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How usual is usual care in pragmatic intervention studies in primary care?

An overview of recent trials

Antonia FH Smelt, Gerda M van der Weele, Jeanet W Blom, Jacobijn Gussekloo and Willem JJ Assendelft

ABSTRACT

Background

Because pragmatic trials are performed to determine if an intervention can improve current practice, they often have a control group receiving 'usual care'. The behaviour of caregivers and patients in this control group should be influenced by the actions of researchers as little as possible. Guidelines for describing the composition and management of a usual care control group are lacking.

Aim

To explore the variety of approaches to the usual care concept in pragmatic trials, and evaluate the influence of the study design on the behaviour of caregivers and patients in a usual care control group.

Design of study

Review of 73 pragmatic trials in primary care with a usual care control group published between January 2005 and December 2009 in the *British Medical Journal*, the *British Journal of General Practice*, and *Family Practice*. Outcome measures were: description of the factors influencing caregiver and patients in a usual care control group related to an individual randomised design versus cluster randomisation.

Results

In total, 38 individually randomised trials and 35 cluster randomised trials were included. In most trials, caregivers had the freedom to treat control patients according to their own insight; in two studies, treatment options were restricted. Although possible influences on the behaviour of control caregivers and control patients were more often identified in individually randomised trials, these influences were also present in cluster randomised trials. The description of instructions and information provided to the control group was often insufficient, which made evaluation of the trials difficult.

Conclusion

Researchers in primary care medicine should carefully consider the design of a usual care control group, especially with regard to minimising the risk of study-induced behavioural change. It is recommended that an adequate description of the information is provided to control caregivers and control patients. A proposal is made for an extension to the CONSORT statement that requires authors to specify details of the usual care control group.

Keywords

control groups; family practice; pragmatic trials; primary care; usual care.

INTRODUCTION

Many trials in primary care require a pragmatic design. In contrast to explanatory trials, which are performed under ideal and controlled conditions, pragmatic trials measure the effect of an intervention in real clinical practice. Because pragmatic trials are performed to determine whether the intervention can improve current practice, they often have a 'usual care' control group. The care received by this control group is supposed to reflect the care as usually received by patients in daily practice.¹

The design of a trial with a usual care control group requires specific attention (Box 1). The main difficulty is to ensure that this control group receives genuine usual care as supplied in everyday practice.² However, various actions by the researchers may influence the behaviour of caregivers and patients. For example, behavioural change of control caregivers may be induced when they are informed about the issues under study, or because of a learning effect when they have to provide usual care to one patient and an intervention to another. Behavioural change of control patients may be induced when they are briefed about the trial and asked to give informed consent, or when they are

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asked to complete questionnaires and undergo examinations, drawing their attention to their condition and possible interventions. These actions may change their help-seeking behaviour or influence their complaints. This, in turn, may affect the outcome and the interpretation of the trial. Consequently, researchers have to think carefully about the influence of the study information and the intervention on the control group and on how to minimise this effect.

Researchers have different opinions about the meaning of the term 'usual care' and, consequently, apply different methods when designing and reporting a trial with a usual care control group. Guidelines on the reporting of trials are available to researchers in the CONSORT statement, including its extension to cluster randomised trials, and its recently published extension to pragmatic trials.³⁻⁵ However, these guidelines do not cover the specific requirements for describing the composition and management of a usual care control group. Two recent reviews on the validity of pragmatic cluster randomised trials focused on other issues, that is, mainly on the risk of selection bias. Until now, the risk of behavioural change of caregivers and patients in trials with a usual care group has been discussed only marginally.^{6,7} A recent review on low back pain reported a poor description of the usual care control arm in 26 of 33 reviewed studies.^{8,9}

To gain insight into the variety of approaches to the usual care concept in primary care research, this study explored a cohort of pragmatic trials with a usual care control group, reporting for individually randomised and cluster-randomised studies separately. Furthermore, it examined the possible influences of the study information and awareness of the intervention on the behaviour of control caregivers and control patients. This overview shows the problems researchers face when designing pragmatic trials with a usual care control group.

METHOD

One of the authors manually searched three medical journals: the *British Medical Journal*, the *British Journal of General Practice*, and *Family Practice*, from January 2005 to December 2009. These particular journals were selected because they regularly publish articles on pragmatic trials in primary care; thus, this overview was not intended to be exhaustive. The two criteria for inclusion were:

- A randomised pragmatic or effectiveness trial in a primary care or nursing home population; the aim of the trial should be to evaluate the overall effectiveness of an intervention in a 'real-life' situation, when people may not receive all of the treatment, and may use other treatments as well,

How this fits in

For pragmatic trials researchers often use a usual care control group. However, this concept is defined in a variety of ways. In addition, the information and treatment provided to the control group is often scarcely described. This makes it difficult for readers of trial articles to assess the applicability of trials with a usual care control group to their own population. This review proposes a more detailed description of the control group in CONSORT statement as a first step to the solution of this problem.

Box 1. Example of dilemmas faced by the present authors when designing a pragmatic trial with a usual care control group.

Guidelines give clear advice about prophylactic medication for migraine patients with frequent headaches. However, GPs do not often prescribe this medication. This study's authors decided to perform a randomised clinical trial to establish the advantages of a new intervention aimed at improving migraine treatment by GPs. Most likely this will be a pragmatic trial with one group of GPs applying the intervention and another group continuing their normal way of working ('usual care'). For an optimal comparison it is preferable if control patients and control physicians are unaware of the study. However, patients have to be invited to participate, need to provide informed consent, and have to complete questionnaires to measure the outcome. Furthermore, control physicians have to be informed and agree to participate. Therefore, physicians and patients will be aware of the study and this could change or adapt their normal behaviour. For example, physicians could start studying the available guidelines on migraine and subsequently re-evaluate the therapy options for their migraine patients; patients might decide to visit their physician after reading the information and filling in the questionnaire; and, just after the study has started, an update of the national headache guideline might be sent to all GPs. For both the researcher and the reader it is difficult to estimate the impact of all these possible influences.

the trial has broad eligibility criteria, and patient and practice-oriented outcomes.^{10,11}

Figure 1. Flowchart of the search and results.

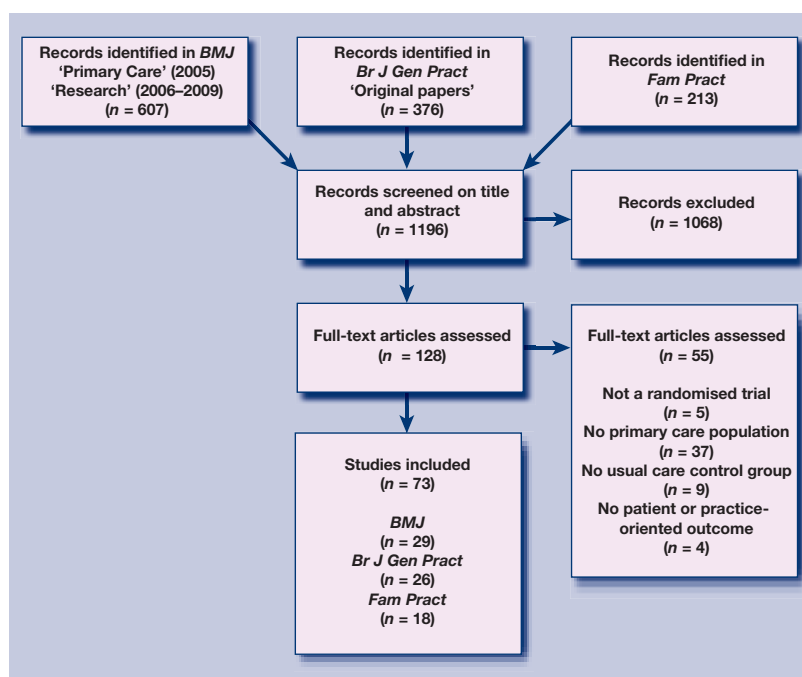


Table 1. Description of individually randomised trials (n = 38) as reported by the authors of the trials.

| First author, year of publication | Study subject | Intervention | Description of care in control group |
|---|--|--|---|
| Boivin, 2008 ¹² | Multifactorial strategy of pain management during vaccination to decrease pain | Multifactorial strategy including pharmacological and non-pharmacological approaches | Usual care |
| Community Pharmacy Medicines Management Project Evaluation Team, 2007 ¹³ | Community pharmacy-led medicines management for patients with CHD in primary care to improve secondary prevention | Consultation of CHD patients by community pharmacist; recommendations sent to GP | Usual care from GP and community pharmacist |
| Christensen, 2005 ¹⁴ | A composite SQ to enhance recognition and treatment of functional illness in primary care in consecutive patients presenting with a new health problem | Patients complete SQ, content disclosed to GP | Patients complete SQ, no disclosure to GP |
| Coppin, 2008 ¹⁵ | Managing ear wax in primary care | Self-treatment with eardrops and bulb syringe | Routine care (ear drops for 2 days, then irrigation in practice) |
| Crilly, 2005 ¹⁶ | Provision of an educational booklet in adults prescribed thyroxine for primary hypothyroidism to improve adherence in primary care | Educational booklet addressing lay health beliefs about medicine taking | Usual care |
| Daley, 2008 ¹⁷ | Feasibility of an exercise intervention for women with postnatal depression | Two one-to-one exercise consultations by researcher | Usual care, consultation at end of study |
| Dennis, 2009 ¹⁸ | Effect of peer support on prevention of postnatal depression among high-risk women | No peer support | Telephone-based peer (mother-to-mother) support |
| Farmer, 2007 ¹⁹ | Impact of self-monitoring of blood glucose in the management of patients with non-insulin-treated diabetes | Usual care + blood glucose self-monitoring | Standardised usual care (3-monthly measurement of HbA _{1c}) |
| Gorgels, 2007 ²⁰ | Reducing psychotropic medication prescription in long-term benzodiazepine users | Discontinuation letter + taper scheme with/without group psychotherapy | Discontinuation letter + usual care |
| Green, 2007 ²¹ | Treatment of menopausal symptoms | Treatment by qualified herbal practitioner | Waiting list |
| Griffiths, 2005 ²² | Improving self-efficacy in Bangladeshi patients with chronic disease in primary care | Self-management programme provided by Bangladeshi lay tutors | Waiting list |
| Gruffydd-Jones, 2005 ²³ | The effectiveness of targeted asthma care in general practice using telephone triage | 6-monthly check-up by telephone | Usual care by 6-monthly check-up via an appointment with asthma nurse |
| Hamilton, 2007 ²⁴ | The effect of a patient SCAF on prescribing, adherence and patient satisfaction | Patient completes SCAF in waiting room, SCAF given to GP on entry to consultation room | No SCAF |
| Hoefman, 2005 ²⁵ | Feasibility of patient-activated loop records for detecting heart rhythm abnormalities in patients with new episodes of palpitations or light-headedness and normal ECG primary care | Loop recorder for a maximum of 4 weeks + usual care from GP | Usual care (patients included when routine ECG showed no abnormalities) |
| Holland, 2007 ²⁶ | Visits from community pharmacists for patients diagnosed with heart failure after an emergency admission to reduce hospital readmissions | Pharmacists provided with copy of discharge letter, home visit by pharmacist within 2 weeks of discharge | Usual care by GP and community pharmacist |
| Holland, 2005 ²⁷ | Home-based medication review by local pharmacist in older people discharged from hospital to reduce emergency admissions | Pharmacist provided with copy of discharge letter, home-based medication review by pharmacist | Usual care by GP and community pharmacist |
| Hunkeler, 2006 ²⁸ | Collaborative care intervention for depressed older in primary care | Proactive depression treatment by depression care manager (nurse), GP, psychiatrist, and liaison GP | Usual care |
| Khunti, 2006 ²⁹ | Effect of near-patient testing for HbA _{1c} in people with type 2 diabetes mellitus on glycaemic control in primary care | Rapid test for HbA _{1c} (practices also continued usual follow-up) | Routine care (laboratory testing for HbA _{1c}) |
| Lawton, 2009 ³⁰ | Effectiveness of a programme of exercise on prescription among relatively inactive women on physical activity | Brief physical activity intervention by nurse with 6-month follow-up visit and monthly telephone support over 9 months | Usual care |

... continued

Table 1 continued. Description of individually randomised trials (n = 38) as reported by the authors of the trials.

| | | | |
|--------------------------------|---|---|---|
| Leong, 2006 ³¹ | The use of text messaging to improve attendance in primary care | Reminder via text message or mobile phone call 24–48 hours prior to appointment | No reminder |
| Liew, 2009 ³² | Text messaging reminders to reduce non-attendance in chronic disease follow-up | Text message or telephone reminder | No reminder |
| Linschoten, 2009 ³³ | Supervised exercise therapy for patellofemoral pain syndrome | Standardised exercise programme | Usual care ('wait and see' approach) |
| Little, 2008 ³⁴ | Alexander technique lessons, exercise, and massage for chronic and recurrent back pain | Massage/Alexander technique lessons/exercise | Normal care by GP |
| Martins, 2009 ³⁵ | Food incentives to improve completion of tuberculosis treatment | Nutritious, culturally appropriate daily meal and food package | Routine care (nutritional advice) |
| McMahon, 2007 ³⁶ | Graduate mental health worker case management of depression in people using antidepressants for more than 2 months | Usual care + case management from graduate primary care mental health worker | Usual care, all prescribed antidepressant |
| McManus, 2005 ³⁷ | Improving blood pressure control in primary care by self-monitoring | Monthly blood pressure measurement by patient, patient card with target blood pressure | Usual care (blood pressure monitoring by GP, information sheet on self-help measures) |
| Muirhead, 2006 ³⁸ | Effect of organised and supervised peer support on initiation and duration of breastfeeding | Normal breastfeeding support + peer support | Normal breastfeeding support (community midwife first 10 days, thereafter health visitor, breastfeeding support groups and breastfeeding workshops) |
| Nanchahal, 2009 ³⁹ | Weight-management intervention for adults with body mass index ≥ 27 kg/m ² | Nurse-led weight-management programme | Usual care |
| Norg, 2006 ⁴⁰ | Treatment protocol for male lower urinary tract symptoms to reduce symptoms | Comprehensive treatment protocol by researcher | Usual care by GP |
| Roberts, 2006 ⁴¹ | Effectiveness of hypnotherapy as a complementary therapy in the primary care management of irritable bowel syndrome | Usual practice + five sessions of hypnotherapy | Usual practice |
| Schreuders, 2005 ⁴² | Effect of problem-solving treatment for patients with mental health problems on feelings of depression and anxiety, and on attendance rates | Problem-solving treatment by mental health nurse | Usual care by GP |
| Schroeder, 2005 ⁴³ | Effectiveness of nurse-led adherence support in hypertensive patients | Usual care + blood pressure checks and adherence support sessions by practice nurse | Usual care + blood pressure checks at similar intervals as intervention group |
| Thomas, 2006 ⁴⁴ | Acupuncture for persistent non-specific low back pain | Short course of traditional acupuncture | Usual care (NHS treatment according to GP's assessment of needs) |
| Thomsen, 2005 ⁴⁵ | Effect of preventive health screening and health discussions on primary care utilisation in primary care | (1) health screening, or (2) health discussion | No invitation for screening or discussion |
| van Rijn, 2007 ⁴⁶ | Supervised exercises for adults with acute lateral ankle sprain | Conventional treatment + supervised exercises | Conventional treatment (information about mobilisation and home exercises) |
| Vicens, 2006 ⁴⁷ | Structured intervention aimed at withdrawal from long-term benzodiazepine use | Standardised interview + stepwise dose reduction by GP | Usual care by GP, after being informed of convenience of reducing benzodiazepine use |
| Wake, 2009 ⁴⁸ | Intervention for overweight or obese children | Four standard consultations targeting change in nutrition, physical activity, and sedentary behaviour | No consultations |
| Williams, 2005 ⁴⁹ | Effectiveness of a nurse-led continence service for individuals reporting urinary symptoms | Continence service by specially trained nurse | Standard care, individuals provided with leaflet detailing how to access existing continence services or GP |

CHD = coronary heart disease. ECG = electrocardiogram. SCAF = self-completed agent form. SQ = screening questionnaire.

Table 2. Evaluation of the individually randomised trials (n = 38).

| Study | Influence on caregivers | | | | | Influence on control patients | | | | | |
|---|---------------------------------------|--|---------------------------------------|--|---|-------------------------------|--|---------------------------------|---------------------------|------------------------------|--|
| | Informed about allocation of patients | Informed about content of intervention | Questionnaires before or during trial | Extra information/ training on the subject | Risk of learning effect by treating intervention patients | Informed consent given | Informed about content of intervention | Provided with extra information | Informed about allocation | Questionnaires/ examinations | Risk of contact with intervention patients |
| Boivin, 2008 ¹² | + | + | + | + | - | - | ? | - | + | + | - |
| Community Pharmacy Medicines Management Project Evaluation Team, 2007 ¹³ | - | ? | - | - | + | + | ? | - | + | + | - |
| Christensen, 2005 ¹⁴ | + | + | + | + | + | + | ? | ? | + | + | - |
| Coppin, 2008 ¹⁵ | + | + | - | - | - | + | ? | ? | ? | + | - |
| Crilly, 2005 ¹⁶ | - | - | - | - | - | + | - | - | + | + | - |
| Daley, 2008 ¹⁷ | - | ? | - | ? | - | + | - | ? | ? | + | ? |
| Dennis, 2009 ¹⁸ | - | ? | - | ? | - | + | ? | ? | + | + | ? |
| Farmer, 2007 ¹⁹ | ? | ? | - | ? | + | + | ? | + | ? | + | - |
| Gorgels, 2007 ²⁰ | ? | + | - | + | + | + | ? | ? | + | - | - |
| Green, 2007 ²¹ | ? | ? | - | ? | - | + | ? | ? | ? | + | - |
| Griffiths, 2005 ²² | ? | ? | - | - | - | + | ? | ? | ? | + | - |
| Gruffydd-Jones, 2005 ²³ | + | + | - | + | + | + | ? | ? | + | + | - |
| Hamilton, 2007 ²⁴ | + | + | - | - | + | + | ? | - | ? | + | + |
| Hoefman, 2005 ²⁵ | + | + | + | + | + | + | ? | + | ? | + | - |
| Holland, 2007 ²⁶ | ? | ? | - | - | ? | + | ? | ? | + | + | - |
| Holland, 2005 ²⁷ | - | ? | - | ? | + | + | ? | ? | + | + | - |
| Hunkeler, 2006 ²⁸ | + | ? | - | + | + | + | ? | + | + | + | - |
| Khunti, 2006 ²⁹ | + | + | - | - | - | + | + | - | + | + | - |
| Lawton, 2009 ³⁰ | ? | ? | - | ? | ? | + | ? | - | ? | + | ? |
| Leong, 2006 ³¹ | ? | ? | - | - | - | + | ? | ? | - | - | - |
| Liew, 2009 ³² | - | ? | - | - | - | + | ? | ? | ? | - | - |
| Linschoten, 2009 ³³ | ? | ? | - | ? | ? | + | ? | + | + | + | - |
| Little, 2008 ³⁴ | - | ? | - | - | - | + | + | - | + | + | - |
| Martins, 2009 ³⁵ | + | + | - | ? | - | ? | ? | - | + | + | - |
| McMahon, 2007 ³⁶ | ? | ? | - | ? | + | + | ? | ? | ? | + | - |
| McManus, 2005 ³⁷ | + | + | - | - | + | + | ? | + | + | + | + |
| Muirhead, 2006 ³⁸ | ? | ? | - | - | - | + | ? | - | + | + | - |
| Nanchahal, 2009 ³⁹ | ? | ? | - | ? | - | + | ? | - | ? | + | - |
| Norg, 2006 ⁴⁰ | + | - | - | - | - | + | - | - | + | + | - |
| Roberts, 2006 ⁴¹ | + | + | - | + | - | + | ? | + | + | + | - |
| Schreuders, 2005 ⁴² | ? | ? | - | ? | ? | + | ? | ? | ? | + | - |
| Schroeder, 2005 ⁴³ | + | + | - | + | + | + | ? | ? | + | + | - |
| Thomas, 2006 ⁴⁴ | + | + | - | - | - | + | ? | ? | + | + | - |
| Thomsen, 2005 ⁴⁵ | ? | + | - | + | + | - | - | - | - | - | - |
| van Rijn, 2007 ⁴⁶ | - | ? | - | ? | - | + | ? | - | ? | + | - |
| Vicens, 2006 ⁴⁷ | ? | + | - | + | + | + | ? | + | ? | + | - |
| Wake, 2009 ⁴⁸ | + | + | - | + | + | + | ? | ? | + | + | ? |
| Williams, 2005 ⁴⁹ | ? | ? | - | ? | - | + | + | + | + | + | - |

+ = risk present; - = risk not present; ? = not described in the article.

- The control group was reported to receive usual care; in case the term ‘usual care’ was not explicitly used, the paper reported on a comparison between the intervention(s) under study and normal practice (that is, it did not compare two different unrelated interventions).

Table 3. Description of cluster randomised trials (n = 35) as reported by the authors of trials.

| First author, year of publication | Study subject | Intervention | Description of care in control group |
|-----------------------------------|--|--|---|
| Bebb, 2007 ⁵⁰ | A treatment algorithm for hypertension in patients with type 2 diabetes | Treatment by GP and practice nurse according to algorithm for treatment and monitoring of hypertension | Usual care |
| Bellon, 2008 ⁵¹ | Effectiveness of a GP intervention to reduce frequent-attender consultations for frequent attendance | GP training session on '7 hypotheses + team' intervention aimed at discovering reasons | No training GP, GP provides usual care |
| Cals, 2009 ⁵² | Intervention to reduce antibiotic use in lower respiratory tract infections | Reactive protein testing and/or training in enhanced communication skills | Usual care |
| Cullen, 2006 ⁵³ | Intervention to support the implementation of clinical guidelines for hepatitis management among current or former drug users | Educational sessions for GP on new guidelines, implementation, and nursing support | Usual care by GP |
| Davies, 2008 ⁵⁴ | Effectiveness of a new intervention for people with newly diagnosed type 2 diabetes | Structured group education programme in the community | Usual care |
| de Groot, 2007 ⁵⁵ | Cognitive behavioural therapy to prevent complicated grief among relatives and spouses bereaved by suicide | Grief counselling programme by psychiatric nurse | Care as usual |
| Downs, 2006 ⁵⁶ | Educational interventions to improve detection and management of dementia in primary care | (1) Electronic tutorial for GP, or (2) decision support software, or (3) workshop on appropriate treatment | Only visited to collect data |
| Fitzmaurice, 2007 ⁵⁷ | Detection of atrial fibrillation in patients aged ≥65 years | Systematic screening ECG or opportunistic screening (pulse taking and ECG if pulse irregular) | Primary healthcare team receives no education |
| Francis, 2009 ⁵⁸ | Effect of booklet in primary care consultations on reconsulting and antibiotic prescribing | Booklet on respiratory tract infections in children used during consultation and provided as a take-home resource | Usual care |
| Harmsen, 2005 ⁵⁹ | Effect of an education intervention on intercultural communication between GP and patients of mutual understanding and quality of life | Videotape instruction for patients and training for GP | No intervention |
| Hayward, 2006 ⁶⁰ | Influenza vaccine programme for care home staff to prevent death, morbidity, and health service use among residents | Staff influenza vaccination promoted by lead nurses | Usual policy; not actively promoting staff vaccination |
| Hoddinott, 2009 ⁶¹ | Effectiveness of policy to provide breastfeeding groups for pregnant and breastfeeding mothers on breastfeeding rates | New breastfeeding groups, provide population coverage | No new breastfeeding groups |
| Hogg, 2008 ⁶² | A comprehensive preventive intervention programme to improve preventive care delivery | Monthly visit of practice by prevention facilitator delivering an intervention strategy aimed at improving preventive care | No facilitator visits |
| Janssen, 2009 ⁶³ | Intensive multifactorial treatment for cardiovascular risk in patients with type 2 diabetes | Intensive treatment of glucose, blood pressure, and lipids, and structured lifestyle education | Routine care according to 1999 guidelines from the Dutch College of General Practitioners |
| Jellema, 2005 ⁶⁴ | Treatment of low back pain aimed at psychosocial prognostic factors | Minimal intervention strategy aimed at psychosocial prognostic factors by GP | Usual care by GP |
| Kerse, 2008 ⁶⁵ | Effectiveness of an activity programme in improving function, quality of life, and falls in older people in residential care | Goal setting and activities of daily living programme by visiting gerontology nurse expert with a physiotherapist | Social visits by social gerontologist who discussed and documented social activities and networks |
| Lester, 2007 ⁶⁶ | Effectiveness of primary care mental workers in improving patient satisfaction | Access to mental health worker | No access to mental health worker |
| Lester, 2009 ⁶⁷ | Effect of GP training in first-episode psychosis on referral rates and duration of untreated psychosis | Educational intervention for GPs on important symptoms and signs, questioning skills, positive attitudes | No intervention for GPs |
| Lo Fo, 2006 ⁶⁸ | Increasing awareness of intimate partner abuse | (1) Full training; focus group and training session on partner abuse, or (2) focus group | No training or focus group |

... continued

Table 3 continued. Description of cluster randomised trials (n = 35) as reported by the authors of trials.

| | | | |
|---------------------------------|---|---|---|
| MacArthur, 2009 ⁶⁹ | Effectiveness of an antenatal service on initiation of breast feeding | New community-based antenatal breastfeeding service using peer support workers | Usual antenatal care |
| McNulty, 2008 ⁷⁰ | Increasing testing and case detection of Chlamydia | Interactive workshop for GPs + modified laboratory forms | No workshop or modified laboratory forms |
| McNulty, 2008 ⁷¹ | Improving the appropriateness of laboratory submissions for urinalysis from general practice | Interactive workshop for GPs + modified laboratory forms | No workshop or modified laboratory forms |
| Middleton, 2006 ⁷² | Improving communication in the consultation to increase satisfaction and reduce consultation time | GPs followed workshop to increase awareness of patients' agenda model, patient-completed agenda form with reason for consultation and expectations | No GP training and/or no patient agenda form |
| Midlöv, 2006 ⁷³ | Evaluate whether educational outreach visits to GP practices can affect prescribing of benzodiazepines and antipsychotics to older people | Educational outreach visits by a physician and pharmacist on prescribing of benzodiazepines and antipsychotic drugs to older patients | No educational outreach |
| Morrel, 2009 ⁷⁴ | Health visitor training in psychologically informed approaches for depression in postnatal women | Health visitor training: assessment, identification of depressive symptoms, delivery of cognitive behavioural or a person-centred approach | Usual postnatal care by health visitor |
| Murphy, 2009 ⁷⁵ | Improving secondary prevention of heart disease | Tailored care plans for practices and patients | Usual care |
| Nijs, 2006 ⁷⁶ | Effect of family-style mealtimes on nursing home residents' quality of life and health | Table dressing, food services, protocols for staff, residents, and mealtimes | Usual pre-plated service |
| Qureshi, 2007 ⁷⁷ | Effect of GP education on adherence to antihypertensive drugs in people >40 years who use antihypertensive drugs | Care by GPs specially trained in management of hypertension | Usual care |
| Sackley, 2009 ⁷⁸ | Effects of a physiotherapy and occupational therapy intervention on mobility and activity in care home residents | Three-month physiotherapy and occupational therapy aimed at enhancing mobility and the ability to perform activities of daily living independently | Standard care equal to that before recruitment |
| Slade, 2008 ⁷⁹ | A standardised assessment of severity to improve the appropriateness of referrals to adult community mental health services | Usual referral + one-page referrer-rated assessment of mental health problem severity | Usual referral |
| Søndergaard, 2006 ⁸⁰ | Multifaceted intervention to improve secondary prevention of ischaemic heart disease | GPs receive educational outreach on secondary prevention of ischaemic heart disease | No educational outreach |
| van Bruggen, 2008 ⁸¹ | Shared care for type 2 diabetes to decrease cardiovascular risks | Treatment according to locally adapted shared care guidelines | Treatment in line with national guidelines |
| van Marwijk, 2008 ⁸² | Effects of intervention programme to improve identification, diagnosis, and treatment of depression in patients aged ≥55 years | If depression according to Geriatric Depression Scale (GDS-15) and interview treatment according to guidelines Dutch College of General Practitioners | Screening GDS-15 + interview, after that usual care |
| Vass, 2009 ⁸³ | Prevention of functional decline in older home-dwelling people | Educational programme for home visitors and GPs | No educational programme |
| Wilkes, 2009 ⁸⁴ | Open access to hysterosalpingography (HSG) results for the initial management of infertility in general practice | GP has open access to HSG results | Usual management |

The articles were assessed by two of the authors independently. In case of disagreement, consensus was reached by discussion with a third author. A distinction was made between cluster randomised trials and individually randomised trials, because these study designs have different methodological problems. First, the study assessed how researchers applied the concept of usual care to the control group. For this purpose, an inventory was made of

the descriptions that were given of the care in the intervention group and the care in the control group. Second, the risk of behavioural change was assessed according to the following criteria:

- Influences on control caregivers: could the behaviour of the control caregivers possibly be influenced by the researchers? The study assessed whether (a) caregivers were informed

Table 4. Evaluation of the cluster randomised trials (n = 35).

| Study | Influences on control caregivers | | | | | Influences on control patients | | | | | |
|--------------------------------|----------------------------------|--|--------------------------------------|---|---|--------------------------------|--|---------------------------------|---------------------------|---|--|
| | Informed about allocation | Informed about content of intervention | Questionnaire before or during trial | Extra information/training the on subject | Risk of learning effect by treating intervention patients | Informed consent given | Informed about content of intervention | Provided with extra information | Informed about allocation | Questionnaires/examinations before or during intervention | Risk of contact with intervention patients |
| Bebb 2007 ⁵⁰ | ? | ? | + | - | - | + | ? | - | ? | + | - |
| Bellon 2008 ⁵¹ | + | ? | - | ? | - | + | - | - | - | - | - |
| Cals 2009 ⁵² | + | ? | - | ? | - | + | ? | ? | ? | + | - |
| Cullen 2006 ⁵³ | + | ? | - | - | - | + | ? | - | ? | - | - |
| Davies 2008 ⁵⁴ | ? | ? | - | + | - | + | ? | ? | ? | + | - |
| de Groot 2007 ⁵⁵ | ? | ? | - | - | - | + | ? | ? | + | + | - |
| Downs 2006 ⁵⁶ | ? | ? | - | - | - | - | - | - | - | - | - |
| Fitzmaurice 2007 ⁵⁷ | ? | ? | - | - | - | + | ? | ? | ? | - | - |
| Francis 2009 ⁵⁸ | + | ? | - | ? | - | + | ? | ? | + | + | ? |
| Harmsen 2005 ⁵⁹ | + | ? | + | - | - | + | ? | - | - | - | - |
| Hayward 2006 ⁶⁰ | ? | ? | - | - | - | - | - | - | - | - | - |
| Hoddinott 2009 ⁶¹ | + | + | - | ? | - | + | ? | ? | ? | + | ? |
| Hogg 2008 ⁶² | ? | ? | - | - | - | - | - | - | - | - | - |
| Janssen 2009 ⁶³ | + | ? | - | + | - | + | ? | - | - | + | - |
| Jellema 2005 ⁶⁴ | + | ? | - | - | - | + | - | - | - | + | - |
| Kerse 2008 ⁶⁵ | + | ? | + | ? | - | + | ? | ? | ? | + | - |
| Lester 2007 ⁶⁶ | + | + | - | - | - | + | - | - | - | + | - |
| Lester 2009 ⁶⁷ | ? | ? | - | ? | - | ? | ? | ? | ? | + | - |
| Lo Fo Wong 2006 ⁶⁸ | + | ? | + | - | - | + | ? | ? | - | - | - |
| MacArthur 2009 ⁶⁹ | ? | ? | - | ? | - | - | - | - | - | - | ? |
| McNulty 2008 ⁷⁰ | - | - | - | - | - | - | - | - | - | - | - |
| McNulty 2008 ⁷¹ | - | - | - | - | - | - | - | - | - | - | - |
| Middleton 2006 ⁷² | ? | ? | - | - | + | + | ? | - | - | + | - |
| Midlöv 2005 ⁷³ | + | - | - | - | - | - | - | - | - | - | - |
| Morrel 2009 ⁷⁴ | ? | ? | - | ? | - | + | ? | ? | ? | + | - |
| Murphy 2009 ⁷⁵ | + | ? | - | - | - | + | ? | ? | ? | + | - |
| Nijs 2006 ⁷⁶ | + | ? | - | - | - | + | ? | ? | ? | + | - |
| Qureshi 2007 ⁷⁷ | ? | ? | - | ? | - | + | ? | ? | - | + | - |
| Sackley 2009 ⁷⁸ | ? | ? | - | ? | - | + | ? | ? | ? | + | - |
| Slade 2008 ⁷⁹ | + | ? | - | - | - | - | - | - | - | - | - |
| Søndergaard 2005 ⁸⁰ | ? | ? | + | - | - | - | - | - | - | - | - |
| van Bruggen 2008 ⁸¹ | + | ? | - | - | - | + | ? | ? | ? | + | - |
| van Marwijk 2008 ⁸² | + | ? | - | ? | - | + | ? | ? | ? | + | - |
| Vass 2009 ⁸³ | + | ? | - | - | - | + | ? | ? | ? | + | - |
| Wilkes 2009 ⁸⁴ | + | ? | - | + | - | ? | ? | ? | ? | - | - |

+ = risk present, - = risk not present, ? = not described in the article.

about the allocation of the patients, (b) caregivers were informed about the content of the intervention, (c) caregivers had to complete questionnaires, (d) caregivers received extra information (for example, guidelines) or training on the subject of the trial, and (e) a learning effect was possible because of contact with patients in the intervention group.

- Influences on control patients: could the behaviour

of the patients possibly be influenced by the researchers? The study evaluated whether control patients (a) gave informed consent, (b) were informed about the content of the intervention, (c) were provided with extra information about their condition, (d) knew their allocation status, (e) had to complete questionnaires or undergo examinations, and (f) could have contact with patients in the intervention group.

Differences between individually randomised and cluster randomised trials were evaluated with a χ^2 test.

RESULTS

A total of 73 articles were identified that met the selection criteria for this overview. Figure 1 presents a flow chart of the search and its results. Overall, 38 individually randomised trials (Tables 1 and 2)¹²⁻⁴⁹ and 35 cluster randomised trials (Tables 3 and 4)⁵⁰⁻⁸⁴ were found. Table 1 shows that the term 'usual care' was used in 33 of the 73 articles. Other expressions were also used, such as 'routine care',^{15,29,35,63} 'usual practice',⁴¹ 'normal care',³⁴ 'standard care',^{49,78} 'care as usual',⁵⁵ 'usual policy',⁶⁰ 'usual service',⁷⁶ and 'usual management'.⁸⁴ Other authors did not use a specific expression.

Descriptions of usual care by researchers

In two individually randomised trials, the content of the care in the control group was prescribed by the researchers. Control caregivers were instructed to provide standard asthma care by 6-monthly check-ups via a dedicated asthma appointment with a diploma-level asthma nurse,²³ or perform a 3-monthly measurement of glycosylated haemoglobin (HbA_{1c}).¹⁹ In the remaining 71 trials, control caregivers were allowed to provide care according to their own insight, with some researchers even explicitly asking the caregivers not to change their usual practice.

In four articles it was reported that patients were included in the study after preliminary examinations. Caregivers and patients were informed about the results of these pre-trial investigations, regardless of allocation to the intervention group or control group.^{25,28,41,82}

Influences on control caregivers

Half of all trials described that control caregivers were informed about the allocation status of their patients or practice. About half of the authors made no mention of caregivers' awareness of the allocation status. The proportions were similar for individually and cluster randomised trials (Table 5).

In 16 individually randomised trials, caregivers provided the intervention as well as usual care, indicating that they were aware of both arms of the study. In 22 of the individually randomised trials, the information given to caregivers was not described in the article. In two trials it was reported that caregivers were not informed about the content of the intervention. This was possible because caregivers had no involvement in the development and distribution of the intervention (an educational booklet),¹⁶ or were blinded to the treatment protocol, which was performed by a separate team.⁴⁰

In the majority of articles on cluster randomised

trials, the information provided to control caregivers was not described. Only three papers explicitly stated that control caregivers were not aware of the exact content of the intervention; they received either an unrelated educational module,^{70,71} or neutral information about the trial without an explanation of the intervention.⁷³

In some individually randomised and some cluster randomised trials, control caregivers were asked to complete questionnaires before or during the intervention period. In individually randomised trials, control caregivers recorded patient complaints,^{12,25} or evaluated the consultation.¹⁴ In cluster randomised trials, caregivers were asked about the care they provided before the start of the trial,^{50,65} were asked to evaluate the consultation,^{21,68} or were asked to record patient complaints.⁸⁰

Understandably, control caregivers in the individually randomised trials were more often given extra information on the subject under study compared to caregivers in the cluster randomised trials. In 11 individually randomised trials, caregivers of control patients received training because they also had to provide the intervention to patients allocated to the intervention group. In one cluster randomised trial, all caregivers, including the usual care group, received the national guidelines on the subject under study,⁵⁴ and in two trials they were invited to an initiation symposium.^{63,84} In another trial, the risk of behavioural change among caregivers was reduced by excluding those who were involved in the development of study guidelines.⁵³

The possibility of a learning effect of caregivers was more often seen in individually randomised trials than in cluster randomised trials. This problem was more evident in individually randomised trials because the caregiver who provided the intervention to the intervention group also often continued to provide (usual) care to control patients. Less than half of individually randomised trials and one cluster randomised trial showed a risk of a learning effect in caregivers. In cluster randomised trials, caregivers might be influenced by information about the intervention communicated via patients who had this information.⁷²

Influences on control patients

In nine of the cluster randomised trials, it was not necessary to inform control patients about the trial because the study data were gathered from anonymous electronic patient records and therefore consent was not considered necessary. In these latter trials, no risks of behavioural change in control patients existed. In almost all the individually randomised trials it was described that informed consent was obtained from control patients (Table 5).

Table 5. Comparison of influences on usual care control group between individually randomised trials and cluster randomised trials.

| | Possible influence on usual care control group | | | | | | P-value ^a |
|---|--|----|---------------|------------------------------------|----|---------------|----------------------|
| | Individually randomised trials (n = 38) | | | Cluster randomised trials (n = 35) | | | |
| | Yes | No | Not described | Yes | No | Not described | |
| Caregivers | | | | | | | |
| Informed about allocation of patients | 15 | 8 | 15 | 19 | 2 | 14 | 0.140 |
| Informed about content of intervention | 16 | 2 | 22 | 2 | 3 | 30 | 0.002 |
| Questionnaires before or during trial | 3 | 35 | 0 | 5 | 28 | 0 | 0.280 |
| Extra information or training | 11 | 14 | 13 | 3 | 21 | 11 | 0.049 |
| Risk of learning effect by treating intervention patients | 15 | 18 | 5 | 1 | 34 | 0 | <0.001 |
| Patients | | | | | | | |
| Informed consent given | 35 | 2 | 1 | 24 | 9 | 2 | 0.036 |
| Informed about content of intervention | 3 | 4 | 31 | 0 | 12 | 23 | 0.018 |
| Provided with extra information | 8 | 23 | 7 | 0 | 17 | 18 | 0.001 |
| Informed about allocation | 22 | 2 | 14 | 2 | 17 | 16 | <0.001 |
| Questionnaires or examinations | 34 | 4 | 0 | 20 | 15 | 0 | 0.002 |
| Risk of contact with intervention patients | 2 | 22 | 4 | 0 | 32 | 3 | 0.200 |

^aStatistically tested with χ^2 test with 2 degrees of freedom.

In most trials, the article did not describe whether (or not) any information was provided to control patients. Therefore, it was not possible to judge these trials with respect to what influence study information may have had on control patients. If information had been given to control patients, most researchers did not inform patients about the content of the intervention.

In eight individually randomised trials, patients in the control group received information that could have influenced their behaviour. They were offered an information sheet,^{33,36,49} received extra treatment advice,^{19,47} or underwent a medical investigation before entering the trial.^{25,28,41} This problem was not found in cluster randomised trials.

Patients were informed about their allocation in more than half of individually randomised trials. This was the case in only two of the cluster randomised trials. Unfortunately, in 25% of the papers the authors did not mention whether patients knew about their allocation.

In most individually randomised trials, control patients were asked to complete questionnaires or to undergo examinations. About half of the cluster randomised trials gathered their information from electronic patient records or after the intervention period.⁵⁹

The risk of influencing behaviour through contact between control patients and intervention patients was not evident. It was, however, difficult to properly assess this risk from the limited descriptions provided by the researchers. In two trials the authors

acknowledged that between-group contact could have taken place.^{24,37} They described the potential problem and stated that they had no reason to believe that chance contact between the intervention group and the control patients had led to behavioural changes.

DISCUSSION

In this overview, different interpretations of the concept of usual care were observed across the studies. Factors in the design of trials with a usual care control group influencing behaviour of control caregivers and participants (such as information about allocation or intervention) were present not only in individually randomised trials but also in cluster randomised trials.

Description of usual care by researchers

This overview shows that the usual care concept is interpreted differently across the research community. According to some authors, one specific, predefined treatment should be chosen and be given to all subjects in the control group.^{11,85} This point of view argues that variation in treatments for control patients makes trial results difficult to interpret and generalise. In contrast, others try to improve external validity by advising that patients in a usual care control group should be confronted with the heterogeneity of treatments available in real, daily practice, rather than receiving a treatment chosen by the researchers.^{86,87} This view corresponds with the conclusion of two meetings of the National Institute of Mental Health (US)

where usual care was defined as 'the wide range of care that is provided in a community whether it is adequate or not, without a normative judgment'.^{88,89} In these meetings it was agreed that trials should have a usual care control group when they aim to prove superiority of a new intervention or approach over usual care in the community.

Thus, in the ideal situation, the usual care control group is not influenced at all. However, the ethical requirements of research and the proper conduct of trials can disturb the naturalistic character of a usual care approach.

Behavioural change in a usual care control group

This overview shows that risk of (unwanted) behavioural changes among caregivers and patients in a usual care control group is often present. Cluster randomisation is often seen as the solution for this problem. However, this study found that control caregivers' awareness of study conditions could influence their behaviour even in cluster randomised trials. Thus, in designing a study, researchers should ask themselves if caregivers need to be informed about the allocation of their patients or practice and about the content of the intervention. They should at least avoid providing information about the intervention to the control caregivers.

Also, when designing a trial, researchers should ask themselves to what extent control patients need to be informed about the trial, about the content of the intervention, and about their allocation. Possible solutions to diminish the risk of study-induced behavioural change include giving patients in the control group neutral information,^{40,51} or not disclosing the presence of the other study arm. The latter solution is called the Zelen design.^{86,90,91} However, many medical ethical committees refuse to accept this design, because they do not support withholding of information.⁹²

Regarding the use of questionnaires and examinations, researchers should ask themselves whether these are needed and, if so, what questions are essential. In some trials, participants were asked to complete extensive baseline questionnaires or think about questions that would otherwise not have crossed their minds.⁷² This may have changed their help-seeking behaviour. Finally, especially in individually randomised trials, researchers should be alert to the possibility of contact between control patients and intervention patients.

Strengths and limitations of the study

This overview has revealed that authors rarely describe the information given to control caregivers and control patients in their paper, making it difficult

for readers to evaluate the adequacy of the design. The fact that not all the required information was actually described in the research papers is a limitation of this overview. Often, it was not possible to fully appreciate the attempts of the researchers to ensure usual care was maintained in the control group. Because of this scarce information, it was often impossible to establish with certainty to what extent the observed problems actually influenced the final study results. It has been reported that results are difficult to interpret without knowing the nature of usual care.^{8,9} This study has provided an overview of the risks of behavioural change, but without the intention to be exhaustive. However, it has given an impression of the key issues affecting usual care control groups in this type of trial.

This overview addresses an overlooked issue in the medical literature, namely the design of a usual care control group in pragmatic trials. Because the term 'usual care' is not used consistently by researchers, trials could not easily be identified by a search in electronic databases. For this reason, the researchers manually searched three journals that regularly publish pragmatic trials in primary care with a usual care control group. In this way it was possible to provide an adequate impression of the current issues.

Recommendations for future research

In conclusion, researchers should carefully consider the design of a usual care control group, and consider ways to diminish the risk of study-induced behavioural change of caregivers and patients. As cluster randomised trials seem to be less sensitive to this problem, it may be advisable to consider this type of study design in preference to individually randomised trials. However, even when using cluster randomisation, researchers should bear in mind the risks of behavioural change in the usual care control group. In addition, this overview supports the argument that researchers should provide a better description of the design of the control group and the care provided to them. Many researchers do not report which, if any, information has been given to control caregivers and control patients, making it difficult to evaluate the adequacy of the study design in terms of internal and external validity. In the CONSORT statement extension for pragmatic trials, it is recommended to describe the control group in as much detail as the intervention group. The authors of the present study recommend making this recommendation more specific (Table 6). This implies that, in addition to a description of the intervention group, the reader requires a detailed description of the instructions given to control caregivers, as well as the information given to control patients that are

Table 6. The CONSORT statement for randomised controlled trials,⁹³ with proposed adaptations in italics.

| | Item number | Descriptor |
|---------------------------|-------------|---|
| Title and abstract | 1 | How participants were allocated to interventions (for example, 'random allocation', 'randomised', or 'randomly assigned'). |
| Introduction | | |
| Background | 2 | Scientific background and explanation of rationale. |
| Methods | | |
| Participants | 3 | Eligibility criteria for participants and the settings and locations where the data were collected, <i>specifying the information provided to participants.</i> |
| Interventions | 4 | Precise details of the interventions intended for each group and how and when they were actually administered, <i>who provided the intervention, and what information caregivers received.</i> |
| <i>Control group</i> | | <i>Clear description of the care in the control group, details about the information provided and instructions given to control caregivers, including the rationale for blinding or not blinding caregivers to allocation status, details about the information provided, and instructions given to control patients, including the rationale for blinding or not blinding patients to allocation status.</i> |
| Objectives | 5 | Specific objectives and hypotheses. |
| Outcomes | 6 | Clearly defined primary and secondary outcome measures and, when applicable, any methods used to enhance the quality of measurements (for example, multiple observations, training of assessors). |
| Sample size | 7 | How sample size was determined and, when applicable, explanation of any interim analyses and stopping rules. |
| Randomisation | | |
| Sequence generation | 8 | Method used to generate the random allocation sequence, including details of any restriction (for example, blocking, stratification). |
| Allocation concealment | 9 | Method used to implement the random allocation sequence (for example, numbered containers or central telephone), clarifying whether the sequence was concealed until interventions were assigned. |
| Implementation | 10 | Who generated the allocation sequence, who enrolled participants, and who assigned participants to their groups. |
| Blinding (masking) | 11 | Whether participants, those administering the interventions, <i>those providing care in the control group</i> , and those assessing the outcomes were blinded to group assignment. If done, how the success of blinding was evaluated. |
| Statistical methods | 12 | Statistical methods used to compare groups for primary outcome(s); methods for additional analyses, such as subgroup analyses and adjusted analyses. |
| Results | | |
| Participants' flow | 13 | Flow of individual participants through each stage (a diagram is strongly recommended). Specifically, for each group report the numbers of participants randomly assigned, receiving intended treatment, completing the study protocol, and analysed for the primary outcome. Describe protocol deviations from study as planned, together with reasons. |
| Recruitment | 14 | Dates defining the periods of recruitment and follow-up. |
| Baseline data | 15 | Baseline information for each group. |
| Numbers analysed | 16 | Number of participants (denominator) in each group included in each analysis and whether the analysis was by intention to treat. State the results in absolute numbers when feasible (for example, 10/20 not 50%). |
| Outcomes and estimation | 17 | For each primary and secondary outcome, a summary of results for each group, and the estimated effect size and its precision (for example, 95% confidence interval). |
| Ancillary analyses | 18 | Address multiplicity by reporting any other analyses performed, including subgroup analyses and adjusted analyses, indicating those pre-specified and those exploratory. |
| Adverse events | 19 | All important adverse events or side effects in each intervention group. |
| Discussion | | |
| Interpretation | 20 | Interpretation of the results, taking into account study hypotheses, sources of potential bias or imprecision, and the dangers associated with multiplicity of analyses and outcomes. |
| Generalisability | 21 | Generalisability (external validity) of the trial findings. |
| Overall evidence | 22 | General interpretation of the results in the context of current evidence. |

supposed to receive usual care. This will allow the reader to evaluate whether the care provided to the control group is sufficiently representative for the usual care in daily practice.

Competing interests

The authors have stated that there are none.

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