

Research papers

Does a continuing medical education course in mental health change general practitioner knowledge, attitude and practice and patient outcomes?

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ABSTRACT

Background Approximately 21% of patients attending general practice have a psychiatric disorder, most commonly depression and anxiety. Many of these disorders go undetected and untreated. In order to assist general practitioners (GPs) detect and manage mental illness the University of Melbourne and Monash University collaborated to develop a one-year graduate certificate in general practice psychiatry. This paper details an evaluation measuring the impact of the course on change in GP knowledge, attitude and clinical practice, and patient outcome.

Method A controlled before-and-after design was used with 14 participants matched to 14 control GPs. Knowledge and attitudes were measured at course commencement, 12 months and 18 months. Clinical behaviour was measured using clinical audit simultaneously with patient self-report (using the General Health Questionnaire (GHQ) and SF-36) before and after the course.

Results The course had a positive impact on GPs' knowledge of depression and anxiety with further improvement evident six months after

completing the course. Comfort and competency of participants' detection and treatment of depression and anxiety improved significantly six months post-course. There was no change in GP recognition of cases with all GPs continually identifying 51% of 'probable cases' post-course. Similarly, there was no significant effect of the course on overall prescribing habits, non-drug management or referral of 'probable cases'. Patients tended to ultimately improve over a ten-week period (on GHQ recognition and SF-36 scores) with improvement rates the same pre-and-post course.

Conclusion Continuing medical education (CME) resulted in sustained changes in doctors' knowledge and attitude. Change in clinical practice was not generally discernible, and may depend on a combination of knowledge, attitude and skills as well as on socio-political forces beyond the reach of a CME programme.

Keywords: attitude, change, continuing medical education, knowledge, outcomes, practice

Introduction

Studies in general practice settings suggest that about 25% of patients attending a general practitioner (GP) have a psychiatric disorder, most commonly depression and anxiety.¹ A minority of these patients are treated, mostly by GPs, although many are untreated and many more patients remain undetected.²⁻⁶ Relatively few are referred to mental health professionals.⁷

A review funded by the National Mental Health Strategy of the Australian Government advocated that GPs undertake a principal role in mental healthcare and outlined recommendations to assist GPs detect and manage mental illness.⁸ These recommendations included continuing medical education (CME) which has been shown to be effective in changing doctors' knowledge and skills and in some cases patients' health outcome.⁹⁻¹⁵ In response, the University of Melbourne and Monash University collaborated to develop the Graduate Certificate in General Practice Psychiatry, a 42-week part-time course delivered by distance education.¹⁶ The aim of the course was to improve GPs' detection and management of common mental illness, predominantly depression and anxiety, by enhancing GP knowledge, attitudes and clinical practice. This paper details the results of an evaluation in which we endeavoured to measure the impact of the course on these characteristics (knowledge, attitude and practice). Further we sought to examine whether a change in these factors might translate into better outcomes (improved quality of life) for patients.

Methods

The intervention

The Graduate Certificate in General Practice Psychiatry was conducted part-time (approximately 10 hours per week) over two semesters (42 weeks). It is equivalent to 0.5 effective full time student units (EFTSU) and is available to Australian and overseas medical graduates working in general practice with a minimum of two years' active experience in this field.

The course consisted of studying seven subjects:

- introduction to general practice psychiatry
- depression and other mood disorders
- anxiety

- drugs and alcohol
- stress management
- introduction to psychotherapy
- introduction to family therapy.

In keeping with the ideas of Holmberg who promoted the idea that course development required a team effort, GPs, psychiatrists and other mental health professionals developed the course content.¹⁷ The course was conducted primarily via distance education using print-based materials supplemented with other media. Each subject was divided into number of sessions, which equated to a week of work.

Audiotape discussions between course authors and facilitators supplemented the printed material and were used at the beginning of sessions to engage the learner and introduce them to the course authors. These discussions focused on specific controversial areas of diagnosis and management. A number of videos were also included to demonstrate psychotherapeutic techniques, for example, cognitive behavioural therapy, interpersonal therapy and relaxation therapy. There were two residential workshops designed to discuss difficult issues of case management and to teach specific interviewing and psychotherapeutic techniques, for example, motivational interviewing in drug and alcohol management; cognitive behavioural therapy in the management of various phobias; relaxation techniques in the management of stress and counselling techniques in family therapy.

As distance education is at risk of being a passive learning experience, reflective activities and assessment questions were posed throughout the printed course materials to stimulate the learner to be more active and to enhance understanding.

Assessment techniques were based on the educational philosophies of phenomenology and constructivism and were driven by course objectives.^{18,19} GPs are involved in patient care and many already possess significant years of experience. This was acknowledged and valued. Consequently, written assignments were based on discussions using a number of standard case scenarios. Students also kept a journal which included their responses to some short activities contained in the study guide. This was used to encourage their reflection on case management and to assess understanding of the content. These journals were submitted for feedback and pass/fail grading. All assessment was based on criterion referencing rather than normative referencing. Acquisition of specific skills (e.g. counselling, motivational interviewing and cognitive behavioural therapy) was assessed by documentation of consultations, submission of case commentaries with a written discussion, and role-play at the residential workshops. Each subject had to have a 'pass' grade

or higher and all units had to be completed.

Evaluation design

A quasi-experimental, controlled before-and-after design was used. All GPs who enrolled in the course in 1999 were invited to participate. Fourteen (of the 35) volunteered and completed all data requirements. A control group was recruited from those who expressed interest in the course, but who did not enrol, matched with the intervention GPs on demographic details.

Measurements of GP knowledge and attitudes were taken at the beginning of the course and 12 months later as the GPs completed the course. In addition GP practice was measured using clinical audit performed before and after the course simultaneously with patient screening.

The GPs in the intervention group were re-examined for change in knowledge and attitude at 18 months (six months after completion of the course) to determine if any changes were sustained.

Consecutive patients aged 18 to 65 years attending participating GPs during the second week of the course, and again in week 42, were invited to complete a demographic questionnaire and self-rated general health questionnaire (GHQ) and quality of life measure while waiting to see their doctor. They were also asked to complete and return a second set of the same questionnaires 10 to 12 weeks later. Their consent for GP audit of their medical record and provision of anonymous summary data to the researcher was sought at the same time.

Instruments

A 24-item knowledge questionnaire, containing multiple choice and true/false items, was developed to measure clinical knowledge about the diagnosis, recognition and management of anxiety disorders and depression, reflecting the content of the course. Twelve items, limited to depression, had previously been developed and used by Blashki.²⁰ A further 12 were specifically written measuring knowledge about anxiety disorders. Fifteen of the 24 items were designed to assess knowledge about the diagnosis of these conditions and the remaining nine focused on management.

Attitude was measured using an instrument developed especially for this study.²¹ This instrument contained 17 Likert-scaled items: 12 measuring GPs' professional comfort and competence in the detection and management of the common mental

disorders and five assessing GPs' perceptions of the extent to which problems in the system (e.g. time and remuneration) inhibit their practice in relation to diagnosis and management of patients with depression and anxiety. Cronbach's alpha for these two attitude scales was 0.82 and 0.73 respectively.²¹

The 28-item GHQ was used as a screening instrument to indicate 'probable caseness'.²² It is a reliable and valid instrument, with good utility, and widely used in primary care research.²³

A variable, 'recognition', was created by contrasting the GHQ screen of patients with the GP assessment indicated by the clinical audit. A 'probable case' was defined by a GHQ cutoff of 4/5 (as described in the *User's Guide to the General Health Questionnaire*).²² GP recognition was determined by a documented diagnosis of mental illness or significant emotional stress in the patient's history in the previous six months. The recognition rate was defined as the proportion of probable cases with such a record.

The SF-36 was used to measure patients' health-related quality of life.²⁴ This instrument measures a range of physical and mental functioning, producing eight scales, has demonstrated concurrent validity with other quality of life measures, and has been validated in Australia.²⁵

A clinical audit was developed to assess GPs' clinical practice in regard to the detection, diagnosis, management and referral of patients with depression and anxiety. Data were collected at week six and week 42 on a stratified sample of 'probable cases' and 'non-cases' determined by the results of the GHQ. Comparison of patient questionnaires and clinical audit allowed for the determination of a measurement of 'recognition of mental illness'.

Subjects

The demographic data for the intervention and control groups is presented in Table 1. The groups were similar for all characteristics. In general they were experienced GPs (mean time in general practice 15 and 16 years), mostly in non-solo practice, and mostly working nearly full-time. The majority had a declared interest in psychological issues, as indicated by participation in postgraduate training, and this was more so for the intervention group. Further exploration of student motivation for undertaking this course is discussed in a companion paper.²⁶

Statistical analysis

Differences between groups and pre- and post-measurement of knowledge, attitude and clinical

Table 1 Participant demographic details

	Intervention (<i>n</i> = 14)	Control (<i>n</i> = 14)	Test statistic	<i>df</i>	<i>P</i>
Sex (% male)	64	50	$\chi^2 = 0.58$	12	0.45
Mean age (years)	44	50	$t = -1.72$	12	0.09
Mean number of years since medical graduation	21	25	$t = 1.45$	12	0.16
Mean number of years as a GP	15	16	$t = -0.22$	12	0.83
Place of practice (% rural)	14	21	$\chi^2 = 0.24$	12	0.62
Type of practice (%)			$\chi^2 = 1.41$	12	0.50
Solo	23	7			
2–4 GPs	46	57			
5+ GPs	30	35			
Mean number of sessions worked per week	9	7	$t = 1.95$	12	0.06
Mean number of patients seen per session	16	14	$t = 1.16$	12	0.26
Postgraduate qualifications (%)					
FRACGP	28	28	$\chi^2 = 0.00$	12	1.00
Dip Obs	14	14	$\chi^2 = 0.00$	12	1.00
other	37	37	$\chi^2 = 0.00$	12	1.00
Special interest in psychological problems (%)	100	64	$\chi^2 = 3.58$	12	0.06
% attending a course in psychology in the last 2 years	57	50	$\chi^2 = 0.14$	12	0.71
Training in last 5 years at:					
psychiatric unit in hospital (%)	7	8	$\chi^2 = 0.01$	12	0.91
community psychiatric service (%)	14	15	$\chi^2 = 0.01$	12	0.94

practice were examined using *t*-tests and analysis of covariance (ANCOVA) for continuous variables and chi-square (χ^2) tests for categorical variables.

Ethics approval

Ethics approval was obtained from the Monash University Standing Committee on Ethics in Research on Humans.

Results

Knowledge

Figures 1–3 graph the results of the knowledge questionnaires for both groups pre- and post-course and for the intervention group six months later. The control and intervention groups had similar

knowledge about depression and anxiety at the beginning of the study ($t = -0.13$, degrees of freedom (*df*) = 12, $P = 0.89$). The course had a positive impact on the intervention GPs' overall knowledge post-course (pre- versus post-course difference $t = -4.48$,

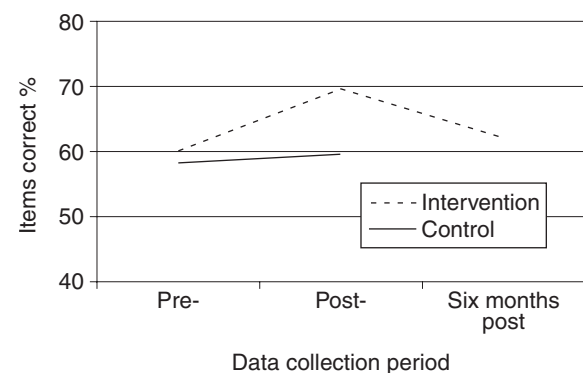


Figure 1 GP change in *total knowledge* of depression and anxiety disorders at pre-, post- and six months post-course

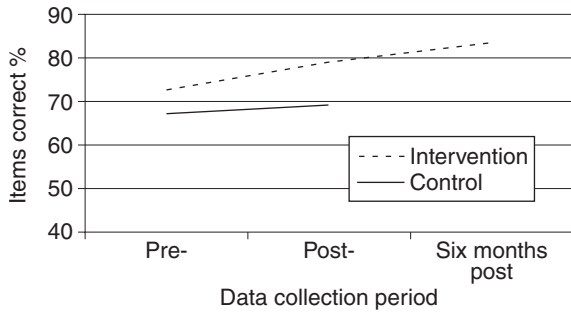


Figure 2 GP change in *knowledge of diagnosis* of mental disorders pre-, post- and six months post-course

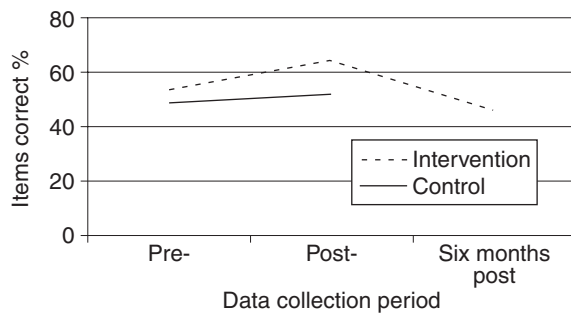


Figure 3 GP change in *knowledge of the management* of depression and anxiety disorders pre-, post- and six months post-course

$P < 0.01$). At six months post-course, this change in overall knowledge was not sustained (pre- versus six months post-course difference was not statistically significant). However, the component of knowledge relating to diagnosis of mental disorders further improved (pre- versus six months post-course difference ($t = -2.64$, $df = 13$, $P = 0.02$) (see Figure 2). The intervention groups' knowledge about the management of depression improved after completing the course, but decreased six months post-course ($t = -1.56$, $df = 13$, $P = 0.15$) (see Figure 3).

Attitude

There was a mild and non significant positive change in the intervention GPs' attitudes about comfort and competency ($t = -2.06$, $df = 13$, $P = 0.06$) during the time of the course, but this trend continued such that there was a significant change by six months post-course ($t = -3.22$, $df = 13$, $P < 0.01$) (see Figure 4). There was no significant change in the intervention GPs' attitudes about time and remuneration in relation to the management of patients suffering these conditions ($t = -0.41$, $df = 13$, $P = 0.69$).

Clinical behaviour

Change in GP recognition, drug management, non-

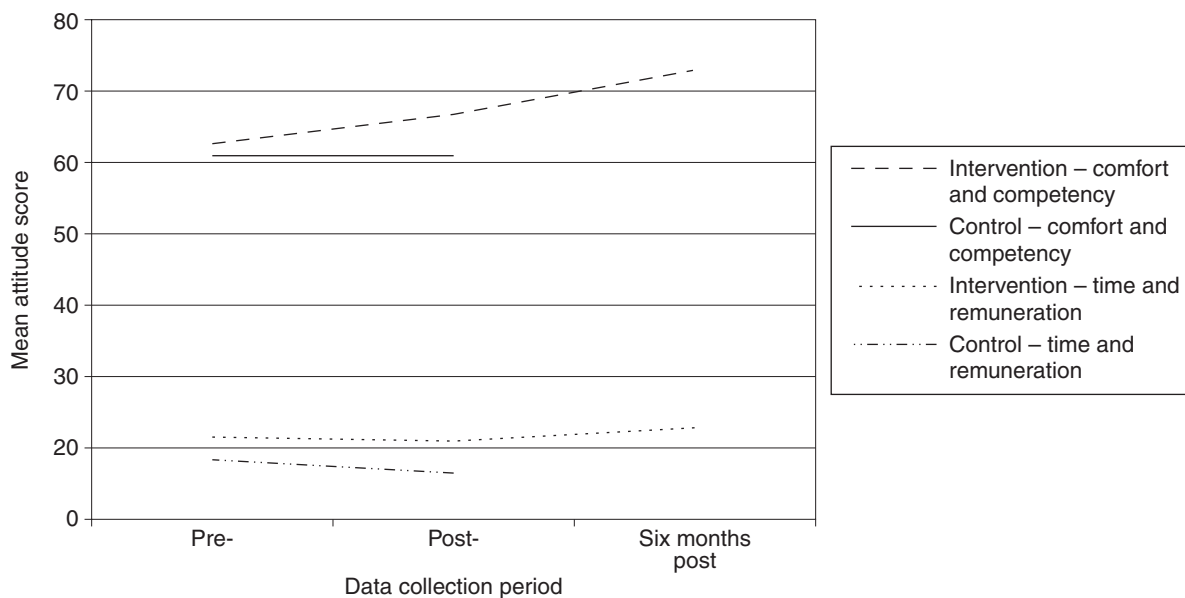


Figure 4 GP change in attitude towards common mental disorders, predominantly depression and anxiety, at pre-, post- and six months post-course

drug management and referral of 'probable cases' was measured using data from the audit instrument designed for this study.

Recognition

Overall all doctors failed to identify 51% of 'probable cases' pre- and post-course. There was no statistically significant change in recognition rate over time in either the intervention group or the control group. We examined whether we might have been using too high or too low a threshold for casesness. However, the results were very similar using GHQ cutoffs of 3/4 and 5/6.

Patient variables associated with non-recognition were a lower GHQ score (mean 11.09 versus 14.08; $t = -3.54$, $df = 87$, $P < 0.01$), being employed ($\chi^2 = 4.74$, $df = 1$, $P = 0.03$), younger age ($t = -2.02$, $df = 145$, $P = 0.04$), and having a record of family history of mental illness ($\chi^2 = 3.82$, $df = 1$, $P = 0.05$). In the intervention group post-course data non-recognition was also associated with a patient not seeing their usual doctor ($\chi^2 = 11.96$, $df = 1$, $P \leq 0.01$).

Both groups of GPs recorded less anxiety disorder as a primary diagnosis at the end of the study compared to the beginning with controls recording a lower proportion than intervention GPs ($F = 6.47$, $P = 0.02$). On the other hand, intervention GPs recorded more secondary diagnoses of depression than the controls ($F = 5.40$, $P = 0.03$).

Drug management

In this analysis we were interested in GP management of 'probable cases' as identified by the GHQ screen. Overall there was no effect on the intervention GPs' prescribing habits. Examination of the breakdown by specific agents revealed a significant reduction in the prescription of selective serotonin reuptake inhibitors (SSRIs) in the control group post-course ($F = 4.70$, $P = 0.04$) (see Table 2). For 'probable cases' that were recognised (determined by audit), there was no change in documentation of drug therapy either within or between groups.

Non-drug management

The intervention GPs recorded the use of more non-drug treatments at the beginning of the study for 'probable cases' than the control doctors ($\chi^2 = 8.80$, $df = 1$, $P < 0.01$), particularly counselling ($\chi^2 = 5.68$, $df = 1$, $P = 0.02$). However, there was no statistically significant post-course change in the intervention GPs' documentation of non-drug therapy for 'probable cases' (see Table 2).

Referral of 'probable cases'

At the beginning of this study the intervention GPs recorded more referrals to psychologists than the control group ($\chi^2 = 10.47$, $df = 1$, $P < 0.01$). However, neither the intervention nor the control group documentation of referral for recognised 'probable cases' changed significantly over the duration of the study (see Table 2).

Patient outcome: health-related quality of life

The hypothesis being examined here was that the course would lead to enhanced outcomes for those patients suffering common mental disorders presenting to the GPs doing the course, compared to similar patients presenting to control GPs.

Approximately half of the 'probable cases' who returned the surveys were no longer 'probable cases' on the GHQ ten weeks after baseline data were gathered (see Table 3). This was true pre-course and post-course for both intervention and control group patients; the differences were not statistically significant.

Quality of life scores were examined for effect of group (intervention versus control) and recognition using ANCOVA. Pre-course 'probable cases' improved on the SF-36 after ten weeks. Post-course improvement depended on group and recognition for 'general health' ($F = 6.42$, $P = 0.01$), 'vitality' ($F = 3.92$, $P = 0.05$), and mental health scales ($F = 6.63$, $P = 0.01$) on the SF-36. Those who were not recognised and in the intervention group improved more on these scales.

Discussion

This research provides further evidence that multifaceted CME programmes can change doctor's knowledge and attitudes. Change in knowledge in relation to diagnosis of mental disorders was sustained six months after completion of a CME programme. Change in attitude continued to increase after completion of the course.

Despite all participants missing about half of the 'probable cases', the recognition rate of GPs in this study was similar to other studies of recognition in primary care.^{25,27-29} 'Probable cases' recognised tend to be more severely distressed than those not recognised. The apparent lack of recognition may therefore be a matter of severity although we could not demonstrate this.³⁰ The ceiling effect may also

Table 2 GP documentation of management for the 'probable cases' over the last 6 months

Measure	Intervention GPs (n = 14)						Control GPs (n = 14)						ANCOVA results					
	Pre			Post			Pre			Post			Covariate			Group difference		
	Mean ^a	SD	P	t	SD	P	Mean ^a	SD	P	t	SD	P	F	P	F	P		
Drug therapy	40.30	29.68	41.21	19.83	19.83	0.93	31.34	19.68	26.92	18.82	0.88	0.39	0.79	0.38	3.07	0.09		
Tricyclic antidepressant	4.33	5.82	4.80	5.41	5.41	0.77	3.05	5.38	3.44	7.01	-0.15	0.89	0.05	0.82	0.28	0.60		
Tetracyclic antidepressant	1.30	3.40	0.51	1.91	1.91	0.48	1.79	6.68	0.51	1.91	0.67	0.51	0.18	0.68	0.00	0.98		
SSRI	24.43	25.27	24.44	25.28	25.28	0.31	20.58	15.10	9.36	10.65	2.32	0.04	2.07	0.16	4.70	0.04		
SNRI	2.36	3.99	3.19	5.63	5.63	0.42	1.79	3.58	4.25	9.65	-0.87	0.40	0.25	0.62	0.10	0.76		
SARI	0.79	2.97	1.02	2.60	2.60	0.38	1.74	4.76	4.87	11.35	-0.90	0.39	0.09	0.77	1.55	0.23		
RIMA	1.19	3.02	1.95	4.05	4.05	0.21	1.71	3.42	2.96	5.07	-1.05	0.31	18.18	<0.01	0.15	0.70		
Lithium	0.54	2.05	0.51	1.91	1.91	0.96	0.59	2.23	0.51	1.91	0.11	0.92	0.00	0.99	0.00	1.00		
Benzodiazepines	9.57	11.10	13.19	15.75	15.75	0.47	6.79	10.54	10.98	12.09	-0.99	0.34	0.13	0.72	0.13	0.72		
Non-drug therapy	51.41	20.55	51.09	27.96	27.96	0.06	37.13	27.20	35.60	35.59	0.27	0.79	34.10	<0.01	0.02	0.90		
Counselling	44.96	19.81	37.55	23.95	23.95	1.44	32.57	28.58	30.91	34.15	0.34	0.74	37.12	<0.01	0.42	0.52		
Relaxation therapy	8.29	1.38	8.06	14.59	14.59	0.11	10.31	15.54	9.85	16.33	0.13	0.90	31.28	<0.01	0.00	0.98		
Hypnosis	-	-	-	-	-	-	1.43	5.35	3.06	11.45	-1.00	0.34	-	-	-	-		
Stress management	13.49	15.93	11.68	17.60	17.60	0.46	9.64	19.14	6.16	14.79	0.68	0.51	8.00	<0.01	0.47	0.50		
CBT	8.29	16.30	12.44	20.29	20.29	-1.04	6.74	11.50	6.01	7.75	0.22	0.83	11.92	<0.01	1.25	0.27		
Family therapy	2.76	4.77	3.37	7.13	7.13	0.33	2.97	6.30	0.55	2.06	1.32	0.21	0.90	0.35	2.07	0.16		
Other	5.02	9.75	9.30	15.91	15.91	-1.41	8.17	14.20	5.22	11.11	0.61	0.56	1.77	0.19	1.19	0.29		
Patient referral	23.19	13.89	24.39	10.94	10.94	-0.24	19.89	17.60	9.50	11.45	2.07	0.06	0.07	0.79	11.60	<0.01		
Psychiatrist	14.16	12.92	11.21	5.34	5.34	0.79	11.82	13.27	6.22	8.30	1.66	0.12	1.46	0.24	3.20	0.09		
Psychologist	3.66	9.64	12.49	14.13	14.13	-1.74	2.56	5.20	2.69	6.28	-0.06	0.95	1.18	0.29	6.01	0.02		
Drug rehabilitation	0.55	2.06	2.93	6.48	6.48	-1.81	-	-	-	-	-	-	51.86	<0.01	2.17	0.15		
Alcohol rehabilitation	2.69	4.52	1.53	4.14	4.14	0.64	-	-	-	-	-	-	1.49	0.23	3.13	0.09		
Social worker	-	-	1.11	2.82	2.82	-1.47	0.89	3.34	2.08	5.93	-0.63	0.54	0.21	0.65	0.39	0.54		
CAT	-	-	0.51	1.91	1.91	-1.00	-	-	-	-	-	-	-	-	1.00	0.33		
Psychiatric hospital	1.62	4.27	12.49	14.13	14.13	-2.79	-	-	-	-	-1.60	0.13	0.30	0.59	1.20	0.28		
Family therapist	-	-	1.19	3.03	3.03	-1.47	0.65	2.43	-	-	1.00	0.34	0.00	1.00	2.01	0.17		
Other	3.06	6.08	4.38	7.93	7.93	-0.55	9.13	16.24	1.89	3.84	1.66	0.12	0.29	0.60	1.31	0.26		

^a The means recorded in the table are the percentages of patients for whom each therapy is prescribed, averaged over the 14 GPs in each group CAT; CBT: Cognitive behavioural therapy; RIMA: Reversible inhibitor of monoamine oxidase A; SARI: Serotonin-2 antagonist/reuptake inhibitor; SNRI: Selective noradrenaline reuptake inhibitor; SSRI: Selective serotonin reuptake inhibitor

Table 3 Proportion of 'probable cases' that continued to screen as a 'probable case' on the GHQ 10 weeks after initial data collection

	Intervention 'probable cases' <i>n</i> (%)	Control 'probable cases' <i>n</i> (%)	Total	χ^2	<i>df</i>	<i>P</i>
Pre-course	40 (56)	31 (46)	71	1.35	1	0.31
Post-course	33 (45)	39 (53)	72	0.69	1	0.40

have contributed to the lack of change in recognition and the fact that many of the participants may have had quite well developed ideas of what constitutes a 'case' in primary care.

Patient quality of life improved generally for patients and it was not possible to isolate the effects of CME from the multitude of confounding variables that could influence this outcome. These patients may have spontaneously recovered from the condition that was influencing their emotional distress and reduced quality of life. After the course 'probable cases' who were not recognised, in either group, improved on a number of measures more than those who were recognised, and this was particularly so for patients in the intervention group who were not recognised – they improved in 'general health', 'vitality' and 'mental health'. This at first seems counter-intuitive but may also be explained by the 'threshold' problem – patients with less severe disturbance are not likely to be recognised but are also more likely to recover spontaneously. As previously noted GPs are more likely to recognise severe cases.³¹

We found no evidence that the Graduate Certificate in General Practice Psychiatry was associated with change in the documentation of diagnoses, pharmacological and non-pharmacological treatment, or referral, for recognised 'probable cases' after the GPs had completed the course. We believe that the measurement of this was probably too insensitive. Change in practice was dependent on the GPs completing an audit of their case notes. If they had not recorded the information it was not recorded on the audit. In addition, the patient cohort was different pre- and post-course and may not have been truly comparable, even though GHQ scores were similar. An alternative method may have been to audit the same patients pre- and post-course. However, this is problematic as GPs could have a heightened awareness of their patients in the second audit, which would have influenced the results.

Another, and perhaps more sensitive, measure

of GP clinical behaviour might be the significant event audit, in which insights from the care of individual patients are integrated into quality assurance.³² This form of audit has been shown to be an effective model in linking educational intervention, practice and behaviour change.³² Significant event audit could target specific behaviour change, for example drug therapy, including dosage of psychotropic medication; non-drug therapy including patient education, duration of treatment and referral.

The lack of detection of change in clinical behaviour may not only be attributed to insensitive proxy measures of clinical behaviour. Change in clinical behaviour may not have occurred. This distance education programme, even with residential weekends, did not have a strong emphasis on focused skills training which has been shown to successfully change clinical behaviour.³³⁻³⁵

The small sample size may well have influenced the statistical significance of the results of this research. The power of educational research conducted on a course that only has small enrolments is always going to be difficult. It was important to match the intervention and control group doctors to minimise the impact of a systematic bias. The matching process, while ensuring that the intervention and control groups were similar, resulted in a design with slightly less power than had been intended. This was unavoidable as we were limited in the intervention group to the number of GPs enrolled in the course and in the control group to those who made inquiries.

In any event, there was adequate effect size (0.75) to detect post-course change in GP knowledge. The effect size for GP attitude relating to comfort and competence was smaller (0.44) and the sample size fell just short of that required to detect a change of that size. *Post hoc* sample size calculations showed that a sample of 31 GPs per group was required to detect a post-course change in total knowledge with 80% power. Further calculations revealed a sample of 51 GPs in each group was required to detect a

post-course change in attitude pertaining to confidence and competence, with 80% power.

Another potential weakness of the study was its design. A randomised control trial was not feasible, as students enrolled voluntarily in the course. The randomised controlled trial is not an appropriate methodology for research in a naturalistic environment. Accordingly a quasi-experimental design was used.

Other education and training undertaken by the GPs may have influenced the results and this could not be fully assessed. For example, the control GPs may have been susceptible to cross-contamination from participation in other CME programmes aiming to enhance GP knowledge and practice of general practice psychiatry.

Conclusion

This study provides further evidence that multi-faceted CME programmes can change doctors' knowledge and attitude and that change in these areas can be sustained for six months after completion of a CME programme. Change in knowledge and attitude is easier to effect using CME as there is a direct link with the programme. However, changes in clinical practice may take longer to occur as these involve changes in a combination of knowledge, attitude and skills, offset by external forces which influence behaviour change, and these may not be directly related to the CME programme.

CME and the medical professional alone cannot resolve the burden of mental illness on the individual or the community. Education programmes may lead to changes in knowledge, attitudes and some practice. However, these may not be sufficient to change patient outcomes as the conditions they suffer are influenced by biological and environmental factors that cannot be remedied by a CME programme in isolation. In addition, the system structures of healthcare (e.g. time and remuneration for GPs) will limit the transfer of knowledge and attitude to clinical outcomes. It is likely that CME will need to be combined with an integrated depression and anxiety management system before measurable change in patient outcomes can be observed.^{3,36}

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CONFLICTS OF INTEREST

None.

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