Yin Y, Reed DM and Yano K. Risk of stroke in male cigarette smokers. *N Engl J Med* 1986; 315: 717-720.