

Detection of patient psychological distress and longitudinal patient–doctor relationships:

a cross-sectional study

Abstract

Background

Psychological distress in patients who attend their GP is thought to be under-recognised. However, it is likely that both disclosure and detection are influenced by how well the patient and doctor know each another.

Aim

To examine whether patient–doctor depth of relationship is associated with identification of psychological distress.

Design and setting

Cross-sectional study in general practices in and around Bristol, England.

Method

Patients (aged ≥ 16 years) were asked to complete a questionnaire and consent to their electronic medical records being reviewed. Study GPs independently assessed patient psychological distress. Multivariable logistic regression was used to look for associations between patient–doctor depth of relationship and GP detection of patient psychological distress (defined according to the 12-item General Health Questionnaire, GHQ-12).

Results

There were 643 eligible appointments with 31 GPs. In total, 541 (84.1%) patients returned questionnaires and 490 (76.2%) consented to their records being reviewed. Patient–doctor depth of relationship was not associated with GP detection of mild to severe patient psychological distress [adjusted odds ratio (OR) 0.94, 95% CI = 0.87 to 1.02] but, in secondary analyses, it was associated with the identification of moderate to severe distress (adjusted OR 1.13, 95% CI = 1.02 to 1.26). GPs reported more patient psychological distress in patients who reported a greater depth of relationship but this did not relate to patients' GHQ-12 scores.

Conclusion

Evidence to support an association between patient–doctor depth of relationship and improved GP detection of patients with psychological distress was weak, except in those patients who GPs thought were more distressed. GPs may overestimate emotional distress in patients who report deeper patient–doctor relationships.

Keywords

continuity of patient care; diagnosis; family practice; mental disorders; patient–doctor relationships; psychological stress.

INTRODUCTION

General practice is the point of first contact with health services for most people who are psychologically distressed.^{1,2} Research suggests that common mental health problems such as depression often go undetected in primary care,³ yet the majority of studies on GP detection are cross-sectional and it may be unwise to judge doctors' performance on the basis of a single encounter.

Work by Kessler *et al*⁴ showed that the majority of patients whose distress is not recognised at the index consultation either improve or go on to be identified during subsequent encounters. In addition, interactions between patients and doctors are affected by whether or not the patient and doctor know each another,⁵ and dealing with psychological issues has been highlighted as a situation when continuity is especially valued by patients and doctors.^{6,7}

Although there are plausible reasons why seeing the same doctor may affect the identification of an emotional problem,^{8,9} the influence of patient–doctor continuity on the detection of psychological distress has received limited attention. Studies of the effects of continuity in other aspects of patient care have been limited by their focus on its longitudinal dimension (seeing the same doctor) when the literature suggests that it is the personal dimension (the relationship between patient and doctor) that is more important.¹⁰ Therefore, building

on a previously published model of longitudinal patient–doctor relationships,¹¹ this study sought to investigate whether patient–doctor depth of relationship is associated with improved GP detection of patient psychological distress.

METHOD

Recruitment and data collection

GPs were recruited from practices in and around Bristol, England. As the majority of practices were members of a local research collaborative, selection was non-random. During study surgeries those patients who were eligible (aged ≥ 16 years and able to self-complete a questionnaire) and study GPs were asked to complete questionnaires. With consent, patients' electronic medical records were reviewed for data on consultation length, longitudinal care, and mental health.

Patient psychological status

Patient-reported psychological distress was assessed using the 12-item General Health Questionnaire (GHQ-12).¹² The General Health Questionnaire is a self-completed measure of psychiatric disturbance that has been widely used in primary care studies. GHQ-12 scores were calculated using the '0011' method, which gives a score of between zero and 12.¹² At a given threshold, patients are usually dichotomised into groups of psychiatric and non-psychiatric cases. For the purposes of the main

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How this fits in

GPs are reported to under-detect patient psychological distress, yet the influence of longitudinal patient–doctor relationships has been poorly explored. In this study, patient–doctor depth of relationship was not associated with better GP detection of patients with psychological distress, but it was associated with GPs reporting a higher level of psychological distress than that reported by patients. Until this observation is substantiated, GPs should maintain good communication skills and be alert to the possibility of mislabelling patients with whom they have developed a relationship.

analysis, a GHQ-12 score of ≥ 3 indicated the presence of psychological distress, as supported by the findings of Bashir *et al.*¹³ Participants were also asked whether they thought their main problem had an emotional cause (emotional attribution). Patients were coded as having a current mental health problem if they had a current psychiatric diagnosis and/or prescription(s) for psychotropic medications in their electronic medical record.

Each GP's assessment (in response to the question: 'Do you think this patient is suffering from a psychological or emotional disturbance?') was recorded on a 4-point scale (none, mild, moderate, or severe), as used in previous studies.¹⁴ Psychological distress was defined as distress that the GP had rated as mild or worse for the main analysis, and moderate or worse for the exploratory analysis.

Patient–doctor continuity

Patient–doctor depth of relationship was measured using the Patient–Doctor Depth of Relationship Scale.¹⁵ This is an eight-item, validated, self-completed questionnaire that scores depth of relationship from the patient's perspective (range: 0–32).

As part of the exploratory analysis, the number of consultations with the GP was used to examine the influence of patient–doctor continuity in its more traditional longitudinal dimension. The number of consultations were calculated using data on patients' encounters with the practice as noted in their electronic medical records during a continuity-defining period of either 12 months or 10 patient encounters prior to the index consultation, whichever was greater.

Analysis

In the main analysis, the sample was

restricted to patients with psychological distress, as identified by the GHQ-12 score. Multivariable logistic regression was used with depth of relationship as the exposure variable and GP detection as the outcome. All models incorporated robust standard errors to account for clustering by GP. Potential confounders (patient sex, age, marital status, employment, education, disability, health, GHQ-12 score, consultation length, patient–doctor communication measured using the relevant scale of the General Practice Assessment Questionnaire [GPAQ],¹⁶ number of problems, emotional attribution, and current mental health problem) were included in the main logistic regression model.

Further exploratory analyses using logistic regression investigated the following:

- the effect of alternative GP and GHQ-12 thresholds on depth of associations between relationship and detection of psychological distress;
- the accuracy of GPs' assessment of all patients (whether or not they were distressed); and
- GP detection in relation to longitudinal care (number of previous consultations with study GP).

These analyses were undertaken to aid the interpretation of the main findings, and were justified on the grounds that:

- given the characteristics of the sample, the adoption of a higher GP and GHQ-12 threshold may have been more appropriate;
- an analysis of the accuracy of the GPs' assessments allowed the association between depth of relationship and distress across the range of GHQ-12 scores to be explored; and
- it is possible that the patient–doctor depth of relationship is no better or worse than that in longitudinal care.

The actual amount of time covered by the continuity-defining period (which varied from patient to patient) was included as a covariate in all longitudinal care analyses.

All analyses were performed using Stata 10.1 (StataCorp, College Station, Texas, US).

Sample size

The sample size was calculated with two-sided 5% alpha and 80% power, using (conservatively) the comparison of two proportions sample size formula (with

Table 1. Patients' personal and consultation characteristics

	n (%)
Marital status (n = 487)	
Single	106 (21.8)
Married/living with partner	295 (60.6)
Divorced/separated	43 (8.8)
Widowed	43 (8.8)
Employment (n = 481)	
Employed	202 (42.0)
Unemployed	18 (3.7)
Retired	167 (34.7)
Other	94 (19.5)
Education (n = 472)	
None	157 (33.3)
Basic	165 (35.0)
Advanced	73 (15.5)
Higher	77 (16.3)
Disability (n = 485)	
General health (n = 486)	
Poor	57 (11.7)
Fair	120 (24.7)
Good	146 (30.0)
Great	163 (33.5)
Current mental health problem (n = 490)	
Study consultations	
Two or more problems (n = 486)	245 (50.4)
Main problem has emotional cause (n = 461)	132 (28.6)

Percentages may not add up to 100% due to rounding.

continuity correction)¹⁷ for correct GP identification of patients with psychological distress in relation to a dichotomous version (deep/shallow) of the depth of relationship scale.¹⁵ Working on an overall GP detection rate of 66% and on the basis that, approximately, a quarter of patients would have a deep patient–doctor relationship, and three-quarters would have a shallow one, an effective sample size of 207 [design effect derived from a ρ of 0.05 on 300 patients, 10 per GP], would lead to a detectable OR of 3.0.

RESULTS

Characteristics of GPs and patients

Of 34 practices approached, 31 GPs in 31 practices agreed to take part. Participating GPs were mostly male (20, 64.5%) and white (30, 96.8%). Mean age was 47.9 years (standard deviation [SD] 7.2, range: 30–60 years). The majority (29, 93.5%) were Members or Fellows of the Royal College of General Practitioners.

Of the 643 patients who were eligible to participate in the study and were seeing these GPs, 541 (84.1%) returned a questionnaire and 490 (76.2%) gave consent for their medical records to be reviewed. The mean patient age was 52.6 years (SD 19.8, range: 16–93 years), and the majority were white (96.2%) and female (58.2%). Other characteristics of participating patients and

their consultations are shown in Table 1.

Levels of patient–doctor continuity and patient psychological distress

The Patient–Doctor Depth of Relationship Scale scores were highly negatively skewed, with a median of 26 (interquartile range [IQR] 19–32, $n = 483$). The number of consultations with the study GPs during the continuity-defining period were positively skewed, with a median score of four (IQR 2–6, $n = 490$).

The overall prevalence of patient psychological distress was 51.0% (247/484), according to study GPs and 47.1% (218/463) according to the GHQ-12. The proportion of participants, by GP, who were psychologically distressed according to their GHQ-12 score, varied from 24.0% to 87.5% (between three and 14 cases per GP).

The patient–doctor depth of relationship and GP detection of patients with psychological distress

GP and GHQ data were both available for 457 patients (Table 2). Doctors correctly identified 154 (33.7%) patients with psychological distress and 163 (35.7%) without psychological distress, as classified by their GHQ-12 score; 140 (30.6%) patients were incorrectly identified. The sensitivity and specificity of GP detection was 72.0% (95% CI = 65.4 to 77.9) and 67.1% (95% CI = 60.8 to 73.0) respectively. Further analyses in this section are restricted to patients who were psychologically distressed according to their GHQ-12 score ($n = 214$, excluding four patients who had no GP assessment).

The unadjusted OR of GP detection of patients with psychological distress was 1.04 (95% CI = 1.00 to 1.08, $P = 0.05$) for every point on the Patient–Doctor Depth of Relationship Scale. Crude and adjusted associations for this association, and the key potential confounders in relation to GP detection, are shown in Table 3. After adjusting for all factors, the association was attenuated to an OR of 0.94 (95% CI = 0.87 to 1.02, $P = 0.15$).

Exploratory analysis was performed using higher thresholds to signify the presence of psychological distress (GP assessment of moderate or greater; GHQ-12 score of ≥ 4), for two reasons:

- the overall high levels of GP sensitivity when including mild cases (72.0%) meant that a depth-of-relationship effect on the detection of patients with psychological distress was less likely to be seen; and
- the mean GHQ-12 score was 3.6, so that

Table 2. GP assessment of patient psychological distress according to GHQ caseness (GHQ-12 ≥ 3)

Patients in whom psychological distress identified by GP, n (%)	Patients in whom psychological distress identified by GHQ-12 score, n (%)		Total
	No	Yes	
No	163 (35.7)	60 (13.1)	223 (48.8)
Yes	80 (17.5)	154 (33.7)	234 (51.2)
Total	243 (53.2)	214 (46.8)	457 (100.0)

GHQ-12 = 12-item General Health Questionnaire.

according to Goldberg *et al*¹⁸ the best GHQ cut-off for psychological distress caseness may have been ≥ 4 .

Repeating the analysis with these respective higher thresholds gave an OR of 1.13 [95% CI = 1.02 to 1.26] for adjusted depth of relationship-GP detection of psychological distress.

Accuracy of GP assessment of psychological distress and patient-doctor depth of relationship

Analyses in this section relate to all patients on whom data on patient-doctor depth of relationship and levels of psychological distress (GP assessment and GHQ score) were available ($n = 451$).

To examine whether the proportion of GP-reported cases of patients with psychological distress varied with depth of relationship, a logistic regression model was constructed with depth of relationship and GHQ score as continuous explanatory variables and the GP report of patient distress as the outcome. The OR of GPs' assessments, with increasing depth of relationship adjusted for the GHQ-12 score, was 1.03 [95% CI = 1.00 to 1.07, $P = 0.07$], with no evidence of interaction between the two explanatory variables ($P = 0.98$).

GP detection and accuracy of assessment, and patient-doctor longitudinal care

Among the 214 patients with psychological distress as identified by their GHQ-12 score, there was no evidence of an association between the number of consultations with the study GP and the detection of patients with psychological distress (adjusted OR 1.05, 95% CI = 0.91 to 1.22). For all patients on whom GHQ-12 score and GP assessment data were available, logistic regression models were constructed with the GP report of distress as the outcome, and longitudinal care and the GHQ-12 score as the explanatory variables. There was no evidence of an interaction between the number of consultations and the GHQ-12 score ($P = 0.16$).

DISCUSSION

Summary

Patient-doctor depth of relationship was not associated with GP identification of patients with psychological distress. However, when secondary analyses using higher thresholds to signify psychological distress for both the GP assessment and GHQ-12 tool were performed, an association between patient-doctor depth of relationship and detection was found. Furthermore, GPs' reporting of distress, by patient-doctor depth of relationship, did not vary with the patient's GHQ-12 score. Combined, these findings suggest that greater depth of patient-doctor relationship may favour GP identification of more severely distressed patients and overall higher levels of doctor-detected distress than patients themselves report.

Strengths and limitations

This is the first study to use the newly developed Patient-Doctor Depth of Relationship Scale to examine the important question of whether relational continuity improves GPs' identification of patient psychological distress. Findings using a longitudinal measure of continuity were similar. However, this study recruited a smaller number of patients whose GHQ-12 score identified them as being psychologically distressed than planned; as such, the absence of an association between depth of relationship and detection of patients who are psychologically distressed may represent a type-II error.

The generalisability of the study's findings may be limited by the representativeness of the participating patients, GPs, and their practices. Patients in this study had consulted more frequently in the previous 12 months than the national average (5.0 versus 3.3),¹⁹ and the prevalence of patient psychological distress was also, generally, higher than that reported in previous studies carried out in UK primary care.^{14,20-22} Compared with statistics for England in 2005, the GPs in the current study were

Table 3. Multivariable logistic regression analysis of GP detection of patients with psychological distress^a

Factor	Odds ratio of GP detection (95% CI)	
	Crude	Adjusted ^b
Consultation length, minutes	1.07 [0.99 to 1.15]	1.07 [0.95 to 1.21]
GPAQ communication	1.02 [1.00 to 1.04]	1.03 [1.00 to 1.06]
Current mental health problem		
No	1.00	1.0
Yes	6.98 [3.41 to 14.27]	8.48 [2.01 to 35.72]
GHQ-12 score	1.37 [1.25 to 1.49]	1.34 [1.17 to 1.54]
Number of patient-reported problems		
Single	1.00	1.0
Multiple	1.60 [0.90 to 2.84]	1.76 [0.48 to 6.40]
Emotional attribution (main problem)		
Not emotional	1.00	1.0
Partly/entirely emotional	10.69 [4.13 to 27.67]	5.02 [1.58 to 15.97]
Patient-doctor depth of relationship	1.04 [1.00 to 1.08]	0.94 [0.87 to 1.02]

^aSample restricted to those patients whose GHQ-12 score identified them as having psychological distress.

^bOdds ratio adjusted for other factors in the model. GHQ-12 = 12-item General Health Questionnaire. GPAQ = General Practice Assessment Questionnaire.

necessarily the focus of each patient-study GP consultation. It could be argued that it is unfair to compare what may be 'incidental' assessments made by the GP with a specific measure of psychological distress. The counter-argument is that doctors should always be aware of the patient's psychological state because it may influence what problems the patient presents and how the doctor decides to manage them. Indeed, the basis of the study hypothesis was that the doctor who has an ongoing relationship with the patient has an advantage in this respect over a colleague who does not.

Information about patients' psychological states at previous consultations with the study GP was not available; this may have influenced doctors' assessments at the index consultation. Patients with recent onset of psychological symptoms, or who are recovering, may not meet criteria for disorder on the General Health Questionnaire, yet their physician may correctly identify them as relapsing, or recovering from, an episode of psychological distress.

Comparison with existing literature

Few studies have specifically examined the role of patient-doctor continuity in identifying emotional distress in primary care. In the US, Robinson and Roter reported that patient disclosure of psychosocial problems was associated with greater perceived physician familiarity with the patient.²⁷ Other studies conducted in Norway,²⁸ Israel,²⁹ and Jordan³⁰ have also linked the identification of patient distress to doctors' knowledge of patients. However, Spitzer *et al*³¹ reported that nearly half of patients with a specific disorder listed in the *Diagnostic and Statistical Manual of Mental Disorders* (Revised Third Edition), who were somewhat or fairly well known to their physicians, went unrecognized.

Two studies have suggested that continuity may make doctors more sensitive to, but less specific in, their identification of emotional distress. In Haller *et al*'s recent Australian study of young people (aged 16–24 years) attending their practice, among other factors, GPs' correct identification of emotional distress was associated with patients seeing their usual doctor;³² however, they also reported that continuity appeared to favour over-identification in those who were unlikely to have a mental disorder. Rosenberg *et al*³³ looked at factors associated with primary care physicians' identification of psychological problems in patients with normal 28-item General Health Questionnaire scores in Montreal,

younger, more likely to be male, and were working in larger practices.^{23,24} It is difficult to say whether the doctors in this study are typical in respect of their ability to detect psychological distress. The mean GPAQ communication skills score for the GPs in this study was 87.7%, which is higher than the national benchmark figure of 83% for 2005–2006.²⁵ Compared with previous UK primary care detection studies that used the GHQ-12,^{14,20} it would appear that the GPs in this study were generally better at detection and more psychologically orientated; however, these differences may reflect methodological issues such as the choice of the GHQ-12 cut-off point which identified a patient as being psychologically distressed.

The performance of the GPs in this study was assessed by comparing their identification of patient psychological distress with that of the GHQ-12, which raises two issues. Although the adoption of the GHQ-12 as the 'gold standard' in this type of study is commonplace, it is contentious.²⁶ This tool is established as a practical and reliable way of measuring psychological distress but it is not a diagnostic instrument — a score above a given threshold does not necessarily identify a mental disorder in that patient, it simply signifies that the probability of a mental disorder being present is greater. In addition, as the exploratory analysis demonstrated, the thresholds adopted for GP and GHQ-12 'caseness' clearly had important implications for the findings. Were this study to be repeated, it might be more appropriate to undertake the primary analysis using the higher cut-off points.

It is worth remembering that assessment of patient psychological distress was not

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Ethical approval

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Provenance

Freely submitted; externally peer reviewed.

Competing interests

The authors have stated that there are none.

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Canada; they found that the physician not knowing the patient well was associated with less-frequent detection.

Taken with the present study, one explanation for the findings may be that patients are more likely to disclose personal feelings and worries to doctors who they feel that they know well. GPs may interpret this as psychological distress when it is not, in fact, the case and consequently, over-identify distress across the spectrum but at the milder end of the scale in particular. Doctors should, therefore, exercise caution in labelling as 'distressed' those patients who they know well.

Implications for practice

Researchers have yet to conduct the definitive study to assess the value of longitudinal patient–doctor relationships in identifying patient psychological distress. It is difficult to envisage how patient–doctor continuity could be randomised at the individual level in a randomised controlled trial but, if a practice-level intervention that improves continuity could be devised, a

cluster randomised controlled trial is a possibility.

Although the majority of GPs are likely to want to promote continuity in their practices, this study has provided weak evidence that seeing the same doctor improves detection of patient psychological distress. Familiarity between patient and doctor may actually make disclosure and/or identification of distress more difficult and the findings caution doctors against being too quick to label known patients as having emotional or psychiatric problems. One danger of this is that attributing physical symptoms too readily to psychological causes may delay the diagnosis of underlying serious disease. This study should also remind GPs of the importance of other previously described factors that influence the discussion of psychosocial issues — namely, the severity of the distress,³⁴ duration of the consultation,²¹ the doctor's communication skills,³⁵ and what the patient thinks is wrong with them.³⁶

REFERENCES

1. Corney RH. A survey of professional help sought by patients for psychosocial problems. *Br J Gen Pract* 1990; **40(338)**: 365–368.
2. Kovess-Masfety V, Saragoussi D, Sevilla-Dedieu C, *et al*. What makes people decide who to turn to when faced with a mental health problem? Results from a French survey. *BMC Pub Health* 2007; **7**: 188.
3. Mitchell AJ, Vaze A, Rao S. Clinical diagnosis of depression in primary care: a meta-analysis. *Lancet* 2009; **374(9690)**: 609–619.
4. Kessler D, Bennewith O, Lewis G, Sharp D. Detection of depression and anxiety in primary care: follow up study. *BMJ* 2002; **325(7371)**: 1016–1017.
5. Bertakis KD, Azari R, Callahan EJ, *et al*. Comparison of primary care resident physicians' practice styles during initial and return patient visits. *J Gen Intern Med* 1999; **14(8)**: 495–498.
6. Ridd M, Shaw A, Salisbury C. 'Two sides of the coin' — the value of personal continuity to GPs: a qualitative interview study. *Fam Pract* 2006; **23(4)**: 461–468.
7. Guthrie B, Wyke S. Personal continuity and access in UK general practice: a qualitative study of general practitioners' and patients' perceptions of when and how they matter. *BMC Fam Pract* 2006; **7**: 11.
8. Cape J, McCulloch Y. Patients' reasons for not presenting emotional problems in general practice consultations. *Br J Gen Pract* 1999; **49(448)**: 875–879.
9. Howe A. "I know what to do, but it's not possible to do it" — general practitioners' perceptions of their ability to detect psychological distress. *Fam Pract* 1996; **13(2)**: 127–132.
10. Haggerty JL, Reid RJ, Freeman GK, *et al*. Continuity of care: a multidisciplinary review. *BMJ* 2003; **327(7425)**: 1219–1221.
11. Ridd M, Shaw A, Lewis G, Salisbury C. The patient-doctor relationship: a synthesis of the qualitative literature on patients' perspectives. *Br J Gen Pract* 2009; **59(561)**: 268–275.
12. Goldberg D, Williams P. *A user's guide to the general health questionnaire*. Windsor: Nfer-Nelson, 1988.
13. Bashir K, Blizard R, Jenkins R, Mann A. Validation of the 12-item General Health Questionnaire in British general practice. *Prim Care Psych* 1996; **2**: 4–7.
14. Howe A. Detecting psychological distress: can general practitioners improve their own performance? *Br J Gen Pract* 1996; **46(408)**: 407–410.
15. Ridd M, Lewis G, Peters T, Salisbury C. The Patient-Doctor Depth of Relationship scale: development and validation. *Ann Fam Med* 2011; **9(6)**: 538–545.
16. Mead N, Bower P, Roland M. General Practice Assessment Questionnaire (GPAQ) — development and psychometric characteristics. *BMC Fam Pract* 2008; **9**: 13.
17. Kirkwood BR, Sterne JAC. *Medical statistics*. 2nd edn. Oxford: Blackwell Science, 2003.
18. Goldberg DP, Oldehinkel T, Ormel J. Why GHQ threshold varies from one place to another. *Psychol Med* 1998; **28(4)**: 915–921.
19. Hippiusley-Cox J, Fenty J, Heaps M. *Trends in general practice consultation rates 1995 to 2006: analysis of Qresearch database*. Leeds: NHS Information Centre, 2007.
20. Kessler D. *Symptom attribution and the detection of depression and anxiety in primary care [MD thesis]*. London: University of London, 2003.
21. Stirling AM, Wilson P, McConnachie A. Deprivation, psychological distress, and consultation length in general practice. *Br J Gen Pract* 2001; **51(467)**: 456–460.
22. May S. Patient satisfaction and the detection of psychiatric morbidity in general practice. *Fam Pract* 1992; **9(1)**: 76–81.
23. Royal College of General Practitioners. *Profile of UK general practitioners*. London: Royal College of General Practitioners, 2006.
24. Royal College of General Practitioners. *Profile of UK practices*. London: Royal College of General Practitioners, 2006.
25. National Primary Care Research and Development Centre. *Consultation version (2.0): General Practice Assessment Questionnaire benchmarks for 2005–06*. Manchester: National Primary Care Research and Development Centre, 2009.
26. Heath I. Commentary: There must be limits to the medicalisation of human distress. *BMJ* 1999; **318(7181)**: 439–440.
27. Robinson JW, Roter DL. Psychosocial problem disclosure by primary care patients. *Soc Sci Med* 1999; **48(10)**: 1353–1362.
28. Gulbrandsen P, Fugelli P, Sandvik L, Hjortdahl P. Influence of social problems on management in general practice: multipractice questionnaire survey. *BMJ* 1998; **317(7150)**: 28–32.
29. Shiber A, Maoz B, Antonovsky A, Antonovsky H. Detection of emotional problems in the primary care clinic. *Fam Pract* 1990; **7(3)**: 195–200.
30. Al-Jaddou H, Malkawi A. Prevalence, recognition and management of mental disorders in primary health care in Northern Jordan. *Acta Psychiatr Scand* 1997; **96(1)**: 31–35.
31. Spitzer RL, Williams JB, Kroenke K, *et al*. Utility of a new procedure for diagnosing mental disorders in primary care. The PRIME-MD 1000 study. *JAMA* 1994; **272(22)**: 1749–1756.
32. Haller DM, Sancu LA, Sawyer SM, Patton GC. The identification of young people's emotional distress: a study in primary care. *Br J Gen Pract* 2009; **59(560)**: 61–70.
33. Rosenberg E, Lussier MT, Beaudoin C, *et al*. Determinants of the diagnosis of psychological problems by primary care physicians in patients with normal GHQ-28 scores. *Gen Hosp Psychiatry* 2002; **24(5)**: 322–327.
34. Ormel J, Koeter MW, van den Brink W, van de Willige G. Recognition, management, and course of anxiety and depression in general practice. *Arch Gen Psychiatry* 1991; **48(8)**: 700–706.
35. Gask L, Goldberg D. Impact on patient care, satisfaction and clinical outcome of improving the psychiatric skills of general practitioners. *Eur J Psychiatry* 1993; **7**: 203–218.
36. Greer J, Halgin R, Harvey E. Global versus specific symptom attributions: predicting the recognition and treatment of psychological distress in primary care. *J Psychosom Res* 2004; **57(6)**: 521–527.