

Systematic review of the effect of on-site mental health professionals on the clinical behaviour of general practitioners

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BMJ 2000;320:614-7

Abstract

Objectives To review the published literature concerning the effects of on-site mental health professionals on general practitioners' management of mental health.

Design Systematic review of controlled trials.

Setting Primary care.

Participants General practitioners and mental health professionals.

Main outcome measures Consultation rates, prescribing of psychotropics, and referrals to secondary care mental health services by general practitioners.

Results The effect of on-site mental health professionals on consultation rates was inconsistent. Referral to a mental health professional reduced the likelihood of a patient receiving a prescription for psychotropics or being referred to secondary care, although the effects were not consistent. An on-site mental health professional did not alter prescribing and referral behaviour towards patients in the wider practice population.

Conclusions The secondary effects of mental health professionals on the clinical behaviour of general practitioners are comparatively modest and inconsistent and seem to be restricted to patients directly under the care of the mental health professional.

Introduction

A variety of mental health professionals such as counsellors work in primary care.¹ As yet the cost effectiveness of such provision is unclear when compared with routine general practitioner care.² The presence of an on-site mental health professional, however, represents an organisational change that may have benefits beyond immediate patient outcome, such as changes in established clinical routines among general practitioners. This could have profound effects on the cost effectiveness of mental health provision in primary care.

On-site mental health professionals may have two distinct effects on the behaviour of general practitioners. The direct effect concerns the influence of on-site mental health professionals on the behaviour of general practitioners towards patients referred to the

mental health professionals—for example, are general practitioners less likely to prescribe antidepressants for depressed patients whom they refer to the practice counsellor compared with those who remain under the doctor's care alone? Direct effects are examined in studies comparing the behaviour of general practitioners towards patients who are allocated to mental health professionals or to routine general practitioner care. The indirect or spillover³ effect concerns the influence of on-site mental health professionals on the behaviour of general practitioners towards the wider practice population who have not been referred to the mental health professional—for example, does the prescription rate for psychotropics throughout the practice decline when a practice employs a psychologist? Indirect effects are examined in studies that compare clinical behaviour in practices with and without on-site mental health professionals.

Several different models exist of the relationship between on-site mental health professionals and general practitioners,^{4,5} but for the purposes of our review two main models were distinguished. In the "replacement" model the mental health professional assumes primary responsibility for the management of the patient's mental health problem. In the "consultation-liaison" model the mental health professional aims to support the general practitioner's management of the patient's mental health problem through education and support.⁴ Our review was concerned with the direct and indirect effects of the replacement model, which is the more common model found in primary care in the United Kingdom. Consultation-liaison studies are the subject of a separate review.

Methods

We aimed to test the hypothesis that on-site mental health professionals reduce the frequency of consultations, prescriptions, and referrals to off-site services by general practitioners.

Literature search

Our review was conducted as part of the effective practice and organisation of care module of the *Cochrane Library*.⁶ We electronically searched Medline (1966-98), PsycInfo (1984-98), Embase (1980-98), the

website
extra

Details of the search strategy and included and excluded trials appear on the BMJ's website

www.bmj.com

Cochrane Clinical Trials' Register, the specialised register of the Effective Practice and Organisation of Care group, and Counselling in Primary Care Trust Counsel.Lit database (see website). We also searched the reference lists of all relevant studies.

Study selection

Direct effects

Direct effects are examined by studies that compare the behaviour of general practitioners towards patients who are allocated to the care of either a mental health professional or general practitioner. We included randomised controlled trials reporting objective measures (for example, searches of medical records) of consultations, rates and costs of prescribing psychotropics, or referrals to secondary care. Although consultation rates are sometimes considered a patient behaviour, an important proportion of consultations in the United Kingdom are initiated by doctors, and we therefore regarded them as a relevant indicator of management by general practitioners. Although we examined non-randomised controlled "before and after" trials, the presence of a major number of randomised trials examining direct effects led to the post hoc decision to exclude non-randomised trials owing to the difficulties associated with their interpretation.⁷

Indirect effects

Indirect effects are examined by studies that compare the behaviour of general practitioners in practices with and without on-site mental health professionals. Because of difficulties in the random allocation of practices to intervention and control groups, we broadened the inclusion criteria to consider randomised controlled trials, controlled before and after studies, and interrupted time series reporting objective measures of rates and costs of psychotropic prescribing or referrals to secondary care at practice level. Several studies reported the effect of community psychiatric services on admissions to mental hospital.⁸⁻⁹ Admissions were considered an indicator of specialist, not general practitioner, management and were therefore excluded.

Statistical analysis

Where possible we tabulated results in terms of means and standard deviations for consultations and proportions for prescribing and referrals. Other data are presented as reported in the original source. In controlled before and after studies, baseline differences were recorded wherever possible to provide some indication of the comparability of study groups before the intervention.

Although there is significant heterogeneity in the professional background and therapeutic approach of mental health professionals in primary care, such differences may be comparatively unimportant in terms of changes in the behaviour of the general practitioner, and thus pooling of outcomes from randomised controlled trials may be justified. Such pooling was not, however, undertaken because data, such as variance statistics, were frequently not reported. Our analysis was therefore qualitative.

Results

We identified 40 relevant outcomes: 13 randomised controlled trials of direct effects on consultation rates (table A on website)¹⁰⁻²³; 12 randomised controlled trials of direct effects on prescribing (table B on website)^{10-14 18-25}; six randomised controlled trials of direct effects on referrals (table C on website)^{11 15 18 22-24}; three controlled before and after studies of indirect effects on prescribing (table D on website)²⁶⁻²⁹; and six controlled before and after studies of indirect effects on referrals (table E on website).^{26 27 29-32}

Study quality

Studies of direct effects

Concealment of allocation was considered adequate in two studies,^{15 23} open to bias in three,^{10 16 24} and unclear from information provided by the remainder. Follow up rates of greater than 80% were reported in five studies,^{10-12 16 19} less than 80% in two,^{13 17} and eight did not provide information. Sample sizes ranged from 44 to 429 (mean 152).

Behaviours were assessed through searches of medical records, reviews of charts, or automated data. The reliability of data from searches of medical records was not assessed. Although several studies reported power analyses, these were always related to mental health outcomes of patients (the primary focus of all the studies) rather than the outcomes of general practitioner behaviour, so their utility for our review is unclear.

Studies of indirect effects

The unit of analysis in studies of indirect effects should be the practice but only two studies clearly analysed at that level.^{26 28} Information concerning the comparability of the control sites was provided in only one study.²⁶ One study used random selection of controls from a sample but did not provide any descriptive statistics.²⁸ Other studies described qualitative similarities between practices³⁰⁻³² or used practices in the same geographical area.²⁹ The comparability of control and intervention practices in terms of outcome variables at baseline was examined statistically in only two studies^{28 32} and confirmed in one.²⁸

In these studies, most general practitioner behaviours were assessed objectively and reliability enhanced through the use of automated recording systems. Control practices were chosen so as not to have access to the intervention under test, although it was not clear in most cases whether these practices had access to other mental health professionals not included in the intervention. Samples sizes ranged from three to 87 practices. None of the indirect studies reported a power analysis.

Direct effects

Of the 13 studies of consultation rates only three reported statistically significant effects, with lower rates in the mental health professional groups.^{16 18 20} Of the 12 studies of prescribing behaviour, five found significant reductions in the mental health professional group.^{10 11 19-21} The effects were not always consistent within studies in terms of the different drugs examined and the duration of the effect. Three of the six

What is already known on this topic

Mental health professionals are increasingly working in the primary care setting yet randomised controlled trials have not provided evidence that their treatments are superior to routine general practitioner care in the long term

The addition of such professionals to primary care represents an organisational change that may have an impact beyond the immediate health outcomes of patients managed by such professionals—for example, additional costs of such specialists could be recouped from reductions in prescribing and referral to secondary care. These reductions can occur in patients referred to the mental health specialist or may generalise to the ways that general practitioners manage the wider practice population

What this study adds

Although conclusions from this review are restricted by shortcomings in the methodology and reporting of studies, referring a patient to a mental health professional reduces the likelihood of a general practitioner prescribing psychotropics or referring patients to specialist psychiatric services, at least in the short term

The effects on consultation rates are less consistent. On-site mental health professionals do not seem to affect the behaviour of general practitioners towards the wider practice population who are not referred directly to the mental health professional

randomised controlled trials of referral behaviour reported significant reductions in the mental health professional group.^{11 22 24} Two others reported lower rates and costs in the mental health professional group, and one reported no difference.

Indirect effects

None of the studies reported a significant association between on-site mental health professionals and practice prescribing of psychotropics. One controlled before and after study reported a significant association between an on-site mental health professional and higher rates of referral to secondary care.²⁶ The authors, however, also conducted a second analysis using a smaller subset of practices matched for deprivation, population size, fundholding status, and location, and they found no differences in referral rates.

Discussion

Methodological issues

Our review was restricted to controlled trials thereby excluding qualitative research that may add insights into why the behaviour of general practitioners may or may not change with on-site mental health professionals. We found no discernible publication bias favouring positive effects on behaviour of general practitioners, possibly because most included studies were primarily concerned with the clinical effectiveness of mental health professionals and not their impact on the general practitioner. For the same reasons the quality of information on behaviour of general practitioners was variable.

The quality of the included studies was variable, but statistically significant results were not restricted to studies with methodological weaknesses. Concerns

have also been raised about the external validity of such primary care studies. Prescribing behaviour in trials may differ from routine care,³³ because of Hawthorne effects or more specific mechanisms, such as the confirmation of a diagnosis in trial patients. Future studies would also benefit from longer term follow up.

Direct effects

On-site mental health professionals did not cause substantial changes in the clinical behaviour of general practitioners. In terms of direct effects, referral to an on-site mental health professional did not consistently reduce consultations with general practitioners. The effects on prescribing behaviour were also inconsistent, but suggest that fewer patients referred to a mental health professional are given a prescription for psychotropics, especially in the short term. The evidence for a direct effect was strongest in relation to general practitioner referrals to secondary care providers, which were reduced with an on-site mental health professional, although even here the effect was not totally consistent. Although of comparatively modest size, such effects may have an effect on the overall cost effectiveness of treatment from mental health professionals compared with routine general practitioner care: a recent trial found no obvious cost advantage associated with either treatment, due to these direct effects.¹⁵

These findings are interpretable in that on-site mental health professionals may provide an accessible alternative to drugs and off-site referral. The apparent inconsistency of these effects, however, requires explanation. The relapsing nature of some psychiatric disorders or lack of patient response to treatments may encourage general practitioners to revert to traditional management options over time. Adding mental health professionals to primary care teams may, however, alter interprofessional as well as interpersonal working relationships in ways that are poorly understood. Future studies would benefit from the addition of qualitative research to increase knowledge about the conditions—relating to person, profession, and practice—that facilitate or prevent behaviour change in general practitioners.

Indirect effects

Given the modest direct effects, it is not surprising that indirect effects were uncommon. Indeed, the available evidence suggests that on-site mental health professionals may increase referral rates to certain mental health services, possibly through sensitising the general practitioner to psychosocial problems that cannot be managed within the practice. The number of studies reporting increases was, however, small. Little information was available on the number of hours mental health professionals were employed to work in the practice, and indirect effects may only occur when they undertake sufficient work.³⁴

The use of randomisation to examine indirect effects is problematic because of difficulties in randomising service provision at practice level. Differences between control and intervention groups in the characteristics of both providers and practices complicated the interpretation of outcomes. More detailed reporting of these characteristics would allow better

assessment of comparability. It is inevitable that interpretative difficulties caused by lack of control over allocation may only be offset by a weight of evidence from several studies showing consistent results. Studies in our review have shown that service evaluations using automated databases, such as prescribing data, can provide both large samples and long term evaluation.

Conclusion

Referral to an on-site mental health professional may reduce referrals and prescribing by general practitioners, but there is no evidence that such changes are enduring or particularly broad in scope.

We thank Jeremy Grimshaw and Graham Mowatt (effective practice and organisation of care group) for their advice and support, Steve Rose (National Primary Care and Research Development Centre, University of Manchester) for assistance with the searches, and the staff at John Rylands Library (University of Manchester) for assistance with interlibrary loans.

Contributors: BS had the idea for the review and PB and BS wrote the protocol. PB carried out the searches and administration of the review. Both PB and BS extracted data from the studies, interpreted the results, and wrote the paper. PB will act as guarantor for the paper.

Funding: The National Primary Care Research and Development Centre is funded by the Department of Health.

Competing interests: None declared.

- Sibbald B, Addington-Hall J, Brenneman D, Freeling P. Counsellors in English and Welsh general practices: their nature and distribution. *BMJ* 1993;306:29-33.
- Roth A, Fonagy P. *What works for whom? A critical review of psychotherapy research*. London: Guildford, 1996.
- Lin E, Katon W, Simon G, VonKorff M, Bush T, Rutter C, et al. Achieving guidelines for the treatment of depression in primary care: is physician education enough? *Med Care* 1997;35:831-42.
- Gask L, Sibbald B, Creed F. Evaluating models of working at the interface between mental health services and primary care. *Br J Psychiatry* 1997;170:6-11.
- Pincus H. Patient-oriented models for linking primary care and mental health care. *Gen Hosp Psychiatry* 1987;9:95-101.
- Bower P, Sibbald B. The effect of on-site mental health workers on primary care providers' clinical behaviour (protocol). In: *Cochrane Collaboration. Cochrane Library*. Issue 4. Oxford: Update Software, 1998.
- Cook T, Campbell D. *Quasi-experimentation—design and analysis issues for field settings*. Chicago: Rand McNally, 1979.
- Balestrieri M, Williams P, Wilkinson G. Specialist mental health treatment in general practice: a meta-analysis. *Psychol Med* 1988;18:711-7.
- Tyrer P, Seivewright N, Wollerton S. General practice psychiatric clinics: impact of psychiatric services. *Br J Psychiatry* 1984;145:15-9.
- Ashurst P, Ward D. *An evaluation of counselling in general practice: final report of the Leverhulme Counselling Project*. London: Mental Health Foundation, 1983.
- Boot D, Gillies P, Fenelon J, Reubin R, Wilkins M, Gray P. Evaluation of the short-term impact of counseling in general practice. *Patient Educ Couns* 1994;24:79-89.
- Stanton R, Corney R. *The effectiveness of counselling for general practice patients with marital problems*. London: University of Greenwich, 1998.
- Gournay K, Brooking J. Community psychiatric nurses in primary health care. *Br J Psychiatry* 1994;165:231-8.
- Gournay K, Brooking J. The community psychiatric nurse in primary care: an economic analysis. *J Adv Nurs* 1995;22:769-78.
- Harvey I, Nelson S, Lyons R, Unwin C, Monaghan S, Peters T. A randomized controlled trial and economic evaluation of counselling in primary care. *Br J Gen Pract* 1998;48:1043-8.
- Benson P, Turk T. Group therapy in a general practice setting for frequent attenders: a controlled study of mothers with pre-school children. *J R Coll Gen Pract* 1988;38:539-41.
- Ginsberg G, Marks I, Waters H. Cost-benefit analysis of a controlled trial of nurse therapy for neuroses in primary care. *Psychol Med* 1984;14:683-90.
- Teasdale J, Fennell M, Hibbert G, Amies P. Cognitive therapy for major depressive disorder in primary care. *Br J Psychiatry* 1984;144:400-6.
- Earl L, Kincey J. Clinical psychology in general practice: a controlled trial evaluation. *J R Coll Gen Pract* 1982;32:32-7.
- Robson M, France R, Bland M. Clinical psychologist in primary care: controlled clinical and economic evaluation. *BMJ* 1984;288:1805-8.
- Mynors-Wallis L, Davies I, Gray A, Barbour F, Gath D. A randomised controlled trial and cost analysis of problem-solving treatment for emotional disorders given by community nurses in primary care. *Br J Psychiatry* 1997;170:113-9.
- Catalan J, Gath D, Anastasiades P, Bond A, Day A, Hall L. Evaluation of a brief psychological treatment for emotional disorders in primary care. *Psychol Med* 1991;21:1013-8.

- Corney R. The effectiveness of attached social workers in the management of depressed female patients in general practice. *Psychol Med* 1984;(monograph suppl 6):1-47.
- Hemmings A. Counselling in primary care: a randomised controlled trial. *Patient Educ Couns* 1997;32:219-30.
- Brodsky H, Andrews G. Brief psychotherapy in family practice—a controlled prospective intervention trial. *Br J Psychiatry* 1983;143:11-9.
- Baker R, Allen H, Penn W, Daw P, Baker E. *The Dorset primary care counselling service research evaluation*. Bournemouth: University of Bournemouth, 1996.
- Baker R, Allen H, Gibson S, Newth J, Baker E. Evaluation of a primary care counselling service in Dorset. *Br J Gen Pract* 1998;48:1049-53.
- Pharoah P. Do counsellors in general practice change the prescribing of hypnotics and anxiolytics? *Primary Care Psychiatry* 1996;1:263-4.
- Coe N, Ibbes A, O'Brien J. *The cost effectiveness of introducing counselling into the primary care setting in Somerset*. Taunton: Somerset Health Authority, 1996.
- Walker F, McKerracher D, Johnson G. Taking mental health services to the people: the effects of referral to traditional psychiatric facilities. *NZ Med J* 1989;102:504-6.
- Tarrier N, Woof K. Psychologists in primary care and their effects on GP referrals to psychiatry. *Br J Clin Soc Psychiatry* 1983;2:85-7.
- Hunter D, McCance C. Referrals to the psychiatric services by general practitioners in relation to the introduction of sessions by psychiatrists in health centres. *Health Bull* 1983;41:78-83.
- Scott J, Moon C, Blacker C, Thomas J, A.L.F. Scott and C.P.L. Freeman's 'Edinburgh primary care depression study'. *Br J Psychiatry* 1994;164:410-5.
- Sibbald B, Addington-Hall J, Brenneman D, Freeling P. Investigation of whether on-site general practice counsellors have an impact on psychotropic drug prescribing rates and costs. *Br J Gen Pract* 1996;46:63-7. (Accepted 13 December 1999)

Corrections

Misunderstandings in prescribing decisions in general practice: qualitative study

We apologise for an electronic glitch that affected the references in this paper by Nicky Britten and colleagues (19 February, pp 484-8). Unfortunately, at a late stage in the editorial process the reference numbers in the text disappeared, and this went unnoticed. We have reinstated the numbers in our website version; readers may access the corrected article at www.bmj.com/cgi/content/full/320/7233/484.

Cross sectional study of reporting of epileptic seizures to general practitioners

An authors' error occurred in this paper by Dalrymple and Appleby (8 January, pp 94-7). In table 2, line 1 (number with driving licence) the numbers for patients with no seizures in the past year should be general practitioner 50, anonymous 41.

Endpiece

Why 19th century institutions are governed by representative bodies

It [the Victorian age] had no doubt that Representative Institutions, if they were safeguarded from corruption and if they were dominated by men with a high sense of the common good, afforded the only sure guarantee of public improvement or even stability. They were preservative, they were educative; they reconciled rulers and ruled, the cohesion of society with the rights and aspirations of its members; and the natural shortcomings of all representative bodies, vacillation, short views, slowness in action, were a price worth paying for their inestimable advantages. If indeed, upon those were induced faction and deliberate obstruction, then the future took a greyer colour.

G M Young, *Portrait of an Age: Victorian England*.
Oxford: Oxford University Press, 1953
(second edition).