EFFICACY OF BRIEF PERSON-CENTERED COGNITIVE BEHAVIORAL THERAPY TO FACILITATE SELF-MANAGEMENT FOR PATIENTS WITH RHEUMATOID ARTHRITIS: A MIXED METHODS CASE SERIES FEASIBILITY STUDY

Heidi Lempp, Elizabeth Wearn, Patience Duffort, Fowzia Ibrahim, Beatrice Osumili, Renee Romeo, Carol Simpson, Veronica Thomas, and Andrew Cope
King's College London (United Kingdom)

Abstract

The psychological consequences of living with rheumatoid arthritis (RA) are common. The objectives of this study were: (i) to investigate views of patients with RA about the provision of psychological support; (ii) to study the efficacy of a person-centred cognitive behavioural therapy (CBT) self-management approach, including a health economic investigation. A mixed methods was applied: a formative qualitative interview study and a quantitative CBT intervention formed the case series feasibility study design, and a health economic investigation. The qualitative study highlighted that patients welcome emotional support. The CBT intervention from a small sample suggested that participants may have benefitted from the intervention until to the point of the follow-up. The results of the economic component need to be interpreted with caution in relation to service gaps. A broad approach in the delivery of a psychological intervention may benefit patients with long-term conditions. The practice implications are that RA patients may benefit from psychological interventions to cope better with their condition through personal intervention, and flexible appointment system. Intervention studies need to test this question in detail in the future.
KEY WORDS: *case series design, cognitive behavioural therapy, economics, mixed methods, rheumatoid arthritis.*

Resumen

Las consecuencias psicológicas de vivir con artritis reumatoide (AR) son frecuentes. Los objetivos de este estudio fueron: (i) investigar las opiniones de los pacientes con AR acerca de la provisión de apoyo psicológico, (ii) estudiar la eficacia de un enfoque de autogestión basado en la terapia cognitivo conductual (TCC) centrada en la persona, incluyendo una investigación económica de la salud. Se utilizaron métodos mixtos. Un estudio formativo de entrevista cualitativa y una intervención cuantitativa de TCC formaron el diseño del estudio de viabilidad de la serie de casos y una investigación económica de la salud. El estudio cualitativo destacó que los pacientes agradecen el apoyo emocional. La

Correspondence: Heidi Lempp, Academic Rheumatology, Weston Education Centre, 10, Cutcombe Rd. London SE5 9RJ (United Kingdom). E-mail: heidi.lempp@kcl.ac.uk

intervención de TCC con una pequeña muestra sugirió que los participantes podrían haberse beneficiado de la intervención hasta el seguimiento. Los resultados del componente económico deben interpretarse con precaución respecto a las carencias de los servicios. Un enfoque amplio en la prestación de una intervención psicológica puede beneficiar a los pacientes con dolencias a largo plazo. Las implicaciones prácticas son que los pacientes con AR pueden beneficiarse de intervenciones psicológicas para afrontar de mejor manera su enfermedad a través de una intervención personal y un sistema flexible de citas. Los estudios de intervención necesitan comprobar con detalle esta cuestión en el futuro.

PALABRAS CLAVE: *diseño de series de caso, terapia cognitivo conductual, economía, métodos mixtos, artritis reumatoide.*

Introduction

Rheumatoid arthritis (RA) is a systemic, long-term inflammatory autoimmune disease that can lead to progressive and irreversible destruction of the joints. It affects 0.5% to 1% of adults in high income countries, whose prevalence is commonly between the fourth and sixth decades of life, and occurs three times more often in women than men. RA costs the National Health Service (NHS) in Britain over £680 million each year (Scott, Wolfe, & Huizinga, 2010). If untreated this chronic condition decreases quality of life, compromises the ability to perform everyday activities, and increases work absenteeism.

Early diagnosis and prompt intensive treatment are key components to alter the disease course and prognosis (Singh, Christensen, Wells, & Suarez-Almazor, 2009; Smolen et al., 2010; The National Institute for Health and Care Excellence, 2009). A range of indicators are used to assess RA status that incorporates patients' priorities for their management and care. Patients frequently rate continuity of work, less sleep disturbance, reducing debilitating fatigue and long-term pain as important (Kwoh & Ibrahim, 2001). Optimal treatment is recommended to be provided by a multi-disciplinary team, psycho-social support, exercise, drug treatment, regular blood monitoring, and joint surgery in late disease stages (The National Institute for Health and Care Excellence, 2009).

The pharmacological treatment options consist of analgesics, non-steroidal inflammatory drugs, one or more disease modifying anti-rheumatic drugs (DMARDs) such as methotrexate, or biologic DMARDs, e.g., tumour necrosis factor (TNF) inhibitors (Singh et al., 2009; The National Institute for Health and Care Excellence, 2009). The key challenges of RA remain: (i) the unpredictability of the acute 'flare-ups' (i.e., clinical exacerbations of joint inflammation); and (ii) how individual patients respond to the medications. Control over the illness is therefore often uncertain. Patients and professionals need to closely collaborate and continuously adapt to the disease state and the psycho-social situation of each patient (Simpson, Franks, Morrison, & Lempp, 2005).

The consequences of RA include: depression, anxiety, fatigue, pain, poor sleep, reduced physical activity, and impaired quality of life have been identified in national, European and international treatment guidelines (Forestier et al., 2009;

Luqmani et al., 2009; Luqmani et al., 2006; The National Insitute for Health and Care Excellence, 2007). A number of recent publications have drawn attention to the need for psycho-social support (Ang, Choi, Kroenke, & Wolfe, 2005; Dures et al., 2014; Gettings, 2010; Lempp et al., 2011; Lempp et al., 2009; Polsky et al., 2005; The National Institute for Health and Care Excellence, 2009). A systematic review and meta-analysis of adjunct psycho-social interventions (Dissanayake & Bertouch, 2010) identified the prevalence of major depression within the range of 17-38%. Other studies have confirmed these findings and reported a 2.0 to 3.5-fold higher rate of depression in RA than in the general population (Ang et al., 2005; Polsky et al., 2005). These high prevalence rates are associated with poorer RA outcomes. The early detection and treatment of co-morbid mental disorders are therefore indicated as part of an integrated treatment package for people with RA (Matcham, Rayner, Steer, & Hotopf, 2013). Another important feature is that of 'diagnostic overshadowing' (Jones, Howard, & Thornicroft, 2008) known in the field of mental health, when specialist practitioners tend to focus upon the primary presenting physical condition, rather than assessing the whole range of physical and psycho-social needs of each patient.

While the psychological impact of long-term conditions such as RA is significant (Lineker, Badley, Charles, Hart, & Streiner, 1999), it has been suggested that not enough is known about the effectiveness of psychological treatments such as CBT for RA (Pilling, Anderson, Goldberg, Meader, & Taylor, 2009; Rizzo, Creed, Goldberg, Meader, & Pilling, 2011). The National Institute for Health and Care Excellence (NICE) guidance for adults with depression (The National Institute for Health and Care Excellence, 2004), for example, recommends CBT rather than drugs as first-line treatment for mild to moderate depression. Despite such endorsements, service provision for psychological support is often less than adequate, especially in rheumatology out-patient departments in the UK, due to lack of resources (Gettings, 2008; Hewlett et al., 2011; Steward & Land, 2009). In the management of inflammatory arthritis, such as RA, the focus is usually on pharmacological treatment, which seeks to reduce inflammation and structural joint damage. However, patients often report symptoms such as pain and fatigue for example that can cause considerable psychological distress (Dickens, McGowan, Clark-Carter, & Creed, 2002; Pincus, Griffith, Pearce, & Isenberg, 1996; Soderlin, Hakala, & Nieminen, 2000).

In RA, CBT has been shown to significantly reduce depressive symptoms and anxiety when compared to routine medical management (Sharpe, Sensky, Timberlake, Ryan, & et al., 2003). Sharpe et al. studied newly diagnosed patients with RA. In their sample the disability was improved in 30% of patients in the CBT group versus 10% of patients in the control group. Evers *et al* (2002) also demonstrated a significant benefit in the group that had the addition of CBT to standard medical care, and found that fatigue was significantly decreased at post-treatment and six-month follow-up points in the CBT study arm only. More recent work by Hewlett et al. (2011) compared group CBT for fatigue self-management in RA versus group educational sessions (*n*= 127). Results from this study highlighted that there was a positive group CBT effect on participants' 'fatigue impact', their ability to cope, perceived severity of the condition and on well-being.

Prior to this feasibility study, first we undertook a pilot project to assess whether CBT improves medication adherence in RA (Ferguson et al., 2015). The results showed that the intervention group demonstrated significant improvement in mean scores on adherence. However, for the majority concordance was not a major issue and participants gave greater priority to: (i) managing fatigue in relation to their prescribed medications and RA; (ii) coping with, and adjusting to, the long-term condition; and (iii) experiences of mood changes (i.e., depression and anxiety). Patients suggested that self-management of their long-term condition should be the focus of the second phase of the study, which is in line with a recent UK governmental target (Department of Health., 2006) .

Against this background, the main aims of this mixed methods (case series) study were to: (i) to investigate the views of patients about the provision of psychological support as part of a comprehensive rheumatology outpatient service; and (ii) to assess the efficacy of a person-centred CBT self-management approach in patients with established RA. (Carey & Boden, 2003; Kooistra, Dijkman, Einhorn, & Bhandari, 2009; The National Institute for Health and Care Excellence, 2009). We framed this aim in terms of the principal question to be addressed: Can a psychological intervention based on CBT improve the quality of life for patients with RA?

We also investigated the following secondary aims: (i) to assess whether a CBT-based psychological intervention can have a positive impact on the presentation of pain, fatigue, and the emotional status of the person with RA; and (ii) what are CBT-based intervention inputs and other health care and social care services and costs.

Method

The study design was mixed methods that consisted mainly of a case series that aims to investigate the feasibility of implementing CBT for patients with RA who also experience a clinically relevant degree of anxiety/depression. Case studies follow a group of patients with the same diagnosis who undergo the same intervention over the study period. In parallel, we conducted a formative qualitative interview study to identify patients' views about their needs for emotional support as part of a comprehensive outpatient service. Finally, we carried out a health economics investigation of the CBT therapist inputs and other health and social care service provision and costs. Research Ethics Committee (NRESNr.12/LO/1015 London) and Research and Development (RJ112/N289) approval was obtained for the CBT intervention and the health economics investigation**.**

Qualitative study

To answer the first study objective, we conducted a formative qualitative study through individual telephone interviews over a six month period in 2014 to establish the view from twelve patients about the need for emotional support when living with RA. The sample size was reached when thematic saturation was

achieved (i.e., gathering of new data did not reveal new information). Participants were recruited by outpatient clinic staff and participants were stratified by gender, age, ethnicity and disease duration. The interview schedule was developed from the literature (Dures et al., 2014; Ferguson et al., 2015) and from the experiential knowledge of clinic staff. The questions asked included issues identified as being of importance to patients related to: accessing emotional support; preference for the mode of service delivery e.g., group, face to face, telephone; location, and past experiences of receipt of emotional support and its impact. All interviews were carried out by one qualitative researcher (HL) and took on average 20 minutes. All patients provided written informed consent prior to the audio-recording.

A total of 12 patients took part in the telephone interviews; socio-demographic information of participants is shown in Table 1.

Table 1
Socio-demographic data of 12 participants of telephone interview study

Gender	8 female and 4 male
Age	range: 27-83 years mean: 57 years
Duration of RA	range: 2-40 years, mean: 13 years
Marital status	4 married, 3 separate/divorced, 3 cohabiting, 1 single, 1 unspecified
Dependents	1 yes, 11 no
Employment status	5 retired, 4 FT, 2PT, 1 other
Place of birth	9 UK, 3 outside UK
Self-defined ethnicity	7 Caucasians, 5 Black and ethnic community
Registered disabled	4 yes, 6 no, 2 unspecified

CBT intervention study

Participants were recruited from consecutive attendees of one tertiary Rheumatology Outpatient Clinic in England. Initial screening was conducted by a Research Assistant (PD). Inclusion criteria were: 1) Male and female patients > 18 years of age with a diagnosis of established RA (> 2 years of duration), 2) disease activity score (DAS-28) of 3.2 or above (indicating moderate or severe disease activity) (Dougados, Aletaha, & van Riel, 2007), and 3) score of over 7 for anxiety or depression on the Hospital Anxiety and Depression Scale (HADS) (Huston, 1987), indicating probable clinically relevant levels of mental health co-morbidity. Exclusion criteria were: 1) RA with multiple co-morbidities, 2) presence of significant learning disability/difficulty, 3) serious co-morbidities making participation in the study difficult (e.g., cardiac failure or severe psychiatric presentations), and 4) currently receiving other psychological support or therapy.

Suitable patients were invited to consider participation in the study following a full assessment by the Study Psychologist (EW), if they were deemed by their supervising rheumatologist as likely to benefit from the intervention. These individuals were then invited to the study.

Baseline assessment for the CBT intervention study entailed two parts: The *first part* comprised of the completion of six questionnaires and five visual analogue scales (VAS), including health and social care service use data as shown in Table 2, administered by the Research Assistant.

Table 2
Summary of questionnaires and administration time-points

Measures	S*	0	1	2	3	4	5	6	7	8
EQ-5D		x						x		x
HAQ		x						x		x
HADS	x							x		x
IPQ-RA		x						x		x
RASE		x						x		x
CSQ		x						x		x
VAS Coping		x	x	x	x	x	x	x	x	x
VAS QoL		x	x	x	x	x	x	x	x	x
VAS Fatigue		x	x	x	x	x	x	x	x	x
VAS Pain		x	x	x	x	x	x	x	x	x
VAS Mood		x	x	x	x	x	x	x	x	x
CSRI		x						x		x

Notes: *S= Screening; EQ-5D-3L= EuroQol measures quality of life; HAQ= Health Assessment Questionnaire; HADS= Hospital Anxiety and Depression Scale; IPQ-RA= Illness Perceptions Questionnaire -Revised for Rheumatoid Arthritis; RASE= Rheumatoid Arthritis Self-efficacy scale; CSQ= Coping Strategies Questionnaire; VAS= visual analogue scales; CSRI= Client Service Receipt Inventory.

The *second part* of the assessment included an individual, person-centered in depth consultation carried out by the Study Psychologist. In line with standard clinical assessments, these consisted of: (i) gathering information about each patient's current symptoms; (ii) the impact of these on their lives; (iii) their current social situation (e.g., employment status, relationships); (iv) relevant background history; and (v) their goals for change if they were to take part in the study. Also each patient had the opportunity to ask more detailed questions about the study and the intervention.

Intervention

The intervention took the form of a person-centered, brief CBT-based approach. Participants attended up to six sessions in total, each of which lasted between 30-60 minutes. The frequency of the sessions was scheduled between weekly to 3-weekly to allow flexibility, to accommodate the unpredictability of disease progress (e.g., flare ups, severe fatigue) and unforeseen personal live events (e. g. childcare difficulties, urgent hospital attendance).

Each individualized intervention was informed by the CBT training and clinical experience of the Study Psychologist, guided by the specific study manual (Sharpe et al., 2003).

The intervention used in the study was based on the cognitive-behavioral therapy (CBT) model.

In line with standard clinical assessments, information was gathered about: participants' current symptoms; the impact of rheumatoid arthritis on their lives - including on engagement in valued activities and on mood; current situation (employment, relationships, living circumstances, etc.); relevant background history.

The Study Psychologist and each participant agreed on some specific areas the participant would like to work on during the intervention. The focus of interventions was tailored to each participant, informed by each individual's circumstances and preferences. A formulation was developed with each participant. Formulations provide a working, hypothetical model of how an individual's difficulties relate to each other and how they may have developed and/or be maintained. They are open to revision throughout an intervention, and allow areas for intervention to be identified.

Areas of focus chosen included: adjustment/acceptance of RA, understanding and management of symptoms including pain and fatigue, ways to approach activity, stress and mood management, sleep disturbance, communication and relationships.

Sessions were each between 30 and 60 minutes long, depending on participant preference. Breaks were built into sessions and participants were invited to move about regularly if this was helpful, rather than sit for long periods.

One or two areas were focused on in each session. An agenda was set at the beginning of each session in collaboration with the participant. Sessions often entail some education (e.g., goal setting, problem-solving strategies, and good sleep hygiene), some psycho-education and some practice of new skills (e.g., relaxation, assertiveness). As part of the CBT approach, psycho-education includes working on understanding the way body sensations, emotions, thoughts and behaviors are related. Areas for intervention may include setting goals to change behaviors, identifying unhelpful thoughts and developing alternative responses to these.

Tasks between sessions earlier in therapy might include monitoring/information-gathering relevant to an area of focus for a participant (e.g., collecting information on experience of pain, activity, sleep or thoughts each day between sessions). This allows for patterns and links to be established, and ways to make changes in these areas to be identified. Tasks between later sessions might include making behavioral changes (e.g., approaching activity or sleep differently) or practicing skills learnt in sessions, such as relaxation or identifying and challenging unhelpful thoughts. A 'blueprint' was developed with participants at the end of the intervention for them to take away, summarizing what they had found helpful and how they intended to maintain or build on helpful changes they had made. (Sharpe et al., 2003). Before each meeting, questionnaires were completed as shown in Table 2.

Following the end of the main intervention, at two further time-points, quantitative data were collected from participants, namely six weeks (the five VAS sub-scales), and six months after the end of the intervention (5 VAS scores, 6 questionnaires, and the health economic measures).

Health economics

There is a dearth of information on services use and costs in this population. The health economic information provided in this feasibility study will make much needed knowledge on resource use profiles of individuals treated with CBT for RA available. Information such as this will be helpful to feed into modelling studies of the cost-effectiveness of the application of CBT in this population, which is needed by decision makers who specify recommendations on treatment options within health and social care (The National Insitute for Health and Care Excellence, 2012).

To explore the costs of care for patients with RA, health and social services used by study participants were identified, using an adapted version of the Client Service Receipt Inventory (CSRI) (Beecham & Knapp, 1992). The health economic data were gathered by the Research Assistant at three time points (see Table 2). The data focused on hospital-based services (inpatient services, outpatient services and accident and emergency visits) as these services usually contribute the most to care costs. Health and community based services that are most widely used by patients with RA (family doctor, practice nurse, rheumatology specialist nurse, occupational therapist and social worker) were also reported. In addition, data on the time the study psychologist spent with patients directly or indirectly was also collected. Health and social care costs for each patient were estimated by combining their service use data with relevant national unit costs for 2013/2014 (Curtis, 2014), obtained from the Personal Social Services Research Unit compendium and the NHS Reference Costs 2013 (Department of Health., 2013).

Data analysis

Following transcription, a thematic framework analysis was conducted to identify emerging themes from patients' interviews (Ritchie & Spencer, 1994; Spencer, Ritchie, & O'Connor, 2003). The data were validated by: (i) a random sample of two transcriptions were independently coded by an external qualitative researcher; (ii) the use of single counting (Seale, 1999b), inclusion of negative instances (Seale, 1999a); and (iii) presentation of emerging themes to clinical colleagues to assess whether these resonated with their clinical experiences.

Summary measures for participants' characteristics were presented as means and standard deviations for continuous (approximately) normally distributed variables, frequencies and percentages for categorical variables. No formal statistical tests were carried out in this analysis and patient data were individually assessed for the series of case studies.

A descriptive analysis of the health economic data was conducted due to the small size of the sample. The information provided includes the number of patients using different health and social services, and the mean cost across the sample with standard deviations.

Results

Telephone interviews

From the qualitative framework analysis four main themes emerged: (i) the importance of emotional support as part of a comprehensive outpatient service; (ii) past experiences of psychological support; (iii) logistics of the delivery (location, health professional, timing); and (iv) the value of an additional psychological service to outpatient attendees with RA.

There were no differences in the accounts in relation to age, gender and ethnicity. The majority (9/12) of patients would welcome emotional support in groups, by telephone or face to face consultations.

> *"….the thing that frustrates me is the unknown if you know what I mean; you feel good one day and then all of a sudden it [RA] can just knock you for six, so if I got somebody to talk to about that, I suppose it probably would make me feel better, to air my problems I suppose".* (Patient 8)

The majority of patients (10/12) talked about the informal support they received from family members or formally from health professionals and some (3/12) found professional emotional guidance either helpful or not.

> *"My family really, [support me] …yeah they tend to cheer me up a bit, they help me, you know".* (Patient 2)

> *"Well I've only had a few sessions [with a psychologist] but it's helped a lot". (Patient 7)*

> *"I was referred to counselling, which I have to put in a comment…. it was appalling, absolutely appalling". (Patient 9)*

All participants suggested flexibility for the location (e.g., in hospital, separate from outpatient clinic, family doctor venue, community centre) with a trained clinical psychologist, ideally with specific knowledge of RA.

> *"It is down to the individual, whatever works for everybody". (Patient 1)*

> *"I would think when you kind of got over the shock, you have accepted it [diagnosis of RA] but you are now realising the limits and what you can and cannot do" [therefore emotional support would be valuable]. (Patient 4)*

> *"When I was first diagnosed I was upset, I was devastated… then I could have done with it [emotional support]… when you are diagnosed you definitely, desperately need it [emotional support]".* (Patient 12)

Study participants for the CBT intervention

Five patients completed the baseline assessment. Three patients completed the intervention.

The three patients with complete follow-up data showed different patterns in terms of visual analogue domains (Figure 1). Patient one showed a good deal of variation for all the dimensions. Impact of pain was lowest at baseline and 6 months follow-up, while coping appeared increased in the last two time points. Patient two showed less variation, coping and mood were lowest at baseline. Mood was lower at 6 weeks follow-up, but higher at the 6 month point. All the domains showed improvement during the intervention period. Patient three started with some higher scores at baseline. The impact of pain and fatigue showed marked decrease and were the lowest at 6 weeks post intervention, but showed marked increase at 6 months follow up. Coping levels were lowest at assessment and a general trend of increased coping is discernible.

Figure 1
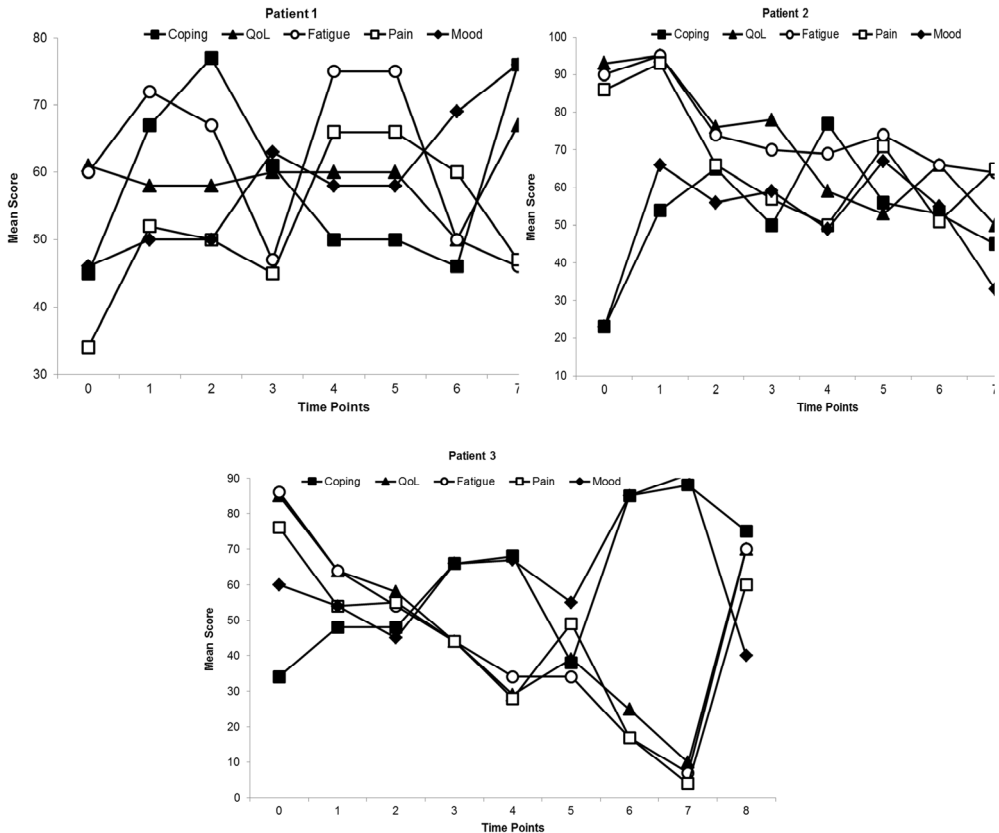Mean visual analogue scales domains by follow-up time in patients 1-3

Figure 2 shows the HADS for the three patients. There was no change in patient one, while patients 2 and 3 started with a higher value of HADs with a reduction of their HADS in the post intervention period. This suggests that these patients 2 and 3 may have benefited from the intervention as their HADS stayed low at 6 months follow up. There was no change in HAQ and EQ5D during follow-up; in addition, there was no change in coping strategies (results not shown here).

Figure 2
Follow-up measurements of HAD, HAQ, Quality of Life and RA Self-Efficacy
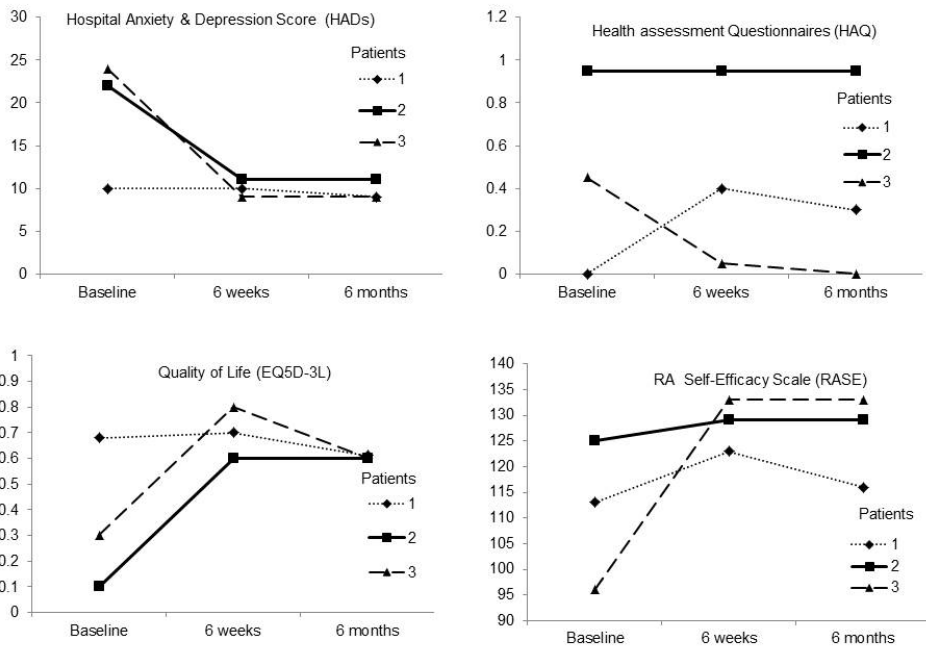
Health economic results

Of the 5 patients who completed the baseline assessments, three completed the intervention and therefore data was collected on services used and therapist's time at all three time points. All patients used relatively the same amount and types of services over the three data collection time points (Table 3).

Patients visited the hospital for a wide range of reasons which could not be directly attributed to RA at baseline. No further use was made of hospital-based services at the end of treatment and at 6-months follow up. Consistently, across all three time points all patients visited the Outpatient Rheumatology Department for regular reviews, blood tests and one patient had an emergency appointment. The average costs of Rheumatology department contacts for the study time period were £180, £67 and £100 at baseline, end of treatment and at 6-months follow up respectively.

Table 3
Health and social care service use and costs

Services	Baseline*			Following completion of session			6 months follow-up		
	n	Mean cost (£)	SD	n	Mean cost (£)	SD	n	Mean cost (£)	SD
Hospital-based services§									
Inpatient stay	1 (20)	97	216	-	-	-	-	-	-
Emergency department	1 (20)	371	829	-	-	-	-	-	-
Day surgery	1 (20)	26	58	-	-	-	1 (33)	44	76
Rheumatology	5 (100)	180	84	2 (67)	67	58	3 (100)	100	0
Other outpatient services	-	-	-	-	-	-	2 (67)	233	321
Other outpatient services	-	-	-	-	-	-	2 (67)	233	321
Other hospital based services§	-	-	-	1 (33)	74	128	1 (33)	80	139
Community-based services§									
General practitioner	4 (80)	137	131	1 (33)	12	21	3 (100)	1,002	1,642
Practice nurse	1 (20)	63	142	-	-	-	1 (33)	26	46
Rheumatology specialist nurse	-	-	-	-	-	-	2 (67)	11	10
Occupational therapist	-	-	-	-	-	-	2 (67)	188	229
Dentist	2 (40)	66	107	1 (33)	82	142	2 (67)	82	82
Optician	-	-	-	-	-	-	1 (33)	7	12
Social worker	1 (20)	838	1874	-	-	-	1 (33)	10	16
Total costs		1777	2104		235	94		1782	1778

Notes: *Total number of patients at baseline was 5; Total number of patients following completion of therapy and at 6 months follow-up was 3; §Hospital-based services cost are in 2012/13; £s Community-based services cost are in 2014.

Family doctor and dental services were the most frequently used of all community-based services. Visits to the rheumatology specialist nurse, occupational therapist and optician took place only at 6-months follow-up. The average costs of family doctor contacts were £137, £12, and £1,002 at baseline, end of treatment and at 6-months follow-up respectively for each participant. The high primary care costs (£1,002) at 6-month follow-up were due to frequent Family doctor visits. The average costs for dental services were fairly similar across the 3-time points. The average total cost at baseline and at 6-month follow-up for patients with costs at all 3-time points was £924 at baseline and £1,782 at follow-up.

The average time the psychologist spent with individual patients in each treatment session was 55 minutes, with an average cost per session of £102 (Table 4). In addition to treatment sessions, the psychologist also spent time on a) non face-to-face contact with patients (e.g., email), and b) patient-related activities (e.g., finding information, discussions with colleagues, making telephone calls). The average time spent on other activities in each session (and cost) was 3 minutes (£6) and 64.5 minutes (£53) respectively.

Table 4
Therapy time inputs and costs

Session number*	Treatment session		Other contact time related to treatment session		Non-contact time related to treatment session	
	Duration in minutes *M (SD)*	Cost (£) *M (SD)*	Duration in minutes *M (SD)*	Cost (£) *M (SD)*	Duration in minutes *M (SD)*	Cost (£) *M (SD)*
1	57 (6)	105 (11)	0	0	90 (0)	74 (0)
2	60 (0)	111 (0)	0	0	60 (0)	49 (0)
3	60 (0)	111 (0)	3 (6)	6 (11)	60 (0)	49 (0)
4	60 (0)	111 (0)	7 (6)	12 (11)	63 (6)	52 (5)
5	55 (9)	102 (16)	10 (10)	19 (19)	57 (6)	46 (5)
6	40 (35)	74 (64)	0	0	57 (49)	46 (40)
Total	332 (49)	614 (91)	20 (17)	37 (32)	387 (49)	317 (40)

Notes: *Total number of patients was 3 except for session 6 with 2 participants. Costs are in 2014 price levels.

Discussion

This mixed methods study was conducted mainly as a case series feasibility design relying on a descriptive data analysis, with eight data time points completed for three patients with established RA over a six months period, including a formative qualitative study and health economic evaluation. It is a small feasibility study and comments about the efficacy of the intervention cannot therefore be provided.

The formative qualitative study indicated that although the majority of participants received informal support from friends, family and from healthcare

professionals, many would welcome additional emotional guidance, ideally from a healthcare professional who has knowledge about RA. Patients rightly identified that physical and psycho-social health need to be addressed during consultations, which resonates well with previous publications (Dures et al., 2014; Gettings, 2010) and published recommendations (Wagner et al., 2001).

A number of key points emerged during the CBT intervention that are relevant for future psychological studies involving in patients with established RA. The study psychologist embraced a (i) broad psycho-social approach i.e., not only focusing on medication adherence in response to the qualitative feedback by patients during the pilot study (Ferguson et al., 2015), as mentioned above. The results from the three patients suggested that they may have benefitted from the holistic intervention until to the point of the follow-up (but we cannot comment on the efficacy of the intervention). (ii) In addition, sustained self-management through extended telephone, digital health technology or individual booster appointments during the follow up period with the clinical psychologist is proposed for future studies.

Weekly face to face sessions with the clinical psychologist were too demanding on patients varies competing domestic, work and illness specific self-management commitments, therefore a (iii) flexible appointment system during the study will allow patients to accommodate all aspects of their lives and incorporate 'practice of homework' agreed during the CBT session.

The results of the economic component of this study need to be interpreted with caution. Although this sample size does not allow us to draw firm conclusions regarding service gaps, it was nevertheless notable that none of our participants made contact with specialist physiotherapist or podiatrist six months pre and post treatment despite these being clearly recommended components of NICE treatment guidelines for RA (The National Institute for Health and Care Excellence, 2009). Our findings therefore generate the hypothesis, to be tested in future studies, that patients with established RA will show improvements in their psycho-social health when treated individually with CBT. The practice implications of this study are that patients with RA may benefit from psychological interventions to cope better with their long-term condition. Intervention studies are necessary to test this question. The integration of a clinical psychologist in an outpatient Rheumatology clinic team may be required to provide a more holistic approach within Rheumatology services to improve physical and psycho-social health.

References

Ang, D. C., Choi, H., Kroenke, K., & Wolfe, F. (2005). Comorbid depression is an independent risk factor for mortality in patients with rheumatoid arthritis. *Journal of Rheumatology, 32*, 1013-1019.

Beecham, J., & Knapp, M. (1992). Costing Psychiatric Interventions. In G. Thornicroft, C. R., Brewin, J. K. Wing (Eds.), *Measuring Mental Health Needs* (pp. 163-183). London: Gaskell, Royal College of Psychiatrists.

Carey, T., & Boden, S. (2003). A critical guide to case series reports. *Spine, 28*, 1631-1634.

Curtis, L. (2014). *Unit costs of health and social care*. Canterbury: PSSRU, University of Kent.

Department of Health. (2006). *Supporting people with long term conditions to Self Care.* Retrieved from Leeds: http://webarchive.nationalarchives.gov.uk/20130107105354/http:/www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_4130868.pdf

Department of Health. (2013). *National Health Service Schedule of Reference Costs 2012-2013.* London: Author.

Dickens, C., McGowan, L., Clark-Carter, D., & Creed, F. (2002). Depression in rheumatoid arthritis: A systematic review of the literature with meta-analysis. *Psychosomatic Medicine, 64*, 52-60.

Dissanayake, R., & Bertouch, J. (2010). Psychosocial interventions as adjunct therapy for patients with rheumatoid arthritis: A systematic review. *International Journal of Rheumatic Diseases, 13*, 424-334.

Dougados, M., Aletaha, D., & van Riel, P. (2007). Disease activity measures for rheumatoid arthritis. *Clinical and Experimental Rheumatology, 25*(Suppl 46), S22-29.

Dures, E., Almeida, C., Caesley, J., Peterson, A., Ambler, N., Morris, M., Pollock, J., & Hewlett, S. (2014). Patient preferences for psychological support in inflammatory arthritis: A multicentre survey. *Annals of the Rheumatic Diseases, 8*, 553-559.

Evers, A. W., Kraaimaat, F. W., van Riel, P. L., & de Jong, A. J. (2002). Tailored cognitive-behavioural therapy in early rheumatoid arthritis for patients at risk: A randomized controlled trial. *Pain, 100*, 141-153.

Ferguson, A., Ibrahim, F. A., Thomas, V., Weinman, J., Simpson, C., Cope, A. P., & Lempp, H. (2015). Improving medication adherence in rheumatoid arthritis (RA): A pilot study. *Psychology, Health & Medicine, 20*, 781-789.

Forestier, R., Andre-Vert, J., Guillez, P., Coudeyre, E., Lefevre-Colau, M. M., Combe, B., & Mayoux-Benhamou, M. A. (2009). Non-drug treatment (excluding surgery) in rheumatoid arthritis: Clinical practice guidelines. *Joint Bone Spine, 76*, 691-698.

Fries, J. S., Spitz, P., Kraines, G., & Holman, H. (1980). Measurement of patient outcome in rheumatoid arthritis. *Arthritis & Rheumatism, 23*, 137-145.

Gettings, L. (2008). Cognitive behavioural therapy: A psycho-social treatment in rheumatology. Royal College of Nursing. Retrieved from http://www.rcn.org.uk/__data/assets/pdf_file/0007/261565/RCN_RHEUMATOLOGY_2nd.pdf

Gettings, L. (2010). Psychological well-being in rheumatoid arthritis: A review of the literature. *Musculoskeletal Care, 8*, 99-106.

Hewlett, S., Ambler, N., Almeida, C., Cliss, A., Hammond, A., Kitchen, K., & Pollock, J. (2011). Self-management of fatigue in rheumatoid arthritis: A randomised controlled trial of group cognitive-behavioural therapy. *Annals of the Rheumatic Diseases, 70*, 1060-1067.

Huston, G. J. (1987). The Hospital Anxiety and Depression Scale. *The Journal of Rheumatology, 14*, 644.

Jones, S., Howard, L., & Thornicroft, G. (2008). 'Diagnostic overshadowing': Worse physical health care for people with mental illness. *Acta Psychiatrica Scandinavica, 118*, 169-171.

Kooistra, B., Dijkman, B., Einhorn, T., & Bhandari, M. (2009). How to design a good case series. *The Journal of Bone and Joint Surgery, 91*(Suppl 3), 21-26.

Kwoh, C., & Ibrahim, S. (2001). Rheumatology patient and physician concordance with respect to important health and symptom status outcomes. *Arthritis & Rheumatism, 45*, 372-377.

Lempp, H., Ibrahim, F., Shaw, T., Hofmann, D., Graves, H., Thornicroft, G., & Scott, D. L. (2011). Comparative quality of life in patients with depression and rheumatoid arthritis. *International Review of Psychiatry, 23*, 118-124.

Lempp, H., Thornicroft, G., Leese, M., Fearns, N., Graves, H., Khoshaba, B., & Tansella, M. (2009). Implications of long-term conditions for both mental and physical health: Comparison of rheumatoid arthritis and schizophrenia. *Qual.Life Res., 18*, 699-707.

Lineker, S., Badley, E., Charles, C., Hart, L., & Streiner, D. (1999). Defining morning stiffness in rheumatoid arthritis. *The Journal of Rheumatology, 26*, 1052-1057.

Luqmani, R., Hennell, S., Estrach, C., Basher, D., Birrell, F., Bosworth, & A. Audit Working, G. (2009). British Society for Rheumatology and British Health Professionals in Rheumatology guideline for the management of rheumatoid arthritis (after the first 2 years). *Rheumatology (Oxford), 48*, 436-439.

Luqmani, R., Hennell, S., Estrach, C., Birrell, F., Bosworth, A., Davenport, G., & Audit Working, G. (2006). British Society for Rheumatology and british health professionals in Rheumatology guideline for the management of rheumatoid arthritis (the first two years). *Rheumatology (Oxford), 45*, 1167-1169.

Matcham, F., Rayner, L., Steer, S., & Hotopf, M. (2013). The prevalence of depression in rheumatoid arthritis: A systematic review and meta-analysis. *Rheumatology (Oxford), 52*, 2136-2148.

Pilling, S., Anderson, I., Goldberg, D., Meader, N., & Taylor, C. (2009). Depression in adults, including those with chronic physical health problem:summary of NICE guidelines. *BMJ, 339*, b4108.

Pincus, T., Griffith, J., Pearce, S., & Isenberg, D. (1996). Prevalence of self-reported depression in patients with rheumatoid arthritis. *British Journal of Rheumatology, 35*, 879-883.

Polsky, D., Doshi, J. A., Marcus, S., Oslin, D., Rothbard, A., Thomas, N., & Thompson, C. L. (2005). Long-term risk for depressive symptoms after a medical diagnosis. *Arch Intern Med, 165*, 1260-1266.

Ritchie, J., & Spencer, L. (1994). Qualitative data analysis for applied policy research. In A. Bryman & R. Burgess (Eds.), *Analysing qualitative Data* (pp. 173-194). London: Routledge.

Rizzo, M., Creed, F., Goldberg, D., Meader, N., & Pilling, S. (2011). A systematic review of non-pharmacological treatments for depression in people with chronic physical health problems. *Journal of Psychosomatic Research, 71*, 18-27.

Scott, D. L., Wolfe, F., & Huizinga, T. W. J. (2010). Rheumatoid arthritis. *Lancet, 374*, 1094-1108.

Seale, C. (1999a). *Accounting for contradictions. The quality of qualitative research* (pp. 73-86). London: Sage.

Seale, C. (1999b). *Using numbers. The quality of qualitative research* (pp. 119-139). London: Sage.

Sharpe, L., Sensky, T., Timberlake, N., Ryan, B., Allard, S. (2003). Long-term efficacy of cognitive behavioural treatment from a randomized controlled trial for patients recently diagnosed with rheumatoid arthritis. *Rheumatology, 42*, 435-441.

Simpson, C., Franks, C., Morrison, C., & Lempp, H. (2005). The patient's journey: Rheumatoid arthritis. *BMJ, 331*, 887-889.

Singh, J., Christensen, R., Wells, G., & Suarez-Almazor, M. (2009). Biologics for rheumatoid arthritis: An overview of Cochrane reviews. *Cochrane Database Systematic Review, CD007848*.

Smolen, J., Aletaha, D., Bijlsma, J., Breedveld, F., Boumpas, D., Burmester, G., & van der Heide, D. (2010). Treating rheumatoid arthritis to target: Recommendations of an international task force. *Annals of Rheumatic Disease, 69*, 631.

Soderlin, M. K., Hakala, M., & Nieminen, P. (2000). Anxiety and depression in a community-based rheumatoid arthritis population. *Scand J Rheumatol, 29*, 177-183.

Spencer, L., Ritchie, J., & O'Connor, W. (2003). Analysis: Practices, principles and processes. In J. Ritchie & J. Lewis (Eds.), *Qualitative research practice. A guide for social science students and researchers* (pp. 199-218). London: Sage.

Steward, K., & Land, M. (2009). *Perceptions of patients and professionals on rheumatoid arthritis*. London: King's Fund.

The National Insitute for Health and Care Excellence. (2007). *Guidelines on management of depression (amended). Management of depression in primary and secondary care.* Retrieved from London.

The National Insitute for Health and Care Excellence. (2012). *Methods for the development of NICE public health guidance.* Retrieved from London.

The National Institute for Health and Care Excellence. (2004). *Depression: Management of depression in primary and secondary care* (Vol. Clinical Guidelines 23). London: Author.

The National Institute for Health and Care Excellence. (2009). *Rheumatoid arthritis. The management of rheumatoid arthritis in adults*. London: Author.

Wagner, E. H., Austin, B. T., Davis, C., Hindmarsh, M., Schaefer, J., & Bonomi, A. (2001). Improving chronic illness care: Translating evidence into action. *Health Affairs, 20*, 64-78.