

# The impact of training in problem-based interviewing on the detection and management of psychological problems presenting in primary care

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## SUMMARY

**Background.** The vast majority of mental health problems present to primary care teams. However, rates of under-diagnosis remain worryingly high. This study explores a GP-centred approach to these issues.

**Aim.** To examine the impact of training in problem-based interviewing (PBI) on the detection and management of psychological problems in primary care.

**Method.** The detection and management of psychological problems by 10 general practitioners (GPs) who had received PBI training 12 months earlier was compared with that of 10 control GPs matched for age, sex, clinical experience, and practice setting; and had originally applied for, but had not been able to attend, PBI training. Consecutive attendees at one randomly selected surgery undertaken by each GP were invited to participate in the study. Two hundred and eighty patients living in Newcastle upon Tyne met inclusion criteria and gave informed consent. The presence or absence of psychological problems was assessed using patient self-ratings on the 28-item version of the General Health Questionnaire (GHQ) and blind independent observer ratings of the brief Present State Examination (PSE). Patient satisfaction with interviews was rated using the Medical Interview Satisfaction Scale (MISS). After each consultation, the GPs (blind to subjective and observer ratings) recorded their assessment and management of the patients' problems on a Practice Activity Card (PAC).

**Results.** In comparison with control GPs, index GPs demonstrated significantly greater sensitivity in the detection of psychological problems in the GHQ-PAC ratings. The absolute decrease in misdiagnosis of GHQ cases was 9% and of PSE cases was 15%. Patients meeting GHQ criteria for caseness were more likely to be prescribed psychotropic medication by an index GP than compared with a control GP. Length of interview did not differ between the groups

and mean scores on the MISS suggested that patients attending PBI-trained GPs, compared with control GPs, were as satisfied or slightly more satisfied with their consultation.

**Conclusion.** In comparison with control GPs, PBI-trained GPs were better at recognizing and managing psychological disorders. The potential benefits of PBI training are discussed in light of other attempts to improve mental health skills in primary care.

**Keywords:** psychological problems; problem-based interviewing; general practitioners.

## Introduction

A recent study published by the World Health Organization<sup>1</sup> confirmed that 90% of individuals with psychological disorders remain within the primary care sector across the world. This is in keeping with earlier reviews in the subject.<sup>2,3</sup> After consulting a general practitioner (GP), a sizeable proportion (45–60%) of these cases remained undetected.<sup>1,4</sup> Previous studies have highlighted that a number of factors contribute to the failure to detect psychological disorders. In the patient population, somatization of emotional distress, chronicity and severity of presenting symptoms, comorbidity with other non-psychiatric disorders, and the nature of the psychopathology affect detection rates.<sup>5–6</sup> The experience, training, attitude, and interview style of the doctor also act as modifiers.<sup>10–13</sup>

Non-recognition deprives many individuals of treatment,<sup>4</sup> may adversely affect mental health outcome,<sup>5,14–17</sup> and leads to the inefficient use and increased cost of services.<sup>18,19</sup> Despite the agreed joint statement by the Royal Colleges of General Practitioners and Psychiatrists on the training needs of GPs,<sup>20</sup> and evidence that educational programmes for GP principals can improve rates of recognition of psychiatric illness, reduce rates of referral and of suicide, and can be cost-effective,<sup>21–24</sup> there is still no coordinated training for mental health skills in general practice.<sup>25</sup>

One approach to tackling the problem of non-recognition is to employ screening instruments such as the General Health Questionnaire (GHQ)<sup>26</sup> to alert the GP to psychiatric 'caseness'. An alternative strategy is to develop a case detection and management style that is targeted specifically at GPs and makes efficient use of the brief consultation time available. In answer to this problem, Lesser<sup>27,28</sup> developed a model described as problem-based interviewing (PBI). This approach enhances the clinician's problem detection, description, and assessment skills by 'decoding' the patient's communications through the use of an active interview style incorporating open questions, clarifying statements, and seeking specific examples. PBI particularly addresses two of the most frequent skills deficits that lead to non-detection: commencing interviews with a fixed (organic) agenda, and failing to explore verbal and non-verbal clues because of poor control of the consultation process.<sup>16</sup>

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A recent review of the educational needs of primary care physicians recommends the use of problem-based learning techniques.<sup>29</sup> Research in the United Kingdom (UK) into the use of PBI has demonstrated that an 18-session small group teaching programme using video feedback on real consultations can significantly improve the interview behaviour and accuracy of case identification in both vocational trainees and established GPs.<sup>30,31</sup> However, these encouraging results must be seen in context. The training will only be of direct clinical benefit if the post-training improvements are maintained over an extended period of time and if there are significant changes in the management of patients with psychological problems. Only one study exists that supports the view that skills acquired during PBI are maintained,<sup>31</sup> and only limited data exist on the impact of PBI on patient management and outcome.<sup>13</sup>

A two-year study was undertaken in Newcastle to look at the impact of PBI on the detection and management of psychological cases. This paper compares the skills of GPs trained in PBI with GPs untrained in this technique in detecting non-specific psychological distress (as defined by the GHQ) and discrete disorders — borderline and definite cases of anxiety and depression as defined by the brief Present Statement Examination (PSE). Aspects of case management and patient satisfaction with their consultation were also measured. The study is the most robust test of PBI yet, as it involved GPs who were primary care tutors and who all had an expressed interest in primary mental health care. Furthermore, to avoid a simple 'halo' effect, the comparative study did not commence until one year after the PBI training course had been completed. As such, this project filled an important gap in knowledge about the potential benefits of PBI.<sup>12,13,16,30,31,38</sup>

## Method

Ten GPs who had previously completed a PBI training course, run in Newcastle by one of the researchers (SS), were invited to take part in the study. This index group had been evaluated pre- and post-training and had shown significant improvements in their detection skills (Standart: unpublished observation, 1994). A control group of 10 GPs matched for age, sex, clinical training, and clinical work setting was then recruited. As attitudes to psychological problems may affect detection rates, the control group was selected from a group of GPs who had originally expressed an interest in or applied to do the PBI training course but had not been able to attend the course because, for example, of timetabling problems or other commitments. All 20 participating GPs were tutors in the primary care department at the University of Newcastle upon Tyne. Ethical approval for the study was given by the Joint University/NHS Ethical Committee.

At least one year after the completion of the PBI course by the index GPs, a research psychologist (TJ) visited a randomly selected surgery undertaken by the GPs in both the control and index groups. Consecutive patients attending each identified GP surgery were asked if they would be prepared to take part in a study relating to their emotional and physical health. Individuals aged 16 to 65 years who were able and willing to give informed consent and were able to complete questionnaires in English were included. Between 10% and 14% of surgery attendees met exclusion criteria (total for all surgeries = 45). There was no significant difference in recruitment rate at any of the surgeries selected.

Prior to seeing the GP, individuals completed the 28-item version of the GHQ.<sup>25</sup> This is a well established, reliable, and valid self-report questionnaire used to screen for the presence of psychological problems. Preliminary data<sup>32</sup> allowed a receiver operating characteristic (ROC) analysis of GHQ scores in comparison

with the brief PSE.<sup>26</sup> This enabled us to assess the GHQ's discriminating ability across the total spectrum of morbidity, to assess the effect of varying the threshold score, and to compare the efficiency of the two screening tests. Our results suggested that a GHQ cut-off score of seven gave the best trade-off between sensitivity (92%) and specificity (78%) of GHQ with PSE.

Blind to each subject's GHQ score, the GP recorded information about the patient and the consultation on a practice activity card (PAC). The PAC is exceedingly brief, taking only one to two minutes to complete, thus causing minimum disruption to the surgery. It includes questions on demography, length of interview (0–5 mins, 5–10 mins, more than 10 mins), the nature of the presenting problem, and basic information about case management (investigations, prescriptions given). The GP rates the likely presence or absence of psychological problems in each patient on a scale of one to five (one = entirely physical; five = entirely psychological). A score of two or more on the PAC denoted that the GP believed that there was a psychological component to the presentation.<sup>33</sup>

After the consultation, the patient was asked to complete a modified version of the medical interview satisfaction scale (MISS).<sup>34</sup> This is a widely used 21-item questionnaire that asks the patients to rate their agreement with statements regarding cognitive ( $n = 9$ ), affective ( $n = 9$ ), and behavioural ( $n = 3$ ) aspects of the interview with the GP (e.g. 'the doctor gave me a chance to say what was really on my mind') on a scale of one to five, with higher scores representing greater satisfaction with the interaction.

A researcher (TJ), blind to GP training status and patient and PAC ratings, then undertook an interview with each patient using the shortened version of the PSE.<sup>34,35</sup> The brief PSE is a structured clinical interview that has specific criteria for definite and borderline caseness for psychological disorders typically seen in primary care such as anxiety and depression. Rather than identifying non-specific distress or individual psychiatric symptoms, the PSE is more rigorous, identifying specific diagnostic categories. The majority of subjects participated in this interview at the GP surgery, but some subjects negotiated an alternative, more convenient, appointment time. However, if the appointment did not occur within seven days of completion of the GHQ-28 and PAC, the brief PSE data were not included in the analysis.

A power calculation was undertaken to determine the number of patients required in each group to detect differences in patient ratings and detection rates. It was estimated that 100 patients per group would have 80% power to detect a 20% difference in detection rates with an alpha of 0.05. Allowing for dropouts and incomplete ratings (estimated at about 20%), we decided to try to recruit all the patients attending a single surgery undertaken by each GP.

Patients attending PBI trained and non-PBI trained GPs were then compared on demographic and questionnaire ratings. Descriptive statistical analyses were undertaken using the SPSSx and confidence interval analysis packages. Differences in detection and management of psychological problems were assessed using evidence-based methods. The sensitivity and specificity of trained and non-trained GPs were calculated. Sensitivity and specificity calculations were repeated using PSE criteria. Differences between GP groups were assessed using chi-squared tests. The relative benefit of PBI training over no training was assessed using odds ratios. Lastly, the reduction in misdiagnosis rates between PBI and non-PBI trained GPs was determined by calculating the absolute risk reduction (ARR).

## Results

Two hundred and eighty patients met the inclusion criteria and agreed to take part in the study. The mean age of the sample was 42.1 years (SD = 14.9) and 63% ( $n = 176$ ) were females. Fifty-nine per cent of the sample ( $n = 165$ ) were married or cohabiting. Index GP attendees and control GP attendees did not differ significantly on any of these variables (Table 1). Complete GHQ-28 and PAC data were available on 144 patients attending the index GPs and 136 patients attending the control GPs. Complete brief PSE, GHQ-28, and PAC ratings were available on 124 index GP attendees and 117 control GP attendees respectively. Thirty-nine (14%) subjects who completed the GHQ did not complete the PSE interview within the one-week time limit. Basic sociodemographic data do not indicate any significant differences between those who completed the PSE and those who did not, but those who did complete the PSE were more likely to score below the threshold for caseness on the GHQ and PAC.

Completed MISS ratings were available from 126 index GP attendees and 113 control GP attendees. Forty-one subjects either failed to fill in the MISS questionnaire ( $n = 26$ ) or produced incomplete answers ( $n = 15$ ). There were no significant sociodemographic, PAC, or GHQ differences between those who completed the MISS and those who did not.

### Comparison of PAC ratings with GHQ-28

Thirty-nine per cent of all GP attendees (59/144 with index GPs;

53/136 with control GPs) scored eight or above on the GHQ-28. PAC recordings taken by the index GPs demonstrated a sensitivity (proportion with a psychological disorder correctly identified as a case) of 85% and a specificity (proportion without a psychological disorder correctly identified as a non-case) of 69% (Table 2). The PAC recordings taken by the control GPs demonstrated a lower sensitivity of 49% but higher specificity of 78%. The differences in sensitivity and specificity between the GP groups were significant ( $\chi^2 = 11.3$ ;  $df = 1$ ;  $P = 0.01$ ). The ARR in misdiagnosis by index GPs compared with control GPs was 9% (95% CI = -2 to -19).

The GP's ability to detect more subtle levels of distress in patients attending the surgery was also of interest. Many studies use a lower GHQ-28 cut-off score (score 4/5) to define caseness than the one employed in this project.<sup>25</sup> To explore this, patients with GHQ scores between five and eight were identified, and the PAC recordings of caseness taken by index and control GPs were noted. Of 58 subjects (30 control GP attendees and 28 index GP attendees) who had GHQ scores between five and eight, 27 (10 control GP attendees and 17 index GP attendees) were identified as cases according to PAC ratings. The odds ratio of an index GP correctly classifying such cases compared with a control GP was 3.1 (95% CI = 0.9 to 8.7;  $\chi^2 = 4.4$ ;  $df = 1$ ;  $P = 0.04$ ).

### Comparison of PAC ratings with brief PSE

Twenty-nine per cent (69/241) of all GP attendees who were

**Table 1.** Comparison of patients seen by index GPs and control GPs.

Measure	Index GPs	Control GPs
Total patients	144	136
Mean age (SD)	42.8 years (15.14)	41.39 (14.71)
Females	95 (65%)	83 (61%)
Married/cohabiting	58%	59%
Single	26%	22%
Divorced/widowed	12%	13%
Other (e.g. flat sharing)	4%	6%
Proportion of group with children	70%	64%
Age on leaving school (mean)	16.5	16.3
Percentage leaving school before age 18 years	88%	85%
Mean GHQ scores (SD)	6.42 (5.58)	6.61 (5.76)
Prior length of symptoms: <6 months	54%	59%

**Table 2.** Comparison between index and control group of PAC, GHQ-28, and brief PSE ratings, prescribing patterns, and MISS ratings.

Rating	Index GPs	Control GPs	Significance
GP detection of psychological distress GHQ>8 and PAC>2	$n = 144$	$n = 136$	
Sensitivity	85%	49%	P = 0.01
Specificity	69%	78%	
GP detection of definite or borderline caseness Brief PSE case and PAC>2	$n = 104$	$n = 85$	
Sensitivity	83%	57%	P = 0.06
Specificity	82%	74%	
Prescribing pattern	$n = 144$	$n = 136$	
Non-psychotropic medication prescribed	65	64	P = 0.001
Psychotropic medication prescribed	18	5	
Patient satisfaction ratings	$n = 126$	$n = 113$	
Mean MISS subscale scores:			
Cognitive scale	37.7	36.6	ns
Affective scale	38.8	37.6	P<0.05
Behavioural scale	12.8	12.8	ns
Mean total MISS score	89.4	86.8	ns

rated on the brief PSE met criteria for borderline or definite caseness. Index GPs demonstrated a sensitivity of 83% and a specificity of 82% in detecting these cases. The control GPs demonstrated both lower sensitivity (57%) and specificity (74%) than the index group. The ARR in misdiagnosis in PBI-trained GPs compared with non-trained GPs was 15% (95% CI = -2.5 to -27).

#### *Length of consultation, referrals, and prescribing patterns*

A mean of 62% of all consultations was recorded as lasting between 5 to 10 minutes. Although 21% of index GP consultations, compared with 15% of control GP consultations, lasted more than 10 minutes, this difference was not statistically significant. In the index GP sample, 26 patients had blood tests or other investigations recorded on the PAC compared with 25 (18% of total sample) patients in the control group. Eleven (7%) patients in the index GP group and 16 (12%) patients in the control GP group were referred to another health professional, either within or outside the general practice. There were no significant differences in referral rates between groups (45% index GP attendees and 47% of control GP attendees). However, the GPs differed significantly in their use of psychotropic drugs ( $\chi^2 = 7.3$ ;  $df = 1$ ;  $P = 0.001$ ), with only 3.5% (5) of control group attendees being prescribed antidepressant or anxiolytic medication compared with 12.5% (18) of index GP attendees. All patients prescribed psychotropic medication met GHQ criteria for caseness, and 21 (5 control attendees and 16 index attendees) patients met PSE criteria for definite or borderline caseness. The odds that a patient meeting GHQ caseness will be prescribed psychotropic medication by an index GP as opposed to a control GP was 4.2 (95% CI = 1.5 to 11.2), while the odds that a patient meeting PSE caseness will be prescribed psychotropic medication by an index GP as opposed to a control GP was 2.3 (95% CI = 0.5 to 5.2).

#### *Comparison of MISS ratings of index and control GP attendees*

The mean total scores on the MISS suggested that attendees with the index GPs (mean = 89.4; SD = 11.1) were non-significantly (95% CI = -1.55 to 0.18;  $t = -1.83$ ;  $df = 235$ ;  $P = 0.07$ ) more satisfied with their interviews than attendees with control GPs (mean = 86.7; SD = 11.2). On the affective subscale (assessing whether the patient felt accepted and understood by their doctor), patients rated index GPs (mean = 38.8; SD = 5.4) as marginally better (95% CI = -2.7 to 0.24;  $t = -1.96$ ;  $df = 235$ ;  $P < 0.05$ ) than control GPs (mean = 37.4; SD = 5.3).

### **Discussion**

Our most important findings were that, in comparison with control GPs, PBI-trained GPs were better at recognizing and managing psychological distress. The index GPs were particularly able to identify patients with more subtle symptomatology as measured on the GHQ (scores between five and eight), but also the more overt disorders as identified by the PSE caseness. On the GHQ, this significant gain in sensitivity was at the expense of a non-significant loss in specificity. The overall prescribing rate for identified psychiatric cases was 30%, but GHQ and PSE cases presenting to PBI-trained GPs, compared with non-PBI trained GPs, were significantly more likely to receive psychotropic medication. This style of interview was also acceptable to patients as index GP attendees were as satisfied or marginally more satisfied with their medical interviews when compared with control GP attendees. Importantly, this enhanced ability to identify and manage psychological problems, which was apparent immediately post-training had been maintained more than 12

months after completing the PBI course. These findings concur with the results of previous research,<sup>12,13</sup> which suggested that GPs with a more patient-centred style of interviewing are more able to identify emotional distress and are more likely to offer patients information, advice, and treatment relevant to their distress in a manner likely to maximize patient satisfaction, cooperation, and reduce anxiety levels.<sup>13</sup> Other PBI and video feedback studies have also shown that improvements in detection rates and interview behaviours persist, and that these skills may improve with time.<sup>16,31,37</sup> Bowman<sup>31</sup> suggests that PBI training stimulated greater individual interest and awareness of consultation skills, leading to increased self-monitoring and experimentation. There may also be benefits for GP trainees and medical students in using this approach.<sup>38</sup> In addition, Naji<sup>39</sup> noted that teachers with feedback on their own consultations were better teachers of interview skills than those who had only received didactic instructions on how to teach.

The recent WHO report<sup>1</sup> emphasizes that the problems of detection and management in primary care are worldwide. The high prevalence of psychosocial disorders and the public health and economic consequences of underdiagnosis and undertreatment, combined with the fact that most cases continue to be managed in primary care, mean that a coordinated approach to improving training is urgently required. While many agree with this notion, the question of which model of training in the identification and treatment of psychological problems would be most beneficial to large numbers of GPs remains unresolved. Hannaford *et al*<sup>24</sup> used a modular educational package including booklets and videotapes to improve recognition of psychological illness by GPs. Case identification rates before and three months after exposure to training material demonstrated an absolute decrease in missed cases of depression of 7% (from 24% to 17%), but no data is provided on any changes in treatment rates or longer term benefits of the training. In a study by Gotland,<sup>21</sup> a training programme on the detection and treatment of depression comprised two days of lectures and case discussion. Initial improvements were reported in prescribing along with reductions in psychiatric hospitalizations and suicide rates. However, these gains seemed to fade over time.

In 1992, the Royal College of Psychiatry and the Royal College of General Practitioners launched a Defeat Depression Campaign,<sup>40</sup> which tried to raise awareness of the prevalence of depression and the need for treatment. A midpoint evaluation in 1994<sup>41</sup> demonstrated that most GPs had heard of the campaign but only 25% reported that it had influenced their clinical practice. One could hypothesize that the strength of the Gotland programme was that it tried to help a well-defined group of GPs, but that the single strategy model of training meant that gains were not sustained.<sup>42</sup> The Defeat Depression Campaign used a variety of strategies (educational materials, conferences, etc) but attempted to influence a large group of GPs with varying degrees of interest and motivation. The advantage of PBI training may be that it employs effective teaching strategies,<sup>16,42</sup> including peer review (social influence) and video feedback (performance oriented), gains are sustained over time,<sup>31,37</sup> and improvements in skills may particularly benefit the least able trainees.<sup>30,43</sup>

If improvement in the detection of psychological caseness is to benefit the patient, it must be accompanied by improvement in treatment<sup>4,12</sup> and, ultimately, patient outcome.<sup>16</sup> While it is not clear that all identified cases would require medication, this study found that PBI-trained GPs were significantly more likely to offer pharmacotherapy to identified cases than control GPs. However, PBI training alone may not be sufficient to improve the outcome of psychological problems presenting in primary care. We have recently combined a PBI-training package with

training in the management of depression. Preliminary results demonstrate that this package produced greater improvements in detection and management skills in health visitors and social workers than a resource pack comprising reading materials and self-assessment exercises.<sup>43</sup>

Lastly, it is important to highlight the methodological deficiencies in this study. The selection and matching of control and index GPs was an imperfect but pragmatic approach. Recruiting a target number of patients from a single surgery undertaken by each GP is clearly less than ideal, and a future power calculation should focus on number of GPs required rather than number of patients required. Also, patient drop-outs and lack of details of actual dosage and duration of pharmacotherapy, along with a lack of follow-up data, mean that we have limited data about the long-term impact of PBI. The ideal design would be a randomized controlled trial with GPs allocated to control or training groups with prospective follow-up of a large cohort of patients. The results of this study suggest that such a study, with the evaluation of an increased number of patients and surgeries, should be pursued.

Despite the limitations highlighted, the results of this and other PBI studies add to the growing evidence that PBI is an effective and durable approach. As such, it could provide a template for training of both GP trainees and their teachers, leading to improved standards of care for psychological disorders in primary care.

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