Psychological Medicine, 2000, **30**, 413–419. Printed in the United Kingdom
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Do general practitioners' attitudes towards depression predict their clinical behaviour?

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ABSTRACT

Background. GPs' attitudes towards depression vary, as do their abilities to detect and manage it effectively. Associations between attitudes and clinical behaviour have not yet been demonstrated directly. We tested two hypotheses: (1) that questionnaire measures of GPs' confidence in identifying depression predict their ability to identify depression in their patients; and (2) that GPs who prefer antidepressants prescribe more than those who prefer psychotherapy.

Methods. Forty GPs in Liverpool and Manchester completed the Depression Attitude Questionnaire (DAQ) and were asked for prescribing (PACT) information. Attender surveys using the General Health Questionnaire (GHQ-12), in combination with GP ratings of patients' psychological status, generated indices for GPs' case identification, bias and accuracy. We tested associations between these indices and the four DAQ components, in particular GPs' confidence in diagnosis, across a total of 1436 patients. We also compared the DAQ component on attitudes to treatment with relevant PACT data.

Results. The DAQ assessment of GPs' ability to identify cases of depression bore no relationship to their observed ability, as measured by accuracy, bias, or identification indices. However, there were significant associations between observed diagnostic ability and: preference for psychotherapy; ease in managing depression; and, belief in successful treatment. PACT data were available for 26 (65%) GPs. There was an association between preference for antidepressants and prescription of SSRIs (rs 0·3981, $P < 0·044$), but not for overall antidepressant or tricyclic prescribing, or for dose of dothiepin.

Conclusions. The DAQ measure of ease of identification is not valid when compared to actual clinical practice. The ability of GPs to identify depression may not be an independent variable, but may rather reflect other beliefs, attitudes and skills. This has considerable implications for educational interventions in primary care.

INTRODUCTION

Depression is a common and disabling condition, for which the overwhelming majority of medical care is provided by general practitioners (GPs) (Paykel & Priest 1992). The Depression Attitude Questionnaire (DAQ) has been designed within this context as an instrument to enable researchers to measure doctors' attitudes to depressive illness, and thereby as a means to orientate educational effort. It was used initially to survey GPs drawn randomly from the Medical Research Council general practice research framework (Botega *et al*. 1992).

The DAQ is a self-completion instrument with 20 questions (see Table 1). Answers to each are marked on a visual analogue scale, where 'strongly disagree' is marked at 0 mm and 'strongly agree' at 100 mm. On factor analysis, Botega *et al*. (1992) report that 17 of these items resolve into four principal components as follows.

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https://doi.org/10.1017/S0033291799001531 Published online by Cambridge University Press

Table 1. *Depression Attitude Questionnaire:* 20 *statements to which respondents indicate strength of agreement or disagreement, in terms of their daily clinical experience*

No.	Statement
1	During the last 5 years, I have seen an increase in the number of patients presenting with depressive symptoms.
2	The majority of depression in general practice originates from patients' recent misfortunes.
3	Most depressive disorders seen in general practice improve without medication.
4	An underlying biochemical abnormality is at the basis of severe cases of depression.
5	It is difficult to differentiate whether patients are presenting with unhappiness or a clinical depressive disorder that needs treatment.
6	It is possible to distinguish two main groups of depression: one psychological in origin and the other caused by biochemical mechanisms.
7	Becoming depressed is a way that people with poor stamina deal with life difficulties.
8	Depressed people are more likely to have experienced deprivation in early life than other people.
9	I feel comfortable in dealing with depressed patients' needs.
10	Depression reflects a characteristic response in patients which is not amenable to change.
11	Becoming depressed is a natural part of being old.
12	The practice nurse could be a useful person to support depressed patients.
13	Working with depressed patients is heavy going.
14	There is little to be offered to those depressed patients who do not respond to what GPs do.
15	It is rewarding to spend time looking after depressed patients.
16	Psychotherapy tends to be unsuccessful with depressed patients.
17	If depressed patients need antidepressants, they are better off with a psychiatrist than with a general practitioner.
18	Antidepressants usually produce a satisfactory result in the treatment of depressed patients in general practice.
19	Psychotherapy for depressed patients should be left to a specialist.
20	If psychotherapy were freely available, this would be more beneficial than antidepressants for most depressed patients.

Component 1 Attitudes towards treatment In particular, whether or not a doctor believes depression to be a biochemical abnormality, and has a preference for antidepressant medication or for psychotherapy. A high score indicates a preference for antidepressant drugs, a low score indicates a preference for psychotherapy. Questions 4, 7, 16 and 18 load positively, 3 and 20 negatively, to this component.

Component 2 Professional unease A high score indicates that the doctor feels uncomfortable in dealing with depressed patients, considers it an unrewarding activity, and the patient would be better off being managed by a specialist. Questions 13, 19 and 20 load positively, 9 and 15 negatively, to this component.

Component 3 Depression malleability This is a belief in the inevitability, or otherwise, of depression. A high score indicates a pessimistic attitude towards depression, relating it to deprivation in early life, assuming it to be natural when old, and better treated by a psychiatrist than by a GP. Questions 8, 10 and 11 load positively to this component.

Component 4 Identification of depression This is an indication of the doctor's confidence in his, or her, ability to identify depression. A high score indicates that the doctor has difficulty distinguishing depression from unhappiness, believes that it originates from recent misfortunes, and that there is likely to be little additional benefit beyond a GP's own treatment. Questions 2, 5 and 14 load positively to this component.

The DAQ has been promoted as a valid and reliable measure of the attitudes of GPs towards depression. It has been used to demonstrate differences between the attitudes of GPs in Britain and Brazil (Botega & Silveira, 1996), and between GPs and psychiatrists in Wales (Kerr *et al.* 1995). What is less clear, however, is the extent to which the DAQ – or indeed any attitudinal measurement – actually reflects or predicts the behaviour of GPs in their dealings with depressed patients.

Two studies have considered the relationship between the DAQ and GP clinical activity, principally in relation to prescribing. Kerr *et al.* (1995) invited a sample of Welsh GPs to report on their antidepressant prescribing habits, and used these data to classify them along the dimensions of dosage (standard *v.* low) and duration (standard *v.* short). They reported that 'low dosage' GPs were more likely to believe in psychotherapeutic treatments, while those favouring short-term treatments were less optimistic about outcome and less comfortable in managing depressed patients. Ross *et al.* (1999) using a modified form of the DAQ in the context of a series of case vignettes, found that GPs with a pessimistic view of depression express less willingness to become actively involved in its treatment, to explore social factors or to discuss non-physical causes of symptoms.

These studies suggest a link between GPs' attitudes towards depression and their prescrib-

https://doi.org/10.1017/S0033291799001531 Published online by Cambridge University Press

ing behaviour and consultation style. However, conclusions based on self-reported behaviour or response to vignettes must be treated with caution, and are unlikely to be as persuasive as data drawn from actual clinical practice. It is also important to know more about the relationship between GPs' attitudes and other aspects of their clinical behaviour, in particular their ability to identify depression.

METHOD

In the first phase of a NHS research and development funded randomized controlled trial of a depression training programme for GPs, a volunteer sample was recruited by a research team based in the Universities of Manchester and Liverpool. Twenty GPs were recruited from Merseyside, and 20 from Greater Manchester. The number of GPs recruited was determined by power calculations for the main phase of this study. Between November 1996 and March 1997 two research assistants (R.P. and C.D.) undertook waiting-room surveys of consecutive attenders at each of these GPs' surgeries. Attenders aged between 16 and 65 years, and consulting during normal surgery hours, were invited to complete the 12-Item General Health Questionnaire (GHQ-12) (Goldberg *et al*. 1997). After the consultation, the GP rated each patient on the severity of their psychological disturbance along a 5-point Likert scale ranging from 'no disorder' through to 'severe disorder'. The GPs also completed the DAQ, and agreed to allow the research team to have access to nationally derived data from the Prescription Pricing Authority on their prescribing patterns (PACT) for the period September to December 1996.

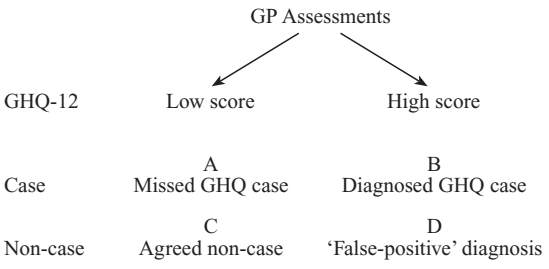


FIG. 1. Possible outcomes of GHQ-12 *versus* GP assessments. For the GP assessment, the patient rated either 2, 3 or 4 on the Likert scale was considered to be a case. For the patient, a cut-off score $\geqslant$ 3 on the GHQ-12 was applied.

From a comparison of the GHQ-12 and doctor rating scores for each patient (Fig. 1), it is possible to make three differing assessments of a doctor's ability to diagnose depression and related psychological disorders, in terms of identification, accuracy and bias.

Identification Index

The Identification Index refers to the ability of a GP to detect probable cases of emotional disorder. It is calculated using the formula $(B/A+B)/0{\cdot}846$, where the denominator is determined by the sensitivity of the GHQ-12 (Goldberg *et al*. 1997).

Accuracy

Accuracy refers to a GP's overall ability to make assessments that are congruent with the patients' symptom levels. It is calculated using the formula $(B+C)\%$ (Goldberg & Huxley, 1980).

Bias

Bias refers to the tendency to make, or avoid making psychiatric diagnoses. It divides conspicuous psychiatric morbidity by probable prevalence using the formula $(B+D/\text{total})/[(A+B/\text{total}-0{\cdot}11)/0{\cdot}846-0{\cdot}11]$, where 0·11 is taken as the false positive rate (Boardman, 1987).

While figures for sensitivity and false positive rates may be calculated through subjecting a proportion of patients to diagnostic interviews, the resource implications of adopting such a procedure would be high. We consider that the figures used here, taken from a variety of other sources, are sufficiently robust for the purposes of this study. While the identification index may fail to correct for those cases which are scored as false positives but which may in fact be true recognized cases, we do not consider that this is likely to have a significant effect on analysis of the data.

PACT information is presented in the format of the *British National Formulary* (BMA, 1996). The research team collected data on the following central nervous system prescription categories, as presented in *BNF* chapter 4: total numbers of prescriptions issued for anxiolytics (4.1); total numbers of prescriptions issued for antidepressant drugs (4.3), specifically tricyclics and related compounds (4.3.1) and SSRIs and related compounds (4.3.3); and proportion of

https://doi.org/10.1017/S0033291799001531 Published online by Cambridge University Press

prescriptions of dothiepin that were issued at or above the BNF recommended dose of at least 125 mg daily. Dothiepin was chosen, as it is the most commonly prescribed tricyclic antidepressant.

Data were entered and analysed using SPSS for Windows, producing descriptive and inferential statistics. Spearman's rho correlations were used for analysis as the data did not satisfy parametric requirements.

In order to test the existence and strength of any relationship between general practitioners' attitudes and behaviour, two main hypotheses were proposed as follows.

1 The questionnaire measure of GPs' confidence in their identification of depression will predict their accuracy in identifying depression in their patients

In order to falsify this hypothesis, there should either be no correlation, or else a positive correlation, between mean scores on the DAQ Component 4, concerned with ease of identification of depression (and specifically DAQ statement 5), and both the identification and the accuracy ratings.

2 General practitioners who prefer antidepressants to psychotherapy prescribe more antidepressant drugs than those who prefer psychotherapy

In order to falsify this hypothesis, there should either be no correlation, or else a negative correlation, between DAQ Component 1 and the total numbers of prescriptions for antidepressant drugs.

RESULTS

A total of 1436 general practice attenders, 711 in Liverpool and 725 in Manchester completed the GHQ. All 40 general practitioners completed the DAQ, and achieved adequate numbers of severity ratings (i.e. at least 25 each) to allow identification, accuracy and bias ratings to be calculated for each GP. PACT data was available to the research team for 26 (65%) of the general practitioners who took part in this phase of the study. None of the practices has specific prescribing policies in terms of formularies, or had health authority constraints on purchasing of more expensive antidepressant drug options.

DAQ and GP assessment ratings

Tables 2 and 3 show the group data for the DAQ component scores and for the GP assessment ratings. DAQ Components 2 and 4 fell within acceptable limits for a normal distribution, while Component 1 scores were grouped more closely around the mean, and Component 3 scores were skewed to the left. The mean DAQ score for Component 3 – 'depression malleability' – suggests that most of the general practitioners did not believe that depression was an inevitable condition, while the scores for the other three components indicate a more even distribution of attitudes.

Our first hypothesis, that questionnaire measures of GPs' confidence in their identification of depression will predict their accuracy in identifying it among their own patients, was not substantiated. There was no association between DAQ Component 4 – identification of depression – and the identification index: Spearman's *rho* r_s was $-0{\cdot}1494$, with a P value of 0·358. Neither was there any association between DAQ Component 4, and either GP accuracy (r_s 0·1544, $P = 0{\cdot}342$) or bias ($r_s = -0{\cdot}2475$, $P = 0{\cdot}124$).

The same lack of association was found between DAQ statement 5 and any of the three GP assessment measures: when correlated with identification index, r_s was $-0{\cdot}1606$, with a P value of 0·322; against accuracy $r = 0{\cdot}0605$, $P = 0{\cdot}711$, and against bias r was $-0{\cdot}2560$ with a probability of 0·111.

Table 2. *DAQ Component scores* (N = 40)

Component	Mean	(S.D.)	Min.	Max.
1	47·51	(10·91)	23·00	64·00
2	43·03	(17·04)	9·00	81·00
3	24·53	(14·88)	0·00	66·00
4	40·62	(16·06)	0·30	80·00

Min., minimum; Max., maximum.

Table 3. *GP assessment ratings* (N = 40)

	Mean	(S.D.)	Min.	Max.
Identification Index	0·47	(0·19)	0·06	0·87
Accuracy (%)	65·1	(8·3)	40·0	80·1
Bias	0·47	(0·20)	0·09	1·11

Min., minimum; Max., maximum.

https://doi.org/10.1017/S0033291799001531 Published online by Cambridge University Press

However, GPs who felt comfortable with depression were more likely to identify it accurately. There was an inverse relationship between Components 2 and 3 and two of the three GP assessment ratings. A sense of professional unease was negatively correlated with accuracy ($r_s = -0{\cdot}3604$, $P = 0{\cdot}022$) and with identification index ($r_s = -0{\cdot}3252$, $P = 0{\cdot}041$). There was no such correlation with bias ($r_s = -0{\cdot}1532$, $P = 0{\cdot}345$).

Similarly, GPs who considered that depression is a malleable condition were more likely to identify it accurately. The doctors' belief in the inevitability of depression (DAQ Component 3) was negatively associated with their accuracy in diagnosis ($r_s = -0{\cdot}4796$, $P = 0{\cdot}002$) and their identification index ($r_s = -0{\cdot}3233$, $P = 0{\cdot}042$), though not with bias ($r_s = -0{\cdot}2208$, $P = 0{\cdot}171$).

There were also inverse correlations between DAQ Component 1 (attitudes to treatment) and GP assessment ratings. Accuracy in diagnosis was associated with a preference for psychotherapy ($r_s = -0{\cdot}3582$, $P = 0{\cdot}023$) and so was identification, though this correlation did not reach standard levels of statistical significance ($r_s = -0{\cdot}2720$, $P = 0{\cdot}089$). There was no such correlation with bias ($r_s = -0{\cdot}0283$, $P = 0{\cdot}862$).

DAQ and PACT data

PACT data was available for 26 (65%) of the general practitioners for the period September to December 1996. During that period the mean (S.D.) number of prescriptions issued for hypnotics and anxiolytics was 203 (189), compared with 207 (116) prescriptions issued for antidepressants. Among the antidepressants the mean (S.D.) number of prescriptions issued for tricyclics was 118 (77), *versus* 86 (49) for the SSRIs: $Z = -2{\cdot}7985$, $P = 0{\cdot}0051$ (Wilcoxon signed ranks test). Among dothiepin prescriptions, 22% were at levels recommended by the BNF (125 mg daily or higher), with a range among general practitioners from 2% to 48%.

Table 4. *Antidepressant prescriptions (BNF 4.3) and DAQ component 1 ($N = 26$)*

Variables correlated	r_{s-1}	P
Total antidepressants prescribed and DAQ C1	0·2106	0·302
Total SSRI prescribed and DAQ C1	0·3981	0·044
Total tricyclics prescribed and DAQ C1	0·0378	0·855

Our second hypothesis was that a belief in antidepressant drugs as a satisfactory form of treatment would be correlated with doctors' levels of prescription of such drugs. Table 4 demonstrates this association between DAQ Component 1 and prescriptions of SSRIs, but not for tricyclics, or for antidepressants overall.

No association was detected between the other three components of the DAQ and the general practitioners' numbers of prescriptions for antidepressants in general or either tricyclics or SSRIs in particular. The correlation coefficients (P values) for rates of SSRI prescriptions *v.* DAQ Components 2 to 4 were respectively 0·1334 (0·516), 0·1338 (0·580) and −0·2082 (0·307). Dosage of dothiepin was analysed as a linear rather than a dichotomous variable: there was no correlation between dothiepin dosage and DAQ Component 1 ($r_s = -0{\cdot}0717$, $P = 0{\cdot}0717$, $P = 0{\cdot}734$). Neither was there any correlation between DAQ Component 4 and rates of prescription of hypnotics and anxiolytics ($r_s = 0{\cdot}0817$, $P = 0{\cdot}692$).

DISCUSSION

We set out to examine the relationship between GPs' attitudes and behaviour, and thus whether the DAQ could be used with some confidence as a predictor of GPs' actual behaviour – in other words, to test its validity against external indicators of diagnostic and prescribing behaviour. The scores from the DAQ and the assessment ratings, and the patterns of antidepressant prescribing found from the PACT data, are in line with previously reported British studies (Boardman, 1987; Botega *et al.* 1992; Kerr *et al.* 1995; Donaghue & Tylee, 1996). It is therefore reasonable to suggest this set of doctors is not unrepresentative of British general practitioners, although their decision to take part in this study may have indicated that they were relatively sympathetic towards and interested in mental health problems.

Hypothesis 1

The doctors' assessment of their own ability to identify cases of depression, as measured by DAQ Component 4 (and specifically by question 5), bore no relationship to their observed ability to identify psychological disorders in their own

https://doi.org/10.1017/S0033291799001531 Published online by Cambridge University Press

patients, as measured either by accuracy rating or identification index.

However, there were clear associations between GP diagnostic acumen, in terms of accuracy and identification, and a preference for psychotherapy over antidepressants, a sense of ease in managing depression, and a belief in the possibility of successful treatment within general practice. There was no evidence of a relationship between these attitudes and a tendency for GPs to be biased towards 'overdiagnosis' of depression, which supports the contention that such bias is independent of both accuracy and identification.

Hypothesis 2

Our study was limited by incomplete PACT data collection for the doctors. This was due in large part to the complex procedures involved, which included seeking permission from GPs to access their prescribing data, negotiating with them over who should contact PACT headquarters to request the data, and then encouraging them to send us the data sets once they had received them. The PACT data were drawn from one-quarter of 1 year, and may, therefore, have been open to seasonal bias. The data we received did not include details of duration of prescription, or on total number of tablets prescribed. It was therefore not possible to make precise comparisons of dosages. For example, although the numbers of prescriptions issued for anxiolytics and antidepressants were similar, it is possible that a proportion of the former were short-term prescriptions, while the latter may have continued for a month or longer. However, these limitations were applicable across the study sample, and were unlikely to introduce systematic biases in terms of the hypothesis being tested.

We consider that there is sufficient evidence from our study to conclude that the results of the analyses of DAQ component scores against PACT data were closer to our original hypothesis, at least for SSRI prescribing. They therefore offer partial support to the conclusions of Kerr *et al*. (1995) and Ross *et al*. (1999), that doctors' attitudes towards antidepressants and psychotherapy relate to their routine clinical practice.

The finding of a correlation between attitudes captured through DAQ Component 1 and prescription patterns of SSRIs but not tricyclics, requires further elucidation. As Donoghue & Tylee (1996) have discussed, tricyclics may be prescribed for non-psychiatric conditions, whereas SSRIs are rarely so prescribed. It may also be that more organically orientated doctors were 'early adopters' of SSRIs, while the more psychologically minded may also have been more conservative in their prescribing decisions. This supposition would benefit from further qualitative research enquiry.

Several methodological issues are raised by this study, and by its findings.

1 The skew in scores for DAQ Component 3 meant that examination of correlations with this component was less powerful than for the other three components.

2 More generally, the study had insufficient statistical power to allow us to comment on whether the factorial structure of the DAQ was supported in our sample.

3 It may be that the generic instruments used here would yield different results if the patient population had been more specifically defined. It would have been useful to see if there were certain sorts of patients for which the hypothesis may have been sustained (for example men rather than women, older rather than younger patients). The study was not sufficiently powered to allow for such sub-analyses.

4 It could be argued that the DAQ and GHQ are measuring different concepts – depression and general emotional disturbance respectively – and that there is therefore no particular reason to expect to find any association between them. However, this argument does not sit well with the reality of general practice, since GPs do not tend to differentiate between these concepts in their routine clinical practice (Blacker & Clare, 1987); neither is it sustained in the face of the clear and explicable associations between the other DAQ components and the measures of GP diagnostic acumen.

One possible explanation for our findings, in relation to our first hypothesis, has face validity both in the context of the clinical and educational experience of the principal investigators (C.D., L.G. and TU) and the literature (Marks *et al*. 1979; Goldberg *et al*. 1993; Ormel & Tiemens, 1995). This is, that the identification of depression by GPs is not an independent variable, but rather is dependent on certain other beliefs,

https://doi.org/10.1017/S0033291799001531 Published online by Cambridge University Press

attitudes and skills which GPs possess to varying degrees, and inextricably linked to ability to manage depression.

If this is the case, then there may have been a tendency among both educationalists and researchers to put the cart before the horse during the past decade. Instead of concentrating on strategies to improve GPs ability to diagnose depression, it may be more valuable to concentrate educational efforts on increasing their sense of therapeutic optimism and providing them with sufficient skills in and knowledge of a range of psychological procedures. Paradoxically, this may be the most effective way to increase their willingness – and hence their ability – to detect depression and other emotional disorders among their patients. This is a testable hypothesis that merits further investigation.

Our results indicate that the fourth component of the DAQ, relating to a doctor's confidence in diagnosing depression, has limited validity when tested against external indicators of a GP's diagnostic acumen. Since only one of the three questions has clear face validity for assessing this construct, it may have been misnamed. We conclude that this is therefore less useful to educators or researchers than the other three components. These components do appear to bear a relationship to measurements of the doctor's actual diagnostic and prescribing behaviour, and may therefore be of use in both the planning and assessment of educational interventions in primary care.

This paper is the first of a series, arising from a study to measure the health gain from providing general practitioners with training in the assessment and management of depression, which has been supported (1996–1999) by a grant from NHSE-R & D.

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