A primary care Symptoms Clinic for patients with medically unexplained symptoms: pilot randomised trial

Journal:	*BMJ Open*
Manuscript ID:	bmjopen-2011-000513
Article Type:	Research
Date Submitted by the Author:	13-Nov-2011
Complete List of Authors:	Burton, Christopher; University of Edinburgh, Population Health Sciences Weller, David; University of Edinburgh, General Practice Worth, Allison; University of Edinburgh, Population Health Sciences Marsden, Wendy; University of Edinburgh, Population Health Sciences Sharpe, Michael; University of Edinburgh, School of Molecular and Clinical Medicine
Primary Subject Heading:	General practice & Family practice
Secondary Subject Heading:	Mental health, Health services research, Patient-centred medicine
Keywords:	PRIMARY CARE, MENTAL HEALTH, PAIN MANAGEMENT

A primary care Symptoms Clinic for patients with medically unexplained symptoms: pilot randomised trial

Christopher Burton[1], David Weller[1], Wendy Marsden[1] , Allison Worth[1], Michael Sharpe[2]

[1] Centre for Population Health Sciences, University of Edinburgh, Teviot Place, Edinburgh, UK

[2]Psychological Medicine Research, University of Edinburgh, Royal Edinburgh Hospital, Edinburgh, UK

Corresponding author
Dr Christopher Burton
Centre for Population Health Sciences, University of Edinburgh
Doorway 1, Old Medical School
Teviot Place
Edinburgh
EH8 9AG
chris.burton@ed.ac.uk
Phone 0131 650 9240
Fax 0131 650 9119

Keywords: Medically Unexplained Symptoms, Primary Care, Somatoform Disorders,

Word count 2667

ABSTRACT

Objective

To conduct a pilot trial of a primary care Symptoms Clinic for patients with medically unexplained symptoms and evaluate recruitment and retention, acceptability of the intervention, and to inform power calculations for a full trial.

Trial design:

Randomised parallel group pilot trial

Methods

Participants: Primary care database and postal questionnaire were used to identify patients with multiple specialist referrals and multiple physical symptoms unlikely to be explained by disease

Interventions: GP with Special Interest "Symptoms Clinic" + usual care vs. usual care alone. The Symptoms Clinic comprised one long (one hour) and three short (twenty minutes) appointments

Outcomes: Number of patients identified and recruited; acceptability of the intervention (items from Client Satisfaction Questionnaire and interview); SF-12 physical component summary.

Randomization: Automated blocked randomisation accessed by telephone

Blinding: None

Results:

Numbers randomized: 16 to intervention, 16 to usual care alone.

Recruitment: 72 patients, from 7 GP practices, had repeated specialist referrals and a PHQ15 ≥10 indicating a high probability of medically unexplained symptoms. 15 were ineligible and 25 declined to participate.

Numbers analysed: 26 patients; 2 patients randomized to the intervention group were incorrectly included, 3 patients in the intervention group and 1 control did not complete outcome measures.

Outcome: Most patients randomised to the Symptoms Clinic found the intervention acceptable : 8 out of 11 reported the intervention helped them to deal with their problems. The mean difference between groups in SF-12 physical component summary, adjusted for baseline, was 3.8 points (SD 6).

Harms: No observed harms

Conclusions: Patients with multiple medically unexplained symptoms can be systematically identified in primary care; a randomised trial comparing the Symptoms Clinic with usual care is feasible and has the potential to show clinically meaningful benefit.

Trial registration ISRCTN63083469

Funding: Chief Scientist Office (reference CZG/2/412)

Article Focus

- There are few effective non-specialist interventions for patients with multiple medically unexplained symptoms in primary care

- We developed a new GP with special interest "Symptoms Clinic" and carried out a pilot randomised trial.
- The pilot trial aimed to test the systematic identification of eligible patients, assess the acceptability of the intervention and inform power calculations for a larger trial

Key Messages

- Patients with multiple medically unexplained symptoms can be identified systematically from the primary care database and a symptom questionnaire.
- The Symptoms Clinic appears to be an acceptable model for patients
- A larger trial using these methods is feasible

Strengths and Limitations

- This study was carried out by one GP with special interest in medically unexplained symptoms. Further work to demonstrate transferability of the clinic model is needed before a larger trial.

INTRODUCTION

Physical symptoms which cannot be adequately explained by organic pathology are common in both primary and secondary care [1,2]. For some patients (approximately 1% of the population), the number, persistence or intrusiveness of these so called medically unexplained symptoms (MUS) leads to repeated consultation, referral for investigation and impaired quality of life [3] [4]. Patients with MUS who have been repeatedly referred to specialists, have impaired physical and mental health and incur substantial health costs with little apparent benefit[5].

There is evidence for the efficacy of intensive treatment of severe MUS with cognitive behavioural therapy delivered by specialists [6,7]. Specialist psychiatric consultation followed by a management planning letter has been found to offer only modest benefit[8]. Trials of teaching GPs to use brief interventions such as reattribution in routine consultations have failed to show consistent benefit [9-11]. All these approaches concentrate on making the link between physical symptoms and underlying psychological cause. An alternative approach is to initially provide conventional biomedical explanations for MUS [12,13], and to only embark on psychosocial talk when cued by the patient [14].

We have developed a primary care Symptoms Clinic for patients with multiple MUS which comprises a structured set of consultations with a specially trained GP with special interest (GpwSI). The GP explores acceptable explanations for symptoms in terms of biological (including neurological and cognitive) mechanisms rather than psychological cause, provides empathic support, and then helps patients to address

specific symptom maintaining factors by medication or with cognitive behavioural techniques. Here, we describe a pilot randomised controlled trial which compared this Symptoms Clinic as a supplement to usual care with usual primary care alone.

The aim of this study was to determine the feasibility of conducting a larger trial of the Symptoms Clinic. We examined the following components of feasibility: systematic identification of patients; trial recruitment and retention; acceptability of the Symptoms Clinic intervention and a preliminary estimation of potential treatment effects.

METHODS

The study was conducted in Edinburgh between August 2009 and May 2010. Participating practices took part in identifying potential patients and the trial clinics were held in an outpatient clinical treatment facility. The study had approval from Lothian Research Ethics Committee (reference 09/S1102/34) and was registered (reference ISRCTN63083469).

Trial design

This was a pilot trial using an individually randomised parallel group design with patients allocated equally to intervention and control arms. The trial was conducted with no major alterations to the initial protocol.

Participants

Eligible patients comprised adults aged 18-65 and registered with participating practices who met all of three criteria: (a) they had been referred at least twice to specialists in the preceding 3 years, (b) they currently reported multiple physical symptoms, (c) their GP believed that their symptoms were unlikely to be adequately explained by physical disease. These criteria were identified sequentially.

In the first stage, practices carried out a computerised search of medical records to identify patients aged 18-64 who had been referred at least twice to hospital outpatient clinics in the preceding three years, did not have a diagnosis of serious illness (coronary heart disease, stroke, cancer, severe mental illness) and had one or more diagnostic codes potentially indicating MUS. All diagnostic codes are listed in

appendix 1. As a pilot of this primary search strategy (Search A) in two additional practices returned fewer individuals than expected due to low rates of coding for MUS we added a secondary search (Search B) which required three or more referrals but no codes for MUS. Searches were developed specifically for this study (Campbell Software Solutions) to run on the GPASS clinical system.

Current physical symptoms were assessed in patients identified by the search for referrals by postal questionnaire. This included the PHQ-14, a modified version of the PHQ-15 scale [15] in order to identify patients with multiple physical symptoms which are commonly medically unexplained. We omitted the item about menstrual symptoms because the study population included men and older women. Before sending these, the practice GPs checked the list of names to avoid sending the questionnaire to patients who were seriously ill or for whom it would be clearly inappropriate. The postal PHQ-14 was accompanied by an information sheet. We defined multiple physical symptoms as a score of ≥10 on the PHQ-14; indicating at least moderate severity of MUS [15].The likelihood that current symptoms could not be explained by physical disease was assessed by asking the GPs to review the casenotes of all patients who returned the questionnaire with a PHQ14 score ≥10 and indicated an interest in taking part in the trial. The GPs were also asked to exclude patients who were unable to leave the house independently, or for whom other health or social problems precluded an invitation to take part in a study. Additional exclusion criteria were assessed during the baseline assessment and were as follows: patient reported thoughts of self harm more than a few times in a week (an item in the PHQ-9), current self-reported alcohol or drug problems and either current or planned engagement in psychological treatment.

Baseline Assessment and consent

The researcher (WM) carried out baseline assessment and obtained informed consent during an interview. Baseline measures included: age, sex and current occupation; physical symptoms, assessed using the PHQ-14; health status by SF-12 physical and mental component summaries; depression by PHQ-9 [16] and anxiety by GAD-7 [17]. The general practice records (paper and electronic) of all participants were reviewed by the researcher in order to record patient's prior use of both primary and secondary healthcare services. This was done in order to provide a baseline measure, but in view of the short duration of this pilot trial, it was not repeated as a follow-up measure. The number of consultations in the preceding year and referrals in the preceding 3 years were recorded and the number of consultations and referrals attributable to probable MUS were estimated using a method based on the contents of the record entries [18].

Randomisation

Following completion of the baseline assessment, patients were randomised to either usual care or intervention (usual care + the Symptoms Clinic) by the researcher. Randomisation was carried out by automated telephone system using blocked allocation with variable block size.

Usual care

Patients in both arms continued to receive usual care from their registered general practice. This included referral for investigation or treatment of symptoms as the GP deemed appropriate.

Symptoms Clinic

Patients allocated to the Symptoms Clinic were offered four appointments, the first was of one hour duration and the subsequent three lasted twenty minutes. All consultations were at the treatment centre and patients were seen by the same doctor (CB), an experienced GP with special interest in MUS. The consultations were structured to first hear the patient's experience of illness then to propose and negotiate constructive explanations of physical symptoms. These explanations were used as the basis for simple cognitive and behavioural actions to modify symptoms and their impact. No specific attempt was made to screen for common mental disorders, however patients were encouraged to describe their emotional responses to symptoms and other events, and diagnostic labels such as depression were discussed collaboratively with the patient rather than imposed by the doctor.

Outcome measures

Outcome measures were chosen to measure four components of feasibility: systematic identification of patients; trial recruitment and retention; acceptability of the Symptoms Clinic intervention; and estimation of potential treatment effects .
The systematic identification, recruitment and retention of trial participants was assessed by documenting the numbers of patients at each stage of the study and by checking that their baseline characteristics were similar to those seen in our epidemiological study of patients repeatedly referred with MUS [4,5].

The acceptability to participants of the Symptoms Clinic patients was measured by administration of a Client Satisfaction Questionnaire and by asking all patients who had attended the clinic to participate in a brief interview to determine their

experiences of the study procedures and the Symptoms Clinic. We noted the number of eligible patients who declined to enter the trial. We also followed up patients who dropped out of the trial in order to ascertain the reason for this. This follow up was carried out by telephone on two occasions and then by letter from one of the investigators who had no involvement with day to day contact of the trial. In order to estimate likely treatment effects we repeated the following scales from baseline: PHQ-14; SF-12; PHQ-9; GAD-7. In addition patients completed the Patient Global Impression of Change. These measures were obtained by postal questionnaire (with telephone follow up of non-responders) 12 weeks after randomisation.

Sample Size and statistical analysis

For this pilot trial we aimed to randomise approximately 30 patients in order to obtain a reasonable range of clinical conditions and test the clinic and trial procedures adequately. The effects of the intervention were estimated using analysis of covariance (ANCOVA) with baseline value as a covariate

RESULTS

All 15 practices in north-east Edinburgh were invited to take part. The population of this urban area is socio-economically diverse. Nine of the practices currently used the GPASS clinical database on which the search was run and six agreed to take part. We subsequently recruited one additional practice. The total number of patients registered with the seven practices was 45,064.

Patient identification and recruitment

The database searches identified 863 patients (1.9% of the total general practice population) and questionnaires were sent to a randomly selected 486 of these. 105 patients (21.6%) responded and 72 of these had a PHQ-14 score of 10 or more. GPs deemed 10 of these patients ineligible and a further 22 were unable to attend the baseline assessment. Five patients were excluded at baseline assessment because of thoughts of self harm and a further three failed to attend, leaving 32 who were randomised to either usual care or the Symptoms Clinic plus usual care. These data are summarised in figure 1.

The number of patients identified by the search A was smaller than anticipated, this is likely to represent low rates of coding for MUS syndromes within practices, however when we used criteria of three or more referrals without specifying any MUS syndrome, (search B) this appeared to identify several patients with repeated referral for musculoskeletal pain only, who may be less suitable for this intervention and may have been more likely to drop out at a later point.

Patients characteristics

Baseline measures are shown in table 1. Patients had substantially impaired physical and mental health status: scores on the SF-12 Physical Component Summary are standardised to population norms with mean and standard deviation of 50 and 10 respectively and these results placed the participants in the lowest decile of the general population, despite the absence of physical disease. Around half the participating patients had co-morbid anxiety or depression. Participants were high users of health services: they had a mean (SD) of 27 (11) GP consultations and 4.7 (1.8) specialist referrals over the preceding three years of which 15 consultations and 3.4 referrals were estimated to be for MUS.

<TABLE 1 ABOUT HERE >

Trial retention and acceptability of clinic model and procedures

All 16 patients randomised to the Symptoms Clinic attended the first appointment and 11 completed either 3 or 4 appointments. Of the remainder, two were clearly improving at the time they were seen and agreed to early discharge; two found further attendance difficult after a second appointment and one declined any further contact after the first appointment. Several patients randomised to usual care expressed some disappointment at the time of their allocation although follow up response rates were comparable between the two groups.

Responses to the Client Satisfaction Questionnaire from patients randomised to the Symptoms Clinic suggested that the process was acceptable: 8 out of 11 reported that

it helped them to deal with their problems more effectively. Interviews suggested that most patients appreciated the time and the explanatory approach adopted by the Symptoms Clinic. A few remained sceptical, indicating that they felt the aim was simply to assert that their problems were psychological, but most seemed comfortable with the balance between psychological and physical components taken by the clinic. There were few reported problems with the trial procedures among participants

Estimates of potential treatment effects

Outcome measures were obtained for 28 (84%) patients. No follow up data were available, despite repeated requests from 4 patients, 3 in the intervention group and 1 in usual care. Two of the non-responders had predominantly musculoskeletal pain and would not have been included in the search strategy which required one or more MUS syndrome diagnoses.. Two patients whose postal PHQ-14 had been above the entry threshold of 10 but whose baseline PHQ-14 score was below 10, were entered into the study in error and randomised to the Symptoms Clinic. Because this ineligibility was recorded before randomisation but not recognised at the time, they were excluded from the analysis.

<TABLE 2 ABOUT HERE >

Outcome measures are summarised by group in table 2. For the SF12 component scores, higher scores represent better health; for PHQ14, PHQ9 and GAD7, higher scores represent worse health. The Patient Global Impression of Change (PGIC) showed an improvement of one or more levels in 7 of 11 patients in the Symptoms Clinic arm and 2 of 15 in the Usual Care arm. Table 2 includes no measures of statistical significance, given the small sample size, it does however include the

standard deviation of the residuals from the fitted ANCOVA models. Based on these, an difference in outcomes between groups of 2 points in the PHQ-14 and 3 points in the SF-12 Physical Component Score would represent effect sizes of around 0.5 times the standard deviation which is likely to be clinically relevant.

DISCUSSION

Summary of main findings

This pilot trial supports the feasibility of conducting a trial of the Symptoms Clinic. The trial procedures, including identification, recruitment, and randomisation were acceptable to patients. Nonetheless a few patients were lost to follow up and further attention to the entry criteria is warranted. The trial was not powered to detect treatment effects, but the results were in keeping with clinically meaningful benefit.

Strengths and limitations

This study design had several strengths, particularly in relation to identifying potential patients. Systematic identification of patients which combines high healthcare use (referrals) with multiple symptoms on self-report has not been used before but is in keeping with the defining features of patients with MUS [19]. The search methods for this study were similar to our previous epidemiological work[4,5] using a database, however whereas previously we carried out detailed casenote review to identify patients, in this study we combined repeated referrals with a high self-reported symptom count. We found similar measures of health related quality of life and prevalence of depression and anxiety in this pilot study to our previous studies. The small scale of this study is not a limitation of this pilot study which was designed to test procedures rather than reach conclusions about effect [20].

Comparison with other studies

Although there have been policy statements advocating intermediate care services for patients with MUS [21] there have been no formal studies of this approach. The

model here differs from conventional approaches: it is much shorter than cognitive behavioural therapy but longer and less psychologically oriented than reattribution. Unlike the consultation letter approach, the symptom clinic model aims to negotiate a "medical" explanation for symptoms involving physiological processes, thus reducing uncertainty and permitting an exit from the diagnostic cycle[22]. This explanation is then followed up over a series of shorter consultations.

Impact on future research

This pilot study has identified an effective method for systematically identifying patients in primary care who have medically unexplained symptoms and relatively high use of secondary care. Providing that the Symptoms Clinic model can be shown to be delivered consistently by a range of doctors it offers a novel approach to a common problem which warrants testing in a full scale trial

CONCLUSION

We found that the Symptoms Clinic intervention, and the trial procedures we used to test its efficacy, were acceptable to patients . Given the prevalence of MUS and their cost to health services, treatments are required which can be effectively delivered in primary care, need limited amounts of time per patient and can be taught relatively quickly. The Symptoms Clinic meets these requirements and now requires further evaluation

Competing Interests

The authors declare there are no competing interests

Contributorship Statement

CB conceived and designed the study in collaboration with MS, DW and AW; WM collected the data. CB drafted the paper with contributions from all authors. All authors approved the version submitted for publication.

.

Data sharing statement

There is no additional data available.

Acknowledgements

We acknowledge the support and cooperation of Dr Jane Walker in designing the trial, participating practices and the staff of Leith Community Treatment Centre.

References

1 Burton C: Beyond Somatisation: a review of the understanding and management of medically unexplained physical symptoms (MUPS). *Br J Gen Pract* 2003, **53:** 233-241.

2 Henningsen P, Zipfel S, Herzog W: Management of functional somatic syndromes. *Lancet* 2007, **369:** 946-955.

3. Kroenke K, Mangelsdorff AD: Common symptoms in ambulatory care: incidence, evaluation, therapy, and outcome. *Am J Med* 1989, **86:** 262-266.

4. McGorm K, Burton C, Weller D et al: Patients repeatedly referred to secondary care with symptoms unexplained by organic disease: prevalence, characteristics and referral pattern. *Fam Pract* 2010, **27:** 479-486.

5. Burton C, McGorm K, Weller D et al: Depression and anxiety in patients repeatedly referred to secondary care with medically unexplained symptoms: a case control study. *Psychological Medicine* 2011, **41:** 555-563.

6. Allen LA, Woolfolk RL, Escobar JI et al: Cognitive-behavioral therapy for somatization disorder: a randomized controlled trial. *Arch Intern Med* 2006, **166:** 1512-1518.

7. Smith RC, Lyles JS, Gardiner JC *et al*.: Primary care clinicians treat patients with medically unexplained symptoms: a randomized controlled trial. *J Gen Intern Med* 2006, **21:** 671-677.

8. van der Feltz-Cornelis CM, van Oppen P, Ader HJ et al: Randomised controlled trial of a collaborative care model with psychiatric consultation for persistent medically unexplained symptoms in general practice. *Psychother Psychosom* 2006, **75:** 282-289.

9. Rosendal M, Olesen F, Fink P et al: A randomized controlled trial of brief training in the assessment and treatment of somatization in primary care: effects on patient outcome. *Gen Hosp Psychiatry* 2007, **29:** 364-373.

10. Morriss R, Dowrick C, Salmon P *et al*.: Cluster randomised controlled trial of training practices in reattribution for medically unexplained symptoms. *Br J Psychiatry* 2007, **191:** 536-542.

11. Larisch A, Schweickhardt A, Wirsching M et al: Psychosocial interventions for somatizing patients by the general practitioner: a randomized controlled trial. *J Psychosom Res* 2004, **57:** 507-514.

12. Salmon P, Peters S, Stanley I: Patients' perceptions of medical explanations for somatisation disorders: qualitative analysis. *BMJ* 1999, **318:** 372-376.

13. Aiarzaguena JM, Grandes G, Gaminde I et al: A randomized controlled clinical trial of a psychosocial and communication intervention carried out by GPs for patients with medically unexplained symptoms. *Psychol Med* 2007, **37:** 283-294.

14. Finset A, Mjaaland TA: The medical consultation viewed as a value chain: a neurobehavioral approach to emotion regulation in doctor-patient interaction. *Patient Educ Couns* 2009, **74:** 323-330.

15. Kroenke K, Spitzer RL, Williams JB: The PHQ-15: validity of a new measure for evaluating the severity of somatic symptoms. *Psychosom Med* 2002, **64:** 258-266.

16. Spitzer RL, Kroenke K, Williams JB: Validation and utility of a self-report version of PRIME-MD: the PHQ primary care study. Primary Care Evaluation of Mental Disorders. Patient Health Questionnaire. *JAMA* 1999, **282:** 1737-1744.

17. Spitzer RL, Kroenke K, Williams JB et al: A brief measure for assessing generalized anxiety disorder: the GAD-7**.** *Arch Intern Med* 2006, **166:** 1092-1097.

18. Smith RC, Korban E, Kanj M *et al*.: A method for rating charts to identify and classify patients with medically unexplained symptoms. *Psychother Psychosom* 2004, **73:** 36-42.

19. Dimsdale J, Creed F: The proposed diagnosis of somatic symptom disorders in DSM-V to replace somatoform disorders in DSM-IV--a preliminary report. *J Psychosom Res* 2009, **66:** 473-476.

20. L. Thabane, J. Ma, R. Chu, *et al*. A tutorial on pilot studies: the what, why and how. *BMC Medical Research Methodology* 10 (1), 2010.

21. Hague J, Cohen A. The neglected majority: developing intermediate mental health care in primary care. 2005. London, The Sainsbury Centre for Mental Health.

22. McGowan L, Luker K, Creed F, Chew-Graham CA: How do you explain a pain that can't be seen?: the narratives of women with chronic pelvic pain and their disengagement with the diagnostic cycle. *Br J Health Psychol* 2007, **12:** 261-274.

Figure legends

Figure 1 Flowchart for Symptoms Clinic Pilot Trial

Tables

Table 1 - Baseline measures by allocation group

	Usual Care		Symptoms Clinic	
N	16		16	
Male	4		7	
	Mean	**SD**	**Mean**	**SD**
Age	45.9	(12.7)	49.2	(10.1)
PHQ 14	14.7	(2.6)	13.9	(3.3)
SF12-PCS	35.6	(5.8)	35.0	(6.9)
SF12-MCS	41.2	(10.4)	44.9	(11.2)
PHQ 9	8.0	(4.4)	9.9	(6.5)
GAD 7	5.5	(4.4)	6.9	(6.5)
	Number	**%**	**Number**	**%**
Patients with PHQ 9≥10[1]	5	31	9	56
Patients with GAD 7≥10[2]	3	19	5	31

[1] Indicates probable major depressive disorder

[2] Indicates probable generalized anxiety disorder

Table 2 - Outcome measures at baseline and follow up by intervention group

Measure	Usual Care (N=15)		Symptoms Clinic (N=11)		Comparison[1]		
	Baseline	Follow up	Baseline	Follow up	Difference	95% CI	SD[2]
PHQ-14	14.6	12.4	15	11.7	-1.0[3]	-3.8 to 1.9	3.5
SF12-PCS	35.0	35.3	33.7	38.8	3.8	-1.1 to 8.9	6.1
SF12-MCS	41.2	45.2	45.8	44.5	-2.3	-7.6 to 3.1	6.4
PHQ-9	7.8	6.7	9.2	8.4	0.64	-2.1 to 3.4	3.4
GAD-7	5.4	5.2	6.5	5.9	-0.1	-2.9 to 2.8	3.4

[1] by analysis of covariance including baseline value

[2] Standard deviation of the residuals from the analysis of covariance.

[3] The mean difference in scores between groups is influenced by one apparent outlier in the usual care arm with a drop of 12 points between baseline and outcome. Removing this case changes the adjusted difference to -1.8 (-4.3 to 0.7) with residual SD of 3.0).

Additional files

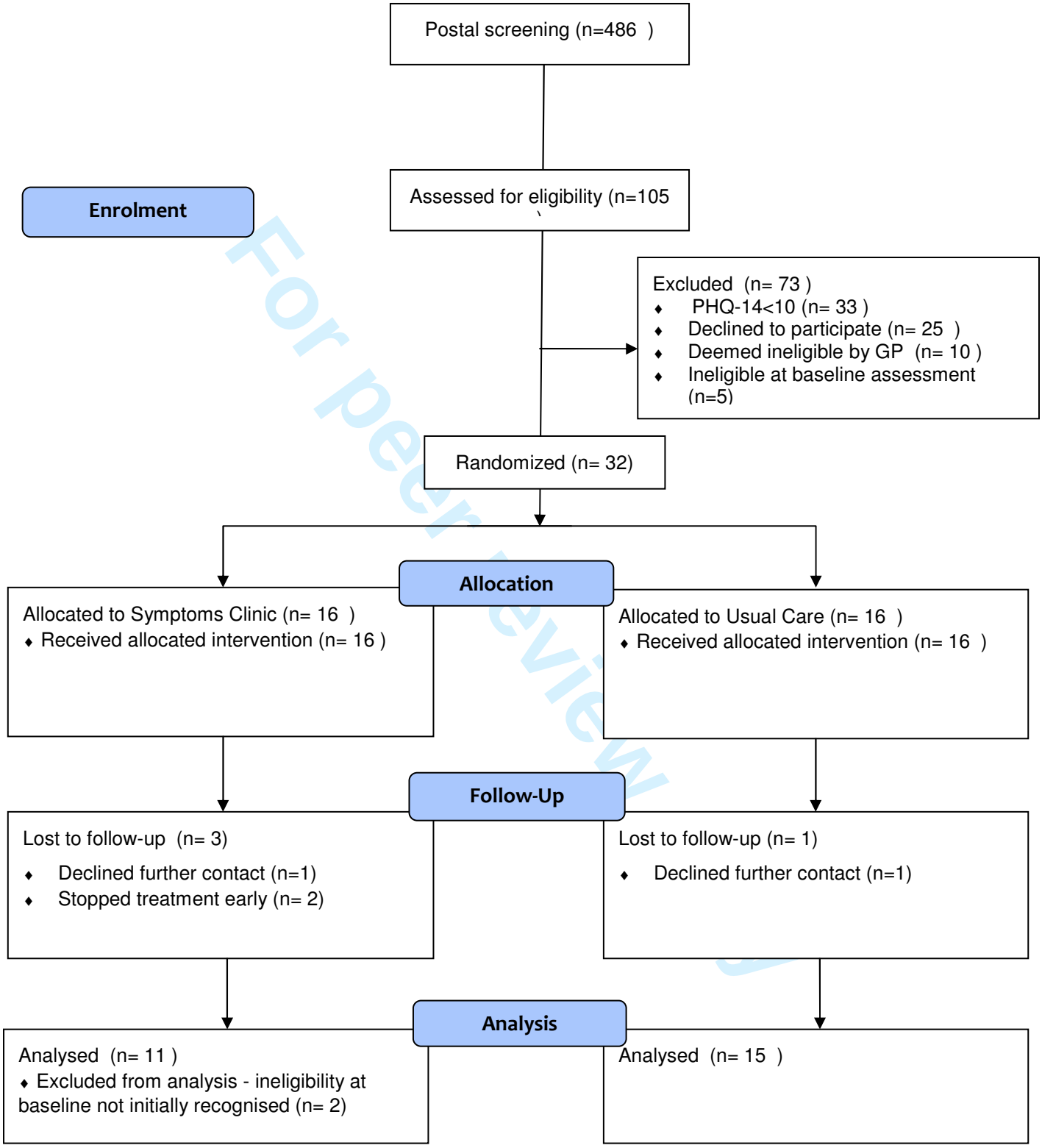
Additional file 1 – Appendix 1: summary of computer search codes.

CONSORT 2010 checklist of information to include when reporting a randomised trial*

Section/Topic	Item No	Checklist item	Reported on page No
Title and abstract			
	1a	Identification as a randomised trial in the title	1
	1b	Structured summary of trial design, methods, results, and conclusions (for specific guidance see CONSORT for abstracts)	2
Introduction			
Background and objectives	2a	Scientific background and explanation of rationale	5
	2b	Specific objectives or hypotheses	6
Methods			
Trial design	3a	Description of trial design (such as parallel, factorial) including allocation ratio	7
	3b	Important changes to methods after trial commencement (such as eligibility criteria), with reasons	7
Participants	4a	Eligibility criteria for participants	8
	4b	Settings and locations where the data were collected	7
Interventions	5	The interventions for each group with sufficient details to allow replication, including how and when they were actually administered	9
Outcomes	6a	Completely defined pre-specified primary and secondary outcome measures, including how and when they were assessed	10
	6b	Any changes to trial outcomes after the trial commenced, with reasons	NA
Sample size	7a	How sample size was determined	11
	7b	When applicable, explanation of any interim analyses and stopping guidelines	NA
Randomisation:			
Sequence generation	8a	Method used to generate the random allocation sequence	9
	8b	Type of randomisation; details of any restriction (such as blocking and block size)	9
Allocation concealment mechanism	9	Mechanism used to implement the random allocation sequence (such as sequentially numbered containers), describing any steps taken to conceal the sequence until interventions were assigned	9
Implementation	10	Who generated the random allocation sequence, who enrolled participants, and who assigned participants to interventions	9
Blinding	11a	If done, who was blinded after assignment to interventions (for example, participants, care providers, those	NA

		assessing outcomes) and how	
	11b	If relevant, description of the similarity of interventions	11
Statistical methods	12a	Statistical methods used to compare groups for primary and secondary outcomes	NA
	12b	Methods for additional analyses, such as subgroup analyses and adjusted analyses	
Results			
Participant flow (a diagram is strongly recommended)	13a	For each group, the numbers of participants who were randomly assigned, received intended treatment, and were analysed for the primary outcome	Figure1
	13b	For each group, losses and exclusions after randomisation, together with reasons	13
Recruitment	14a	Dates defining the periods of recruitment and follow-up	7
	14b	Why the trial ended or was stopped	NA
Baseline data	15	A table showing baseline demographic and clinical characteristics for each group	Table1
Numbers analysed	16	For each group, number of participants (denominator) included in each analysis and whether the analysis was by original assigned groups	Table 2
Outcomes and estimation	17a	For each primary and secondary outcome, results for each group, and the estimated effect size and its precision (such as 95% confidence interval)	Table 2
	17b	For binary outcomes, presentation of both absolute and relative effect sizes is recommended	NA
Ancillary analyses	18	Results of any other analyses performed, including subgroup analyses and adjusted analyses, distinguishing pre-specified from exploratory	NA
Harms	19	All important harms or unintended effects in each group (for specific guidance see CONSORT for harms)	1
Discussion			
Limitations	20	Trial limitations, addressing sources of potential bias, imprecision, and, if relevant, multiplicity of analyses	16
Generalisability	21	Generalisability (external validity, applicability) of the trial findings	16
Interpretation	22	Interpretation consistent with results, balancing benefits and harms, and considering other relevant evidence	17
Other information			
Registration	23	Registration number and name of trial registry	1
Protocol	24	Where the full trial protocol can be accessed, if available	
Funding	25	Sources of funding and other support (such as supply of drugs), role of funders	1

*We strongly recommend reading this statement in conjunction with the CONSORT 2010 Explanation and Elaboration for important clarifications on all the items. If relevant, we also recommend reading CONSORT extensions for cluster randomised trials, non-inferiority and equivalence trials, non-pharmacological treatments, herbal interventions, and pragmatic trials. Additional extensions are forthcoming: for those and for up to date references relevant to this checklist, see www.consort-statement.org.



BMJ open

A primary care Symptoms Clinic for patients with medically unexplained symptoms: pilot randomised trial

Journal:	*BMJ Open*
Manuscript ID:	bmjopen-2011-000513.R1
Article Type:	Research
Date Submitted by the Author:	06-Jan-2012
Complete List of Authors:	Burton, Christopher; University of Edinburgh, Population Health Sciences Weller, David; University of Edinburgh, General Practice Worth, Allison; University of Edinburgh, Population Health Sciences Marsden, Wendy; University of Edinburgh, Population Health Sciences Sharpe, Michael; University of Edinburgh, School of Molecular and Clinical Medicine
Primary Subject Heading:	General practice & Family practice
Secondary Subject Heading:	Mental health, Health services research, Patient-centred medicine
Keywords:	PRIMARY CARE, MENTAL HEALTH, PAIN MANAGEMENT

A primary care Symptoms Clinic for patients with medically unexplained symptoms: pilot randomised trial

Christopher Burton[1], David Weller[1], Wendy Marsden[1] , Allison Worth[1], Michael Sharpe[2]

[1] Centre for Population Health Sciences, University of Edinburgh, Teviot Place, Edinburgh, UK

[2]Psychological Medicine Research, University of Edinburgh, Royal Edinburgh Hospital, Edinburgh, UK

Corresponding author
Dr Christopher Burton
Centre for Population Health Sciences, University of Edinburgh
Doorway 1, Old Medical School
Teviot Place
Edinburgh
EH8 9AG
chris.burton@ed.ac.uk
Phone 0131 650 9240
Fax 0131 650 9119

Keywords: Medically Unexplained Symptoms, Primary Care, Somatoform Disorders,

Word count 2667

ABSTRACT

Objective

To conduct a pilot trial of a primary care Symptoms Clinic for patients with medically unexplained symptoms and evaluate recruitment and retention, acceptability of the intervention, and to estimate potential treatment effects for a full trial.

Trial design:

Randomised parallel group pilot trial

Methods

Participants: Primary care database and postal questionnaire were used to identify patients with multiple specialist referrals and multiple physical symptoms unlikely to be explained by disease

Interventions: GP with Special Interest "Symptoms Clinic" + usual care vs. usual care alone. The Symptoms Clinic comprised one long (one hour) and three short (twenty minutes) appointments

Outcomes: Number of patients identified and recruited; acceptability of the intervention (items from Client Satisfaction Questionnaire and interview); SF-12 physical component summary.

Randomization: Automated blocked randomisation accessed by telephone

Blinding: None

Results:

Numbers randomized: 16 to intervention, 16 to usual care alone.

Recruitment: 72 patients, from 7 GP practices, had repeated specialist referrals and a PHQ15 ≥10 indicating a high probability of medically unexplained symptoms. 15 were ineligible and 25 declined to participate.

Numbers analysed: 26 patients; 2 patients randomized to the intervention group were incorrectly included, 3 patients in the intervention group and 1 control did not complete outcome measures.

Outcome: Most patients randomised to the Symptoms Clinic found the intervention acceptable : 8 out of 11 reported the intervention helped them to deal with their problems. The mean difference between groups in SF-12 physical component summary, adjusted for baseline, was 3.8 points (SD 6).

Harms: No observed harms

Conclusions: Patients with multiple medically unexplained symptoms can be systematically identified in primary care; a randomised trial comparing the Symptoms Clinic with usual care is feasible and has the potential to show clinically meaningful benefit.

Trial registration ISRCTN63083469

Funding: Chief Scientist Office (reference CZG/2/412)

Article Focus

- There are few effective non-specialist interventions for patients with multiple medically unexplained symptoms in primary care

- We developed a new GP with special interest "Symptoms Clinic" and carried out a pilot randomised trial.
- The pilot trial aimed to test the systematic identification of eligible patients, assess the acceptability of the intervention and estimate potential treatment effects for a larger trial

Key Messages

- Patients with multiple medically unexplained symptoms can be identified systematically from the primary care database and a symptom questionnaire.
- The Symptoms Clinic appears to be an acceptable model for patients
- A larger trial using these methods is feasible

Strengths and Limitations

- This study was carried out by one GP with special interest in medically unexplained symptoms. Further work to demonstrate transferability of the clinic model is needed before a larger trial.

INTRODUCTION

Physical symptoms which cannot be adequately explained by organic pathology are common in both primary and secondary care [1,2]. For some patients (approximately 1% of the population), the number, persistence or intrusiveness of these so called medically unexplained symptoms (MUS) leads to repeated consultation, referral for investigation and impaired quality of life [3] [4]. Patients with MUS who have been repeatedly referred to specialists, have impaired physical and mental health and incur substantial health costs with little apparent benefit [5].

There is evidence for the efficacy of intensive treatment of severe MUS with cognitive behavioural therapy delivered by specialists [6,7]. Specialist psychiatric consultation followed by a management planning letter has been found to offer only modest benefit[8]. Trials of teaching GPs to use brief interventions such as reattribution in routine consultations have failed to show consistent benefit [9-11]. All these approaches concentrate on making the link between physical symptoms and underlying psychological cause. An alternative approach is to initially provide conventional biomedical explanations for MUS [12,13], and to only embark on psychosocial talk when cued by the patient [14].

We have developed a primary care Symptoms Clinic for patients with multiple MUS which comprises a structured set of consultations with a specially trained GP with special interest (GpwSI). The GP explores acceptable explanations for symptoms in terms of biological (including neurological and cognitive) mechanisms rather than psychological cause, provides empathic support, and then helps patients to address

specific symptom maintaining factors by medication or with cognitive behavioural techniques. Here, we describe a pilot randomised controlled trial which compared this Symptoms Clinic as a supplement to usual care with usual primary care alone.

The aim of this study was to determine the feasibility of conducting a larger trial of the Symptoms Clinic. We examined the following components of feasibility: systematic identification of patients; trial recruitment and retention; acceptability of the Symptoms Clinic intervention and a preliminary estimation of potential treatment effects.

METHODS

The study was conducted in Edinburgh between August 2009 and May 2010. Participating practices took part in identifying potential patients and the trial clinics were held in an outpatient clinical treatment facility. The study had approval from Lothian Research Ethics Committee (reference 09/S1102/34) and was registered (reference ISRCTN63083469).

Trial design

This was a pilot trial using an individually randomised parallel group design with patients allocated equally to intervention and control arms. The trial was conducted with no major alterations to the initial protocol.

Participants

Eligible patients comprised adults aged 18-65 and registered with participating practices who met all of three criteria: (a) they had been referred at least twice to specialists in the preceding 3 years, (b) they currently reported multiple physical symptoms, (c) their GP believed that their symptoms were unlikely to be adequately explained by physical disease. These criteria were identified sequentially.

In the first stage, practices carried out a computerised search of medical records to identify patients aged 18-64 who had been referred at least twice to hospital outpatient clinics in the preceding three years, did not have a diagnosis of serious illness (coronary heart disease, stroke, cancer, severe mental illness) and had one or more diagnostic codes potentially indicating MUS. All diagnostic codes are listed in

appendix 1. As a pilot of this primary search strategy (Search A) in two additional practices returned fewer individuals than expected due to low rates of coding for MUS we added a secondary search (Search B) which required three or more referrals but no codes for MUS. Searches were developed specifically for this study (Campbell Software Solutions) to run on the GPASS clinical system.

Current physical symptoms were assessed in patients identified by the search for referrals by postal questionnaire. This included the PHQ-14, a modified version of the PHQ-15 scale [15] in order to identify patients with multiple physical symptoms which are commonly medically unexplained. We omitted the item about menstrual symptoms because the study population included men and older women. Before sending these, the practice GPs checked the list of names to avoid sending the questionnaire to patients who were seriously ill or for whom it would be clearly inappropriate. The postal PHQ-14 was accompanied by an information sheet. We defined multiple physical symptoms as a score of ≥10 on the PHQ-14; indicating at least moderate severity of MUS [15].The likelihood that current symptoms could not be explained by physical disease was assessed by asking the GPs to review the casenotes of all patients who returned the questionnaire with a PHQ14 score ≥10 and indicated an interest in taking part in the trial. The GPs were also asked to exclude patients who were unable to leave the house independently, or for whom other health or social problems precluded an invitation to take part in a study. Additional exclusion criteria were assessed during the baseline assessment and were as follows: patient reported thoughts of self harm more than a few times in a week (an item in the PHQ-9), current self-reported alcohol or drug problems and either current or planned engagement in psychological treatment.

Baseline Assessment and consent

The researcher (WM) carried out baseline assessment and obtained informed consent during an interview. Baseline measures included: age, sex and current occupation; physical symptoms, assessed using the PHQ-14; health status by SF-12 physical and mental component summaries; depression by PHQ-9 [16] and anxiety by GAD-7 [17]. The general practice records (paper and electronic) of all participants were reviewed by the researcher in order to record patient's prior use of both primary and secondary healthcare services. This was done in order to provide a baseline measure, but in view of the short duration of this pilot trial, it was not repeated as a follow-up measure. The number of consultations in the preceding year and referrals in the preceding 3 years were recorded and the number of consultations and referrals attributable to probable MUS were estimated using a method based on the contents of the record entries [18].

Randomisation

Following completion of the baseline assessment, patients were randomised to either usual care or intervention (usual care + the Symptoms Clinic) by the researcher. Randomisation was carried out by automated telephone system using blocked allocation with variable block size.

Usual care

Patients in both arms continued to receive usual care from their registered general practice. This included referral for investigation or treatment of symptoms as the GP deemed appropriate.

Symptoms Clinic

Patients allocated to the Symptoms Clinic were offered four appointments, the first was of one hour duration and the subsequent three lasted twenty minutes. All consultations were at the treatment centre and patients were seen by the same doctor (CB), an experienced GP with special interest in MUS. The consultations were structured to first hear the patient's experience of illness then to propose and negotiate constructive explanations of physical symptoms. These explanations were used as the basis for simple cognitive and behavioural actions to modify symptoms and their impact. No specific attempt was made to screen for common mental disorders, however patients were encouraged to describe their emotional responses to symptoms and other events, and diagnostic labels such as depression were discussed collaboratively with the patient rather than imposed by the doctor.

Outcome measures

Outcome measures were chosen to measure four components of feasibility: systematic identification of patients; trial recruitment and retention; acceptability of the Symptoms Clinic intervention; and estimation of potential treatment effects .

The systematic identification, recruitment and retention of trial participants was assessed by documenting the numbers of patients at each stage of the study and by checking that their baseline characteristics were similar to those seen in our epidemiological study of patients repeatedly referred with MUS [4,5].

The acceptability to participants of the Symptoms Clinic patients was measured by administration of a Client Satisfaction Questionnaire and by asking all patients who had attended the clinic to participate in a brief interview to determine their experiences of the study procedures and the Symptoms Clinic. We noted the number of eligible patients who declined to enter the trial. We also followed up patients who dropped out of the trial in order to ascertain the reason for this. This follow up was carried out by telephone on two occasions and then by letter from one of the investigators who had no involvement with day to day contact of the trial. In order to estimate likely treatment effects we repeated the following scales from baseline: PHQ-14; SF-12; PHQ-9; GAD-7. In addition patients completed the Patient Global Impression of Change. These measures were obtained by postal questionnaire (with telephone follow up of non-responders) 12 weeks after randomisation.

Sample Size and statistical analysis

For this pilot trial we aimed to randomise approximately 30 patients in order to obtain a reasonable range of clinical conditions and test the clinic and trial procedures adequately. The effects of the intervention were estimated using analysis of covariance (ANCOVA) with baseline value as a covariate

RESULTS

All 15 practices in north-east Edinburgh were invited to take part. The population of this urban area is socio-economically diverse. Nine of the practices currently used the GPASS clinical database on which the search was run and six agreed to take part. We subsequently recruited one additional practice. The total number of patients registered with the seven practices was 45,064.

Patient identification and recruitment

The database searches identified 863 patients (1.9% of the total general practice population) and questionnaires were sent to a randomly selected 486 of these. 105 patients (21.6%) responded and 72 of these had a PHQ-14 score of 10 or more. GPs deemed 10 of these patients ineligible and a further 22 were unable to attend the baseline assessment. Five patients were excluded at baseline assessment because of thoughts of self harm and a further three failed to attend, leaving 32 who were randomised to either usual care or the Symptoms Clinic plus usual care. These data are summarised in figure 1.

The number of patients identified by the search A was smaller than anticipated, probably reflecting low rates of coding for MUS syndromes within practices. However when we used the criterion of three or more referrals without requiring any specific MUS syndrome, (search B) it identified three patients who on clinic assessment had localised joint pain as their main symptom. While these patients also reported other symptoms on the PHQ-14, it was the localised joint pain which had the greatest effect on their functioning. As patients saw addressing the joint pain (in one

case surgically) as their top priority, the symptoms clinic model was less appropriate than for patients who were still seeking an explanation for their symptoms.

Patients characteristics

Baseline measures are shown in table 1. Patients had substantially impaired physical and mental health status: scores on the SF-12 Physical Component Summary are standardised to population norms with mean and standard deviation of 50 and 10 respectively and these results placed the participants in the lowest decile of the general population, despite the absence of physical disease. Around half the participating patients had co-morbid anxiety or depression. Participants were high users of health services: they had a mean (SD) of 27 (11) GP consultations and 4.7 (1.8) specialist referrals over the preceding three years of which 15 consultations and 3.4 referrals were estimated from the records to be for MUS.

<TABLE 1 ABOUT HERE >

Trial retention and acceptability of clinic model and procedures

All 16 patients randomised to the Symptoms Clinic attended the first appointment and 11 completed either 3 or 4 appointments. Of the remainder, two were clearly improving at the time they were seen and agreed to early discharge; two found further attendance difficult after a second appointment and one declined any further contact after the first appointment. Several patients randomised to usual care expressed some

disappointment at the time of their allocation although follow up response rates were comparable between the two groups.

Responses to the Client Satisfaction Questionnaire from patients randomised to the Symptoms Clinic suggested that the process was acceptable: 8 out of 11 reported that it helped them to deal with their problems more effectively. Interviews suggested that most patients appreciated the time and the explanatory approach adopted by the Symptoms Clinic. A few remained sceptical, indicating that they felt the aim was simply to assert that their problems were psychological, but most seemed comfortable with the balance between psychological and physical components taken by the clinic. There were few reported problems with the trial procedures among participants

Practices reported experiencing no major problems with the process for identifying or recruiting patients. The searches took less than 30 minutes; and the checking of the resulting patient lists for those who were ineligible was also quick and straightforward as patients were often well known to the doctors.

Estimates of potential treatment effects

Outcome measures were obtained for 28 (84%) patients. No follow up data were available, despite repeated requests from 4 patients, 3 in the intervention group and 1 in usual care. Two of the non-responders had predominantly musculoskeletal pain and would not have been included in the search strategy which required one or more MUS syndrome diagnoses.. Two patients whose postal PHQ-14 had been above the entry

threshold of 10 but whose baseline PHQ-14 score was below 10, were entered into the study in error and randomised to the Symptoms Clinic. Because this ineligibility was recorded before randomisation but not recognised at the time, they were excluded from the analysis.

<TABLE 2 ABOUT HERE >

Outcome measures are summarised by group in table 2. For the SF12 component scores, higher scores represent better health; for PHQ14, PHQ9 and GAD7, higher scores represent worse health. The Patient Global Impression of Change (PGIC) showed an improvement of one or more levels in 7 of 11 patients in the Symptoms Clinic arm and 2 of 15 in the Usual Care arm. Table 2 includes no measures of statistical significance, given the small sample size, it does however include the standard deviation of the residuals from the fitted ANCOVA models. Based on these, a difference in outcomes between groups of 2 points in the PHQ-14 and 3 points in the SF-12 Physical Component Score would represent effect sizes of around 0.5 times the standard deviation. Although we are not aware of studies assessing clinically important difference with these scales in a comparable population, a standardised effect size of 0.5 is generally found to represent a clinically meaningful difference [19].We did not measure subsequent healthcare use in this short-term pilot study but regard this as an important outcome for future studies.

DISCUSSION

Summary of main findings

This pilot trial supports the feasibility of conducting a trial of the Symptoms Clinic. The trial procedures, including identification, recruitment, and randomisation were acceptable to patients. Nonetheless a few patients were lost to follow up and further attention to the entry criteria is warranted. The trial was not powered to detect treatment effects, but the results were in keeping with clinically meaningful benefit.

Strengths and limitations

This study design had several strengths, particularly in relation to identifying potential patients. Systematic identification of patients which combines high healthcare use (referrals) with multiple symptoms on self-report has not been used before but is in keeping with the defining features of patients with MUS [20]. The search methods for this study were similar to our previous epidemiological work[4,5] using a database, however whereas previously we carried out detailed casenote review to identify patients, in this study we combined repeated referrals with a high self-reported symptom count. We found that the health related quality of life and prevalence of depression and anxiety in patients recruited into this pilot study were similar to those in our previous descriptive study of a similarly defined patient sample [4,5] . This suggests that the sampling method used in the trial achieved a representative sample. In a future trial other outcome measures could be considered: in particular a measure of health care use. The small scale of this study is not a limitation of this pilot study which was designed to test procedures rather than reach conclusions about effect [21].

Comparison with other recruitment and intervention strategies

Previous studies of primary care interventions for patients with MUS have depended either on questionnaire sampling [9], GP identification and referral [8] or review of consultations by investigators to decide whether symptoms were medically unexplained [10]. All of these have limitations for identifying patients with MUS and high healthcare use. Only one trial has used systematic searching of clinical records; this was a lengthy process carried out by hand [18]. The recruitment strategy we used had the advantage of combining activity data from electronic records (referrals and diagnostic coding) with symptoms reporting on questionnaire.

Although there have been policy statements advocating intermediate care services for patients with MUS [22] there have been no formal studies of this approach. The model here differs from conventional approaches: it is much shorter than cognitive behavioural therapy but longer and less psychologically oriented than reattribution. Recent evidence suggests that patients often actively resist reattribution [23]. Even when they have anxiety and depression, patients with MUS may see them as associated with rather than causal to their physical symptoms [24]. Unlike the consultation letter approach, the symptom clinic model aims to negotiate a "medical" explanation for symptoms involving physiological processes, thus reducing uncertainty and permitting an exit from the diagnostic cycle[25]. This explanation is then followed up over a series of shorter consultations.

Implications for future research

This pilot study has identified an effective method for systematically identifying patients in primary care who have medically unexplained symptoms and relatively high use of secondary care. Further work is now needed to better understand patients' views of which aspects of the intervention were most helpful and to protocolise a final version of the intervention before undertaking definitive tests of its efficacy. Providing that the Symptoms Clinic model can be shown to be delivered consistently by a range of doctors it offers a novel approach to a common problem which warrants testing in a full scale trial

CONCLUSION

We found that the Symptoms Clinic intervention, and the trial procedures we used to test its efficacy, were acceptable to patients . Given the prevalence of MUS and their cost to health services, treatments are required which can be effectively delivered in primary care, need limited amounts of time per patient and can be taught relatively quickly. The Symptoms Clinic meets these requirements and now requires further evaluation

Competing Interests

The authors declare there are no competing interests

Contributorship Statement

CB conceived and designed the study in collaboration with MS, DW and AW; WM collected the data. CB drafted the paper with contributions from all authors. All authors approved the version submitted for publication.

Data sharing statement

There is no additional data available.

Acknowledgements

We acknowledge the support and cooperation of Dr Jane Walker in designing the trial, participating practices and the staff of Leith Community Treatment Centre.

References

1 Burton C: Beyond Somatisation: a review of the understanding and management of medically unexplained physical symptoms (MUPS). *Br J Gen Pract* 2003, **53:** 233-241.

2 Henningsen P, Zipfel S, Herzog W: Management of functional somatic syndromes. *Lancet* 2007, **369:** 946-955.

3. Kroenke K, Mangelsdorff AD: Common symptoms in ambulatory care: incidence, evaluation, therapy, and outcome. *Am J Med* 1989, **86:** 262-266.

4. McGorm K, Burton C, Weller D et al: Patients repeatedly referred to secondary care with symptoms unexplained by organic disease: prevalence, characteristics and referral pattern. *Fam Pract* 2010, **27:** 479-486.

5. Burton C, McGorm K, Weller D et al: Depression and anxiety in patients repeatedly referred to secondary care with medically unexplained symptoms: a case control study. *Psychological Medicine* 2011, **41:** 555-563.

6. Allen LA, Woolfolk RL, Escobar JI et al: Cognitive-behavioral therapy for somatization disorder: a randomized controlled trial. *Arch Intern Med* 2006, **166:** 1512-1518.

7. Smith RC, Lyles JS, Gardiner JC *et al.*: Primary care clinicians treat patients with medically unexplained symptoms: a randomized controlled trial. *J Gen Intern Med* 2006, **21:** 671-677.

8. van der Feltz-Cornelis CM, van Oppen P, Ader HJ et al: Randomised controlled trial of a collaborative care model with psychiatric consultation for persistent medically unexplained symptoms in general practice. *Psychother Psychosom* 2006, **75:** 282-289.

9. Rosendal M, Olesen F, Fink P et al: A randomized controlled trial of brief training in the assessment and treatment of somatization in primary care: effects on patient outcome. *Gen Hosp Psychiatry* 2007, **29:** 364-373.

10. Morriss R, Dowrick C, Salmon P *et al.*: Cluster randomised controlled trial of training practices in reattribution for medically unexplained symptoms. *Br J Psychiatry* 2007, **191:** 536-542.

11. Larisch A, Schweickhardt A, Wirsching M et al: Psychosocial interventions for somatizing patients by the general practitioner: a randomized controlled trial. *J Psychosom Res* 2004, **57:** 507-514.

12. Salmon P, Peters S, Stanley I: Patients' perceptions of medical explanations for somatisation disorders: qualitative analysis. *BMJ* 1999, **318:** 372-376.

13. Aiarzaguena JM, Grandes G, Gaminde I et al: A randomized controlled clinical trial of a psychosocial and communication intervention carried out by GPs for patients with medically unexplained symptoms. *Psychol Med* 2007, **37:** 283-294.

14. Finset A, Mjaaland TA: The medical consultation viewed as a value chain: a neurobehavioral approach to emotion regulation in doctor-patient interaction. *Patient Educ Couns* 2009, **74:** 323-330.

15. Kroenke K, Spitzer RL, Williams JB: The PHQ-15: validity of a new measure for evaluating the severity of somatic symptoms. *Psychosom Med* 2002, **64:** 258-266.

16. Spitzer RL, Kroenke K, Williams JB: Validation and utility of a self-report version of PRIME-MD: the PHQ primary care study. Primary Care Evaluation of Mental Disorders. Patient Health Questionnaire. *JAMA* 1999, **282:** 1737-1744.

17. Spitzer RL, Kroenke K, Williams JB et al: A brief measure for assessing generalized anxiety disorder: the GAD-7**.** *Arch Intern Med* 2006, **166:** 1092-1097.

18. Smith RC, Korban E, Kanj M *et al.*: A method for rating charts to identify and classify patients with medically unexplained symptoms. *Psychother Psychosom* 2004, **73:** 36-42.

19. Norman GR, Sloan JA, Wyrwich KW. Interpretation of changes in health-related quality of life: the remarkable universality of half a standard deviation. *Med Care* 2003;**41**:582-92.

20. Dimsdale J, Creed F: The proposed diagnosis of somatic symptom disorders in DSM-V to replace somatoform disorders in DSM-IV--a preliminary report. *J Psychosom Res* 2009, **66:** 473-476.

21. L. Thabane, J. Ma, R. Chu, *et al.* A tutorial on pilot studies: the what, why and how. *BMC Medical Research Methodology* 10 (1), 2010.

22. Hague J, Cohen A. The neglected majority: developing intermediate mental health care in primary care. 2005. London, The Sainsbury Centre for Mental Health.

23.Burbaum C, Stresing AM, Fritzsche K, Auer P, Wirsching M, Lucius-Hoene G. Medically unexplained symptoms as a threat to patients' identity? A conversation analysis of patients' reactions to psychosomatic attributions. Patient Educ.Couns 2010;79:207-17.

24. Burton C, McGorm K, Weller D, Sharpe M. The interpretation of low mood and worry by high users of secondary care with medically unexplained symptoms. *BMC Fam Pract.* 2011;**12**:107.24.

25. McGowan L, Luker K, Creed F, Chew-Graham CA: How do you explain a pain that can't be seen?: the narratives of women with chronic pelvic pain and their disengagement with the diagnostic cycle. *Br J Health Psychol* 2007, **12:** 261-274.

Figure legends

Figure 1 Flowchart for Symptoms Clinic Pilot Trial

Tables

Table 1 - Baseline measures by allocation group

	Usual Care		Symptoms Clinic	
N	16		16	
Male	4		7	
	Mean	**SD**	**Mean**	**SD**
Age	45.9	(12.7)	49.2	(10.1)
PHQ 14	14.7	(2.6)	13.9	(3.3)
SF12-PCS	35.6	(5.8)	35.0	(6.9)
SF12-MCS	41.2	(10.4)	44.9	(11.2)
PHQ 9	8.0	(4.4)	9.9	(6.5)
GAD 7	5.5	(4.4)	6.9	(6.5)
	Number	**%**	**Number**	**%**
Patients with PHQ 9≥10[1]	5	31	9	56
Patients with GAD 7≥10[2]	3	19	5	31

[1] Indicates probable major depressive disorder

[2] Indicates probable generalized anxiety disorder

Table 2 - Outcome measures at baseline and follow up by intervention group

Measure	Usual Care (N=15)		Symptoms Clinic (N=11)		Comparison[1]		
	Baseline	Follow up	Baseline	Follow up	Difference	95% CI	SD[2]
PHQ-14	14.6	12.4	15	11.7	-1.0[3]	-3.8 to 1.9	3.5
SF12-PCS	35.0	35.3	33.7	38.8	3.8	-1.1 to 8.9	6.1
SF12-MCS	41.2	45.2	45.8	44.5	-2.3	-7.6 to 3.1	6.4
PHQ-9	7.8	6.7	9.2	8.4	0.64	-2.1 to 3.4	3.4
GAD-7	5.4	5.2	6.5	5.9	-0.1	-2.9 to 2.8	3.4

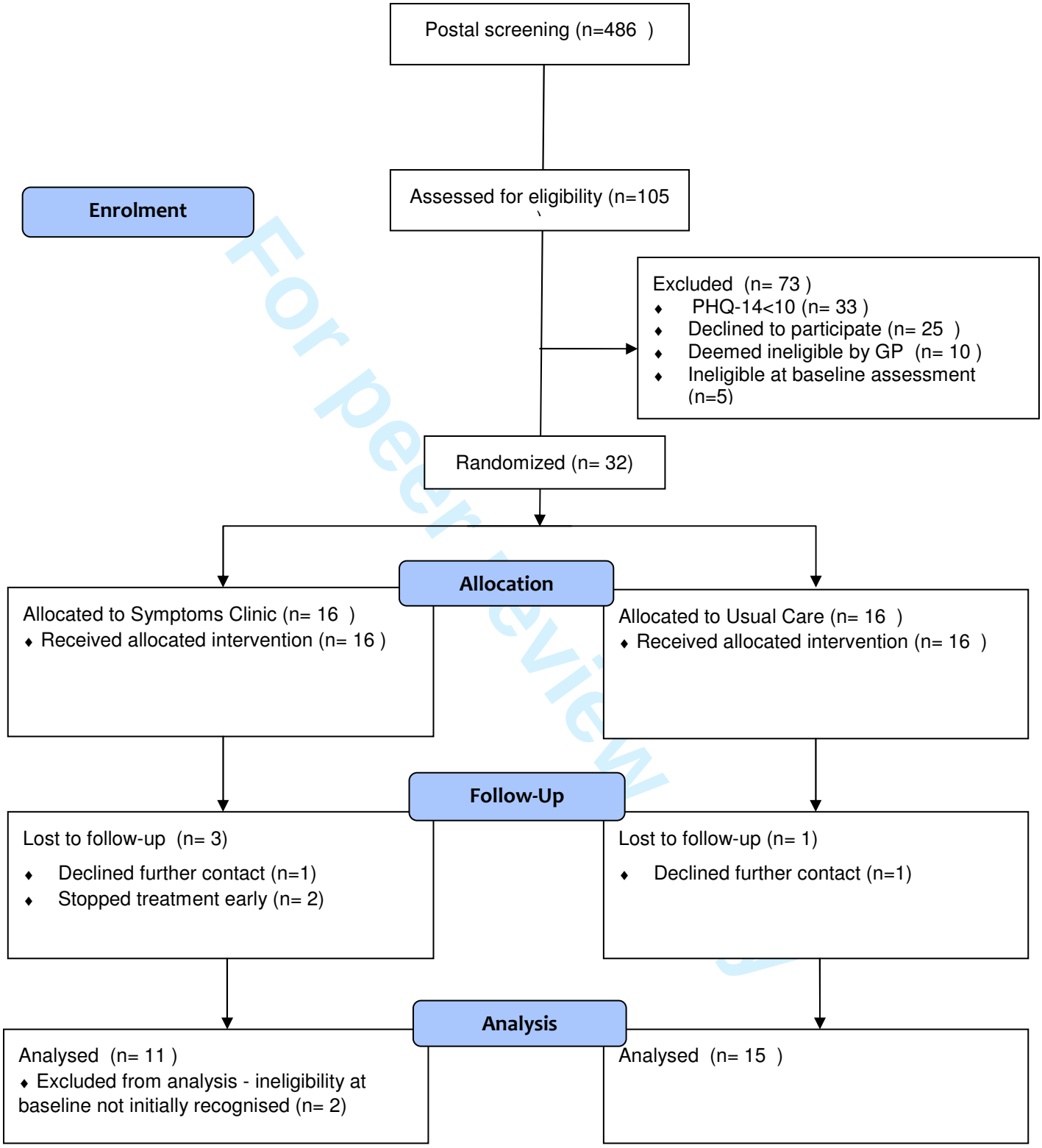
[1] by analysis of covariance including baseline value

[2] Standard deviation of the residuals from the analysis of covariance.

[3] The mean difference in scores between groups is influenced by one apparent outlier in the usual care arm with a drop of 12 points between baseline and outcome. Removing this case changes the adjusted difference to -1.8 (-4.3 to 0.7) with residual SD of 3.0).

Additional files

Additional file 1 – Appendix 1: summary of computer search codes.



CONSORT 2010 checklist of information to include when reporting a randomised trial*

Section/Topic	Item No	Checklist item	Reported on page No
Title and abstract			
	1a	Identification as a randomised trial in the title	1
	1b	Structured summary of trial design, methods, results, and conclusions (for specific guidance see CONSORT for abstracts)	2
Introduction			
Background and objectives	2a	Scientific background and explanation of rationale	5
	2b	Specific objectives or hypotheses	6
Methods			
Trial design	3a	Description of trial design (such as parallel, factorial) including allocation ratio	7
	3b	Important changes to methods after trial commencement (such as eligibility criteria), with reasons	7
Participants	4a	Eligibility criteria for participants	8
	4b	Settings and locations where the data were collected	7
Interventions	5	The interventions for each group with sufficient details to allow replication, including how and when they were actually administered	9
Outcomes	6a	Completely defined pre-specified primary and secondary outcome measures, including how and when they were assessed	10
	6b	Any changes to trial outcomes after the trial commenced, with reasons	NA
Sample size	7a	How sample size was determined	11
	7b	When applicable, explanation of any interim analyses and stopping guidelines	NA
Randomisation:			
Sequence generation	8a	Method used to generate the random allocation sequence	9
	8b	Type of randomisation; details of any restriction (such as blocking and block size)	9
Allocation concealment mechanism	9	Mechanism used to implement the random allocation sequence (such as sequentially numbered containers), describing any steps taken to conceal the sequence until interventions were assigned	9
Implementation	10	Who generated the random allocation sequence, who enrolled participants, and who assigned participants to interventions	9
Blinding	11a	If done, who was blinded after assignment to interventions (for example, participants, care providers, those	NA

		assessing outcomes) and how	
	11b	If relevant, description of the similarity of interventions	11
Statistical methods	12a	Statistical methods used to compare groups for primary and secondary outcomes	NA
	12b	Methods for additional analyses, such as subgroup analyses and adjusted analyses	
Results			
Participant flow (a diagram is strongly recommended)	13a	For each group, the numbers of participants who were randomly assigned, received intended treatment, and were analysed for the primary outcome	Figure1
	13b	For each group, losses and exclusions after randomisation, together with reasons	13
Recruitment	14a	Dates defining the periods of recruitment and follow-up	7
	14b	Why the trial ended or was stopped	NA
Baseline data	15	A table showing baseline demographic and clinical characteristics for each group	Table1
Numbers analysed	16	For each group, number of participants (denominator) included in each analysis and whether the analysis was by original assigned groups	Table 2
Outcomes and estimation	17a	For each primary and secondary outcome, results for each group, and the estimated effect size and its precision (such as 95% confidence interval)	Table 2
	17b	For binary outcomes, presentation of both absolute and relative effect sizes is recommended	NA
Ancillary analyses	18	Results of any other analyses performed, including subgroup analyses and adjusted analyses, distinguishing pre-specified from exploratory	NA
Harms	19	All important harms or unintended effects in each group (for specific guidance see CONSORT for harms)	1
Discussion			
Limitations	20	Trial limitations, addressing sources of potential bias, imprecision, and, if relevant, multiplicity of analyses	16
Generalisability	21	Generalisability (external validity, applicability) of the trial findings	16
Interpretation	22	Interpretation consistent with results, balancing benefits and harms, and considering other relevant evidence	17
Other information			
Registration	23	Registration number and name of trial registry	1
Protocol	24	Where the full trial protocol can be accessed, if available	
Funding	25	Sources of funding and other support (such as supply of drugs), role of funders	1

*We strongly recommend reading this statement in conjunction with the CONSORT 2010 Explanation and Elaboration for important clarifications on all the items. If relevant, we also recommend reading CONSORT extensions for cluster randomised trials, non-inferiority and equivalence trials, non-pharmacological treatments, herbal interventions, and pragmatic trials. Additional extensions are forthcoming: for those and for up to date references relevant to this checklist, see www.consort-statement.org.