International Journal of Nursing Studies 91 (2019) 22–34

Contents lists available at ScienceDirect

International Journal of Nursing Studies

journal homepage: www.elsevier.com/ijns

Patient perceived impact of nurse-led self-management interventions for COPD: A systematic review of qualitative research

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ARTICLE INFO

Article history:
Received 31 May 2018
Received in revised form 11 December 2018
Accepted 11 December 2018

Keywords:
Chronic obstructive pulmonary disease
Disease management
Nurse-led clinics
Qualitative studies
Self-care
Systematic review

ABSTRACT

Background: Self-management interventions are increasingly implemented to manage the health impact and economic burden of the growing prevalence of chronic obstructive pulmonary disease. Nurses are the primary providers of self-management education, yet there have been few attempts to assess their contribution in delivering these programmes. Qualitative evidence that explores patients' perceptions of the benefits of self-management is limited.
Objective: To synthesize qualitative evidence on patient perceived benefits of nursing interventions to support self-management.
Design: Systematic review and qualitative synthesis.
Methods: Data were collected from six electronic databases: British Nursing Index (BNI, Proquest), MEDLINE (Ovid), CINAHL (EBSCO), AMED (Ovid), Embase (Ovid), and PsycINFO (Ovid). Pre-defined keywords were used to identify qualitative or mixed methods English-language studies published in any year. The included studies were selected by screening titles, abstracts and full-texts against inclusion and exclusion criteria that were established a priori. The Critical Appraisal Skills Programme tool was used to undertake a quality review. Data were analysed with a framework approach using categories of self-management outcomes reported in a previous review as a coding structure.
Results: Fourteen articles were included in the review. Four key themes were identified from the original research: Empowerment through new knowledge, Psychological wellbeing, Expanding social worlds and Increased physical activity.
Conclusions: When provided with adequate knowledge and support, patients gained self-confidence and their coping behaviour increased. Social and psychological support were identified as key aspects of self-management interventions that patients found improved their sense of wellbeing. Group exercise components of self-management programmes were also favourably evaluated due to a perceived sense of increased well-being and enhanced social interaction.

What is already known about the topic?

- Nursing interventions to support self-management of chronic obstructive pulmonary disease (COPD) aim to reduce the impact of the disease on individuals and health systems
- Previous systematic reviews on the clinical effectiveness of self-management interventions for patients with COPD found evidence of beneficial effects on some outcomes.
- Qualitative studies have focused on patients' perceptions of the value of nurse-led self-management interventions, but to our knowledge no review has attempted to integrate the results of these studies.

What this paper adds

- People with COPD require intense personalised face-to-face support to implement self-management strategies. This is particularly important at the beginning and the end of an intervention.
- Patients perceive psychological and social support to be vital elements of self-management interventions.
- Physical exercise is positively evaluated by patients, but the mechanisms by which it increases their sense of wellbeing is not fully understood and further research is necessary.

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https://doi.org/10.1016/j.ijnurstu.2018.12.004
0020-7489/

1. Introduction

Chronic obstructive pulmonary disease (COPD) is a complex, systemic disease characterised by breathlessness, a chronic productive cough and repetitive clinical exacerbations as the disease advances (Effing et al., 2007). This progressive, non-reversible and disabling lung condition affects patients by causing physical limitations, psychosocial difficulties and potential financial burdens (Pauwels and Rabe, 2004; de Sousa Pinto et al., 2013). COPD impacts on the quality of life (QoL) of patients, carers and families and constitutes a significant burden on healthcare systems globally, as it is associated with substantial healthcare resource use (Bourbeau, 2014). The prevalence of COPD is rising worldwide due to past high rates of tobacco use and an ageing population, increasing these burdens on individuals and on healthcare systems (Lozano et al., 2012; Mathers and Loncar, 2006). COPD is currently the fourth leading cause of death worldwide but is predicted to be the third most common cause of death globally by 2020 (Global Initiative for Chronic Obstructive Lung Disease, GOLD, 2017).

Medical management of COPD cannot currently reverse decline in patients' lung function, and therapeutic options may include smoking cessation, pharmacological therapies, rehabilitation, oxygen therapy, ventilatory support and surgical treatment (de Sousa Pinto et al., 2013; Vogelmeier et al., 2017). Interventions which aim to support people with COPD to self-manage are frequently implemented by health care providers to limit the impact of chronic obstructive pulmonary disease on everyday life of individuals and to manage pressure on health systems (Bolton et al., 2010; Bourbeau and Saad, 2012). Self-management has been defined as:

> . . . the individual's ability to manage the symptoms, treatment, physical, psychological and psychosocial consequences and lifestyle changes inherent in living with a chronic condition. Barlow et al (2002:178)

Self-management support for COPD has been recognised to be less well developed than in other conditions and considerable overlap exists between interventions which are defined as self-management and the generally more complex, supervised interventions defined as pulmonary rehabilitation (Majothi et al., 2015). While pulmonary rehabilitation has been shown to be effective (McCarthy et al., 2015), it is costlier and time consuming for both professionals and patients than self-management and may only be available to a minority of patients (Monninkhof et al., 2003a; Nici, 2010). Self-management can be seen as part of a continuum of disease management, which depends on factors such as severity of disease, co-morbidity and ease of access to healthcare facilities, and may be more appropriate to those with less severe problems (Effing et al., 2012). The focus of self-management training is disease control through supporting people in changing their health behaviours and by increasing self-efficacy, with the goal of improving quality of life, enhancing health status and reducing the cost of healthcare provision (Nici et al., 2006). There are several variations in the types of self-management interventions, which may be delivered individually or in a group setting, by telephone or face-to-face, and may be professional or lay-led.

Nurses are identified as the professional group most frequently involved in self-management education (Coster and Norman, 2009), yet there have been few attempts to assess the contribution of nurses in delivering these programmes. A Cochrane review by Zwerink et al (2014) which included interventions delivered by several different professional groups reported that self-management in patients with COPD is associated with improved QoL, reductions in dyspnoea and fewer hospital admissions. It is unclear, however, whether lay-led or professionally-led programmes are more clinically effective (Barlow et al., 2002; Coster and Norman, 2009). The cost implications associated with the use of professionally led programmes indicates a need for further assessment of the contribution of different professional groups.

Nurse-led self-management programmes for patients with COPD were examined in two quantitative reviews. Taylor et al (2005) concluded that there was insufficient evidence to support widespread implementation of nurse led managements for COPD. A later review (Baker and Fatoye, 2017a) found some evidence that nurse-led interventions increased self-efficacy and reduced patient anxiety and physician visits, but little evidence of other clinical or cost benefit outcomes. This review also highlighted a paucity of qualitative studies which address patients' needs and views of self-management. Understanding the benefits and limitations of self-management from the perspective of patients could allow the development of programmes with improved design and acceptability. The use of qualitative methods allows an exploration of patients' lived experiences, including their beliefs, values and feelings, and can reveal details and meanings not identified by quantitative methodology (Ormston et al., 2014). A systematic synthesis of qualitative studies of nurse-led self-management could reveal common themes, leading to the generation of knowledge that may not be revealed by a single study.

Patients' perceptions of participation in pulmonary rehabilitation have been explored through qualitative metasynthesis (de Sousa Pinto et al., 2013). However, no research integrating the findings of qualitative studies designed to examine patients' views of nurse-led self-management support was identified during scoping studies. The aim of this review, therefore, is to synthesise qualitative studies that address the benefits of these interventions from a patients' perspective.

2. Methods

2.1. Design

This review follows guidelines from the Joanna Briggs Institute (JBI, 2014) for the systematic review and synthesis of qualitative data. The review process was conducted in five stages: systematic literature searching, selection of studies, evaluation of included studies, data extraction and synthesis of findings. A protocol was developed by the review team (EB, FF) and this was registered on PROSPERO, the international prospective register of systematic reviews relevant to health and social care (CRD42017079722) (Baker and Fatoye, 2017b). This review adheres to the 21 items reported in the ENTREQ statement (Tong et al., 2012).

2.2. Inclusion and exclusion criteria

Inclusion and exclusion criteria were established a priori (Table 1). Original studies using qualitative or mixed-methods were included, although only the qualitative sections of mixed-method studies were examined. Inclusion criteria are organised into domains adopted from PICoS guidelines from the Joanna Briggs Institute (JBI, 2014): P = participants, I = phenomena of interest, Co = context and S = types of studies.

2.3. Search strategy

The following electronic databases were searched from their inception until June 2017 to identify potential studies: British Nursing Index (BNI, Proquest), MEDLINE (Ovid), Cumulative Index to Nursing and Allied Health Literature (CINAHL, EBSCOhost), Allied and Complementary Medicine Database (AMED, Ovid), Embase (Ovid), and PsycINFO (Ovid). Databases were interrogated

Table 1
Inclusion and exclusion criteria used for study selection.

Criteria	Inclusion	Exclusion
Population	Adults (18+) with COPD 80% or more patients with a diagnosis of COPD as defined by the GOLD (2017) for COPD **OR** Data for COPD patients treated separately	Studies where less than 80% of patients have a diagnosis of COPD
Phenomenon of interest	Patients' perceptions of the following interventions: Nurse-led, nurse co-ordinated or nurse delivered programmes Interventions that report a self-management approach Interventions involving an iterative process of interaction between participants and nurses Programmes including at least two of the following components: smoking cessation, self-recognition and self-treatment of exacerbations, an exercise or physical activity component, advice about diet, advice about medication or coping with breathlessness	Patient's' perceptions of the following interventions: Lay-led interventions or those led by other professional groups Studies aiming to identify patient self-management strategies Pulmonary rehabilitation or exercise only Home hospital interventions 'Case management' Palliative care interventions Interventions with less than two contact moments. Interventions involving solely participant education One element interventions (i.e. smoking cessation) Professional or carer perceptions of self-management interventions
Context	All healthcare contexts: primary, secondary, tertiary care, the home or the workplace	Non-healthcare contexts
Type of study	Studies that include a nursing intervention to support self-management Qualitative studies Mixed methods studies Studies from any geographical location English language	Studies that do not include a self-management intervention Quantitative studies Non-English language Grey literature/ non-peer reviewed papers Dissertations and theses Conference proceedings Literature reviews, systematic reviews and meta-analyses Commentaries, opinion pieces and educational materials

for the following terms and for any closely related expressions: 1) Self-management OR self-care OR patient education 2) Chronic Obstructive Airways Disease or COPD and 3) Qualitative research or study. These keywords were entered as MeSH terms in Medline, and these MeSH terms were modified for use in each database. Filters were applied to exclude non-English language papers. Hand searches of the reference lists of included papers and previous related systematic reviews were performed to supplement the database search. An example search strategy is given in appendix 1.

2.4. Study selection

Titles and abstracts of the identified studies were screened in full by the first author (EB). A second reviewer (FF) cross-checked and agreed the included and excluded papers. Inter-reviewer agreement was high, and any disagreements and uncertainties (n = 10) were resolved by discussion (resulting in five studies being included and five studies excluded). Following initial screening, full texts of the identified articles were retrieved and reviewed against the inclusion/ exclusion criteria in more detail. Disagreement was resolved by discussion.

2.5. Quality appraisal

The Critical Appraisal Skills Programme (CASP) tool was used to undertake a quality review (CASP, 2017). This ten-item appraisal checklist provides a framework for considering the results of qualitative research, their validity and usefulness. Two reviewers (EB and FF) independently checked whether each study met the criteria for each of the 10 questions by selecting 'yes', 'no' or 'can't tell' for each item. A brief description of what was reported to have happened in each study was recorded to support each judgement. A rating system described by Vanderspank-Wright et al. (2018) was used to assess the articles included and a score out of 10 for each, based on how many questions could be answered 'yes'. A score of seven or more was categorised as 'very good quality'. Any disagreements in scoring were resolved by discussion. All articles meeting the criteria were retained, regardless of quality, as the aim of the appraisal was to utilize a standardised, systematic process to assess the quality of evidence available on the area of focus (Table 2).

2.6. Data extraction and analysis

Each study was read a minimum of twice to ensure a detailed understanding of the content. The following information was extracted from the included studies using a standardised form designed for the purpose: bibliographic details, population, setting, nature of the self-management intervention, methodology, data collection and data analysis methods. Study authors were contacted if any data were found to be missing.

The qualitative synthesis of interview data was based on the Framework Method (Ritchie and Spencer, 1994). This approach was selected as the structure and processes of the Framework Method enables the comparison and contrasting of data both within individual cases and across cases. This enhances the ease with which themes can be generated in qualitative content analysis (Gale et al., 2013). Each study was read and codes that linked to specific themes were allocated line by line. Initial codes were generated from the categories of self-management outcomes reported by Barlow et al (2002): quality of life, physical and psychological health status, psychosocial impacts, knowledge, self-management behaviour, management of symptoms, use of health care resources and satisfaction. When a several studies had been coded, the reviewers (EB and FF) met and further codes were identified through discussion. This process formed the analytical framework and was used to create a framework matrix into which data from the results, discussion and conclusion section of each study was imported. Codes were compared in the framework, then sorted and classified into higher order themes. Trustworthiness of

Table 2
Quality appraisal of studies.

	Benzo et al (2013)	Benzo (2013)	Hillebregt et al. (2017)	Johnston et al (2009)	Jonsdottir (2007)	Kasikci (2011)	Langer et al (2014)	Milne et al (2009)	Monninkhof et al. (2004)	Mousing and Lomborg (2012)	Padilha et al. (2015)	Van Kruijssen et al. (2015)	Walters et al. (2012)	Willis et al. (2011)
1) Was there a clear statement of the aims of the research?	√	√	√	√	√	√	√	√	√	√	√	√	√	√
2) Is a qualitative methodology appropriate?	√	√	√	√	√	√	√	√	√	√	√	√	√	√
3) Was the research design appropriate to address the aims of the research?	√	√	√	√	√	√	√	√	√	√	√	√	√	√
4) Was the recruitment strategy appropriate to the aims of the research?	**?**	**?**	**?**	√	√	**?**	√	√	√	**?**	**?**	√	√	**?**
5) Was the data collected in a way that addressed the research issue?	**?**	√	**?**	**?**	√	**X**	√	√	√	√	**?**	**?**	√	√
6) Has the relationship between researcher and participants been adequately considered?	√	√	**?**	**?**	**?**	**?**	√	√	**?**	**?**	**?**	**X**	√	**X**
7. Have ethical issues been taken into consideration?	**?**	**?**	√	**?**	√	√	√	√	**?**	√	√	√	√	**?**
8. Was the data analysis sufficiently rigorous?	**?**	√	√	**X**	**?**	**X**	√	**?**	√	√	**?**	**?**	√	**?**
9. Is there a clear statement of findings?	**?**	√	√	**X**	√	√	√	**?**	√	**?**	**?**	√	√	√
10. How valuable is the research?	√	√	√	**?**	√	**X**	√	√	√	√	**?**	√	√	√
Scoring	5	**8**	**7**	**4**	**8**	**5**	**10**	**8**	**7**	**7**	**4**	**7**	**10**	**6**

the analysis was strengthened through a process of ongoing discussion of the framework between the researchers (Graneheim and Lundman, 2004).

3. Results

3.1. Search results

A flowchart outlining the selection of eligible studies is shown in Fig. 1. A total of 2895 records were identified of which 136 full-text articles assessed for eligibility and of those, 122 were excluded. Fourteen articles describing 15 qualitative studies met the final inclusion criteria (one paper contained details of two separate studies).

3.2. Quality appraisal

An overview of the quality appraisal judgements made using the CASP tool is presented in Table 2. The quality of the 14 included studies was variable, with scores ranging from four to 10. The quality of nine studies was considered 'very good' with scores equal to or higher than seven. Three further studies scored five or six. In most studies, the relationship between the researcher and the participants was not adequately described. A further significant issue across studies was that of insufficient description of data analysis methods which made it difficult to reach definitive decisions on whether the process had been executed with appropriate rigor. In many studies, recruitment strategies were not adequately described and the numbers of people who refused to take part and reasons for non-participation were often not discussed. The saturation of themes was not reported in several studies.

3.3. Study characteristics

The characteristics of the included studies are described in Supplement 2. The studies were based in eight different countries in Europe, North America and Australasia. The number of patients with COPD in these studies ranged from one (Kasikci, 2007) to 51 (Benzo, 2013), and the total number of participants included across the studies was 247. Sampling strategies were not explicitly stated in all papers but were identified as purposive (n = 6), convenience (n = 6), maximum variation (n = 1) and theoretical (n = 1). Interviews took place at various intervals after involvement in self-management programmes, ranging from during the intervention (Milne et al., 2009; Willis et al., 2011) to 12 months after

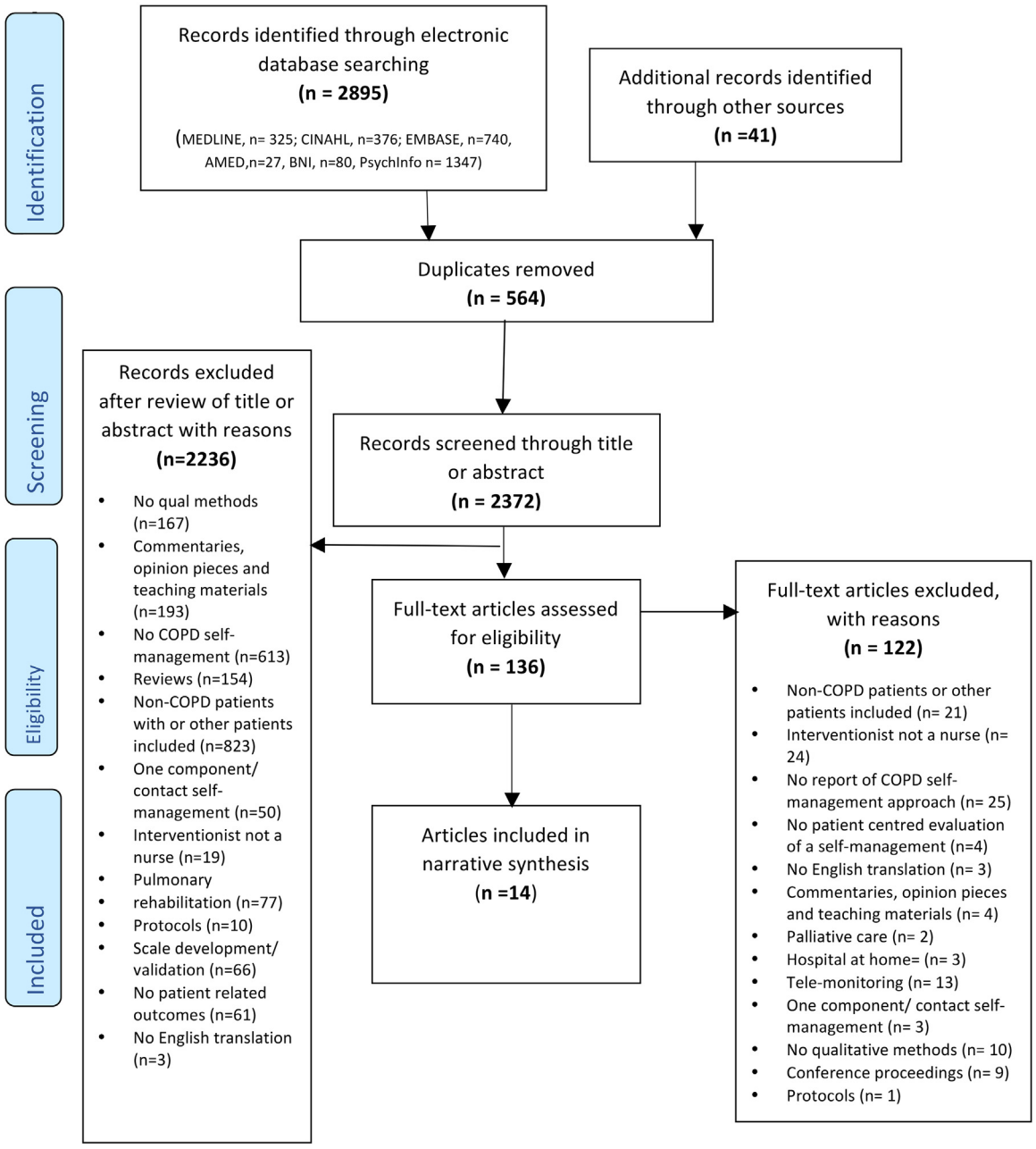

Fig. 1. Flow Diagram for Study Selection.
(according to preferred reporting items for systematic reviews and meta-analyses (PRISMA).

completion (Kasikci, 2010; Walters et al., 2012). Five studies did not specify the timing of data collection (Benzo et al., 2013; Benzo, 2013; Johnston et al., 2009; Monninkhof et al., 2004a; van Kruijssen et al., 2015). Only two studies (Langer et al., 2014; van Kruijssen et al., 2015) attempted to investigate those patients who had declined or withdrawn from the intervention. The studies drew on several qualitative approaches, including grounded theory (Benzo, 2013; Monninkhof et al., 2004a) research-as-practice (Jonsdottir, 2007) and phenomenology (Milne et al., 2009). The remaining articles did not clearly report on the approach underpinning the research or specify the use of a single established qualitative methodology. Interviews were conducted in all studies, with two also employing additional focus groups (Hillebregt et al., 2016; Mousing and Lomborg, 2012) and one combining participant observation with interviews (Hillebregt et al., 2016). Four studies (Benzo et al., 2013; Benzo, 2013; Hillebregt et al., 2016; Kasikci, 2011) utilised mixed methods, combining interviews with quantitative questionnaires. Data were analysed using forms of content or thematic analysis, although one study (Johnston et al., 2009) did not specify data analysis methods.

3.3.1. Interventions

The self-management interventions described had diverse durations, content, settings, levels of support and types of nurse involved, as described in detail in Table 3. Most papers described discrete programmes conducted by nurses not involved in the participants usual care, while two (Hillebregt et al., 2016; Padilha et al., 2015) detailed the integration of self-management support

Table 3
Characteristics and key findings of studies included in the systematic review.

Study	Theoretical framework underpinning self-management intervention	Components of self-management programme	Frequency, duration and setting of intervention	Nurse delivering programme	Key findings/ themes
Benzo et al. (2013)	Motivational interviewing	-Use of an Emergency Plan (self-administration of medication during an exacerbation) -Breathing awareness practice -Daily physical exercise -Personalised action plan (could include: smoking cessation; managing fatigue and stress; medication adherence; relaxation; communication and relationships)	-Weekly inpatient sessions for 8 weeks. First session was 60 minutes, followed by 30 minutes subsequent sessions of self-management training and 60 minutes of pulmonary rehabilitation	Registered nurses	-New knowledge about COPD and self-management of COPD -Increased physical activity -Improved breathing -The relationship with the interventionist was valued
Benzo (2013)	Motivational interviewing	Motivational interview-based coaching: - Exploration of awareness of physical activity, ambivalence toward exercise and lifestyle changes - Discussion of strategies including pursed-lip breathing, pacing strategies for exertion, and the use of emergency plans. - Completion of daily log of physical activity and symptoms followed by discussion with the interventionist -Action planning on topics of the patient's choice (i.e. physical activity, stress/emotions or breathing)).	Motivational interviewing: 10 health coaching telephone calls of 15–20-minute duration over 3 months (weekly calls during 1 st and 2nd month, bi-weekly calls during 3rd month)	Trained nurses	Motivational interviewing: -Value of supportive communication -Increased accountability -Increased physical activity -Sense of wellbeing -Increased awareness
	Mindfulness	Mindfulness intervention: - Using mindfulness in daily life - Sitting meditation with awareness of breathing -Body scan (awareness of bodily sensations -Gentle stretching exercises -CD with daily mindfulness exercises	Mindfulness: 8 weekly 2-hour sessions, plus a monthly meeting for 1 year.		Mindfulness: -Feeling connected to others with a similar experience - Seeing hardships as opportunities - Motivation to engage in health behaviours - Increased awareness of physical and emotional cues - Learning to cope with chronic disease
Hillebregt et al. (2016) Netherlands	Chronic care model	Self-management Interventions/ consultations embedded into routine health care and normal standard care. Aspects of changing lifestyle were discussed. Particular emphasis was given to the components: 'information provision', 'training skills', 'self-monitoring', 'maintaining behavior change', 'social support' and 'managing emotions'. Patient-centred goals were discussed.	Routine consultations with health care professionals, primarily nurses. The majority of patients had only one consultation, 4 had 2 consultations.	Pulmonary nurse specialist, nurse practitioner, practice nurse	-Barriers to self-management - Need for change in healthcare -Self-management interventions - Social support -Computer use - Communication -Proactive role -Organisation of healthcare -Patient-healthcare provider interaction
Johnston et al. (2009)	Self-efficacy theory	-Education and training on strategies to manage and cope with dyspnea -Exercise -Support and reinforcement from the study nurses -Peer interaction	−6-month study Setting and frequency not described.	Trained study nurses	-Accountability to nurses -Monitoring symptoms and exercise - 'Hassle factor' of technology
Jonsdottir (2007)	Nursing partnership	No prescribed format. Participants were asked to discuss their concerns with regards to COPD and nurse-researcher responded to whatever emerged. Topics included: -Emotional issues -Smoking cessation -Communication with family -Breathing difficulties -Medication use and its side effects -Symptom monitoring -Accessing healthcare -Communicating with healthcare professionals -Exercise Goal setting	Varying number of 1-hour conversations between couples and nurse-researcher. Number = 1-7, average number was 4. Time frame of contact ranged from 4-14 months	Nurse, background not specified	-Finding coherence in life with symptoms and treatment regimens - Living life fully and taking things as they come -Efficient use of health care

Table 3 (*Continued*)

Study	Theoretical framework underpinning self-management intervention	Components of self-management programme	Frequency, duration and setting of intervention	Nurse delivering programme	Key findings/ themes
Kasikci (2010)	Self-efficacy theory	-Education component consisting of pathophysiology of COPD, self-care instruction and social support. - A training and exercise component focused on respiratory muscle training, breathing re-training, aerobic and anaerobic exercise, and relaxation training.	Intervention implemented over an 8-week period. Twice weekly, 1-hour, 1-to-1 classes for the first 4 weeks, followed by 4 weeks of 10-15-minute telephone discussions (number unspecified).	Nurse, background not specified	-Gaining confidence -Learning about COPD -Identifying resources -Responsibilities and accountability -Dealing with emotions
Langer et al (2014)	Not stated	- Formal cognitive-behavioural interventions -Education and information on COPD - Health behaviour advice (exercise, collaborative goal setting; relaxation techniques) - Practical help (liaison with practice staff and social services) - Sign-posting patients to third sector services (voluntary groups and advice centres) -Addressing social issues (applications for state benefits, bus passes and disability parking badges, volunteering and employment).	−4 × 1-hour sessions, with an option of a further 4 if required (mean 4.3, range 3-7). -Patients seen either in their own homes, at the GP practice, or had telephone consultations. -Duration not specified.	General nurse and mental health nurse	-Being listened to -Relationship with interventionist -Being valued and invested in -Deviant cases: some patients felt they were beyond help
Milne et al (2009)	Not stated	-Exercise -Goal setting -Breathing techniques - Managing medication -Education and information on COPD	−12-month programme -Weekly follow-up telephone calls and ongoing visits by a physiotherapist and respiratory nurses. (no further details given)	Respiratory nurses	-Hope to keep on keeping on -Hope through empowerment -Hope thrives through social support
Monninkhof et al (2004a)	Self-efficacy theory	–Education and information on COPD - Managing breathlessness -Exercise -Relaxation - Energy conservation - Nutrition -Communication and social relationships - Guidelines and emergency medication for self-management of an exacerbation	−5 × 2-hour group education sessions. Four sessions were given with a 1-week interval and the final session was given 3 months after the 4th session. -A fitness programme, consisting of one or two 1-h small group training sessions per week for the duration of the study (2 years)	Specialist respiratory nurses	-Positive view of fitness programme -Value of peer support -Improved symptom control -Favourable view of self-treatment of exacerbation - Increased confidence - Feeling safer
Mousing and Lomborg (2012)	Not stated	-Disease education (COPD, lung anatomy and physiology, pathology, medications, smoking cessation, management of symptoms, breathlessness, and exacerbations, anxiety reduction, improvement of self-care ability, nutrition energy-conserving techniques, benefits of physical exercise). -Physical training (endurance and strength training, breathing techniques, cough exercises, relaxation - Goal setting	8 weekly group sessions, each lasting 2 hours. 1 hour of education and 1 hour of fitness physical exercise training	Specialist nurse	-Ability to handle COPD symptoms - The social aspect of patient education -The time aspect: ripening period
Padilha et al. (2015)	Not stated	-Little detail. An action research project aimed at promoting knowledge and skills of patients in self-care management during usual outpatient consultations. -Development of self-awareness for change; hope development; involvement in the management of health status and development of knowledge and skills to manage the treatment regimen -Use of inhalers and management of dyspnoea	Routine consultations with nurses on the medical ward and outpatient clinics of a general hospital.	Nursing school teacher and other nurses (background not specified)	-Moving from a model of care founded on treatment and stabilization to one which introduced patients to self-care activities. -Documenting the decision-making process to facilitate continuity of care and monitoring of results -Providing guidelines and resources for nurses to promote patients' self-management skills
van Kruijssen et al. (2015)	Not stated	-Monitoring symptoms -Goal setting -Use of medication	-Patients kept an interactive, online self-management diary -Information and advice could be	Pulmonary nurse practitioners	- Gaining insight into disease progress -Altruistic reasons for participation in self-management studies

		- Managing exacerbations - Information and education on COPD with self-testing - Online consultations with specialist nurses	requested via an e-consult with specialist nurses - Nurse provided individualised information via the electronic diary		- Difficulties with technology - Not acknowledging diagnosis -Lack of disease burden -Preference for face-to-face contact
Walters et al (2012)	Motivational interviewing	-Identification of personal goals and health-related action plans - Used the 'SNAPPS' framework to facilitate behaviour adoption or maintenance: Smoking, Nutrition, Alcohol, Physical activity, Psychosocial well-being, and Symptom management.	–16 telephone calls of varying frequency -Initially weekly then tapering to 2 monthly over 12 months.	Primary care nurses working as community or practice nurses	-Changing smoking behaviour - Changing physical activity -Motivational elements of health-mentoring -Partnership and responsibility
Willis et al (2011)	Self-efficacy theory and transtheoretical model of behaviour change	-Action planning and goal setting with health mentors -Maintenance of daily electronic symptom diaries - Diary information was made available to mentors via the internet and feedback could be requested -Patients encouraged to act on any observed deterioration in symptoms	-Two home visits followed by telephone follow-up -Mentors maintained contact for 12 months	Community health nurses trained in health mentoring	-Altruistic motivation for participation in self-management study -Goal setting not perceived as an integral part of self-management -Symptom diaries often viewed as more useful to researchers than to the patients themselves -Positive view of health mentors, though their purpose not clearly understood.

into the standard care delivered in primary and secondary care. One study (Milne et al., 2009) described 'home based pulmonary maintenance', an intervention delivered by nurses that was included as it comprised key features consistent with self-management, including an iterative process of feedback between the nurse and participant, with goal setting and provision of feedback ((Zwerink et al., 2014).

The level of support offered, as measured by the degree of contact between participants and nurses, varied in the studies evaluated. Some programmes included both scheduled and unscheduled contact, but level of planned contact ranged from two self-management discussions embedded into routine health-care consultations (Hillebregt et al., 2016) to potentially 109 contacts in one study, where weekly sessions continued for two years (Monninkhof et al., 2004). The delivery mode of the interventions varied; most included at least one face-to-face contact, although two (Benzo, 2013; Walters et al., 2012) were conducted solely via telephone communication. In one study, (van Kruijssen et al., 2015) participants interacted with the nurse interventionist via e-consultation.

Face-to-face contact interventions were delivered individually or in groups and in were in some cases combined with telephone contact. Nurses delivering the self-management intervention predominantly had specialist training in respiratory or community nursing. There was considerable variation in the content of the self-management programmes; all included two or more components, but the combination of elements involved differed between studies. Medication management, inhaler technique, recognition and treatment of exacerbations, managing breathlessness, increasing activity, relaxation techniques and smoking cessation were most commonly featured in the self-management programmes.

The theoretical framework underpinning interventions was not clearly specified in several studies, while others drew on more than one approach. Behaviour change models cited included: motivational interviewing (Miller, 1983); mindfulness (Kabat-Zinn et al., 1985); the chronic care model (Wagner et al., 2001); self-efficacy theory (Bandura, 1977,1986); the transtheoretical model of behaviour change (Prochaska and DiClemente, 1983) and nursing partnership (Jonsdottir et al., 2003).

3.4. Patient perceived impact of nurse-led self-management interventions for COPD

Four key themes emerged that described how patients experience and value their participation in nurse-led self-management programmes: 1) empowerment through new knowledge 2) psychological wellbeing 3) expanding social worlds and 4) increased physical activity. Participant quotes are included in the text to validate the data presented for each theme.

3.4.1. Empowerment through new knowledge

Participants in most studies reported an improved knowledge of COPD pathology, symptom recognition, medication and treatment (Benzo, 2013; Benzo et al., 2013; Kasikci, 2011; Langer et al., 2014; Milne et al., 2009; Monninkhof et al., 2004a; Mousing and Lomborg, 2013; Padhila et al., 2016; Van Kruijssen et al., 2015). This enhanced insight led in turn to feelings of increased confidence and security in understanding and managing their symptoms. Participants described a previous lack of knowledge of COPD and anatomy: '*It has helped me to know what COPD is. They showed us pictures and a model of the lung. I didn't know it was actually in the lung*' (Milne et al., 2009, p303). The value patients placed on new knowledge gained through self-management programmes was rooted in the alternative, positive narrative it provided, which contrasted with the previously held negative views they had held about COPD and their prognosis: '*You have sort*

of imagined your lungs to be like . . . ah . . . a big lump of coal . . . and absolutely useless, but as it turns out there are still a lot of opportunities' (Mousing and Lomborg, 2012, p22). Patients reported several key areas of learning that were useful, including: breathlessness control (Milne et al., 2009; Monninkhof et al., 2004a; Mousing and Lomborg, 2012) use of medication (Milne et al., 2009; Padhila et al., 2016) and awareness of symptoms and their management (Benzo, 2013; Milne et al., 2009; Monninkhof et al., 2004a; Mousing and Lomborg, 2012). Learning breathing exercises was a highly effective method to increase participant self-confidence in coping with episodes of dyspnoea and resulted in feelings of empowerment: "*If I get an attack (of breathlessness), then I sit down and try to breathe as quietly as possible until everything goes back to normal. This is a result of the education course*" (Monninkhof et al., 2004a, p181). The interventions increased knowledge of medications for COPD, which also impacted positively on their confidence and autonomy:

'I found for a start that I was using the spacer wrongly. They taught me how I was supposed to use it. I learnt that there are small spacers that you can take with you that fit into your handbag' (Milne et al., 2009, p303). Insight into exacerbations increased with knowledge gained during the self-management programmes, with patients reporting increased ability to manage these episodes and a sense of control over COPD: '*. . . learning more information about the danger signs of infection has helped keep me out of hospital*' (Kasikci, 2011, p6). Underlying this increased ability to respond to exacerbations effectively was a view that new knowledge acquired had enhanced insight into their symptoms and enabled the participants *to 'listen to their body signals'* (Monninkhof et al., 2004a, p177).

In contrast, some participants in one study resisted developing further insight into their condition, as they preferred not face the reality of COPD *'I don't want to be confronted with my disease constantly. I do not need to know everything about my illness . . . '* (Hillebregt et al., 2016, p129). Furthermore, van Kruijjsen (2015) reported that increased knowledge of COPD did not always translate into behaviour change as participants were reluctant to initiate self-treatment of exacerbations. Some participants developed an appreciation of the knowledge and skills they had acquired only through participating in discussions at the end of the intervention *'it has been there, and I've used it* [the knowledge and tools of patient education] *. . . without really thinking "what is it I'm doing?"'* (Mousing and Lomborg, 2012, p23). Despite this contradictory data, most studies discussed increased knowledge and linked this to increased security, confidence and mastery in self-management of COPD.

3.4.2. Psychological wellbeing

Participants in several studies reported improvements in anxiety and depression and an Increased ability to deal with negative emotions (Benzo, 2013; Jonsdottir, 2007; Kasikci, 2011; Langer et al., 2014; Milne et al., 2009; Mousing and Lomborg, 2012; Willis et al., 2011). Patients discussed the negative impact of COPD diagnosis on their mental health, and the opportunities that self-management afforded to develop hope and more positive beliefs about what the future might hold: *"When I was feeling worried and down in the dumps, all I could see were bad things. But I learned that by using the right resources and being responsible, I could let go of feeling bad, and start feeling good!"* (Kasikci, 2011, p7). Participation in self-management interventions provided opportunities to ameliorate low mood through several different mechanisms. Some programmes (i.e. Benzo, 2013; Langer et al., 2014) contained a formalised cognitive behavioural element that was identified as valuable in overcoming depression. In other studies (Milne et al., 2009; Willis et al., 2011) the formulation of achievable short-term goals such as improvements in physical activity was an effective strategy in overcoming low mood as the knowledge that an activity could be completed reduced psychological distress. For some participants, feelings of wellbeing were linked to the emotional and social support provided by nurses, or by other participants in group-based interventions.

Several interventions contained elements aimed at reducing anxiety which participants found beneficial. Relaxation exercises were taught using either aids such as CDs (Langer et al., 2014) or in face-to-face sessions with nurses (Kasikci, 2011). Breathing exercises were seen as a means to control dyspnoea, and also a method of overcoming anxiety through relaxation: *"I was getting so, you know, anxious about it and everything, and now I've been shown to sit down and take deep breaths . . . it helped me a lot"* (Willis et al., 2011, p1276). Anxiety was also reduced by the sense of safety participants derived from involvement in self-management programmes. Feelings of security developed as confidence in recognising and responding to physical changes in the body grew. Patients also perceived a sense of protection derived from contact with the nurses: *"You feel you are in capable hands. They check you again, whether something else is wrong. I really appreciated that"* (Monninkhof et al., 2004a, p181).

3.4.3. Expanding social worlds

Social aspects of the self-management programmes were identified by participants as critically important benefits gained from their involvement (Benzo, 2013; Langer et al., 2014; Milne et al., 2009; Monninkhof et al., 2004a; Mousing and Lomborg, 2012; Padhila et al., 2016; Walters et al., 2012; Willis et al., 2011). Two sources of social support were identified: the nurse interventionists and peer groups. Participants were appreciative of the care and support offered by nurses, often describing it as friendship: *"It's like sitting down with my sister or a neighbour . . . she'd come in, take her coat off, sit down, get a cup of tea . . . she was a natural"* (Langer et al., 2014, p5). The relationship between patients and nurses was seen as a partnership which facilitated behaviour change, not only through providing information and strategies, but also through valuing and believing in their capacity to make positive choices. This in turn encouraged and motivated participants through a sense of accountability to achieve what had been agreed with the nurse: "*. . . it was a just support and motivation. Like if I knew she was ringing I would think I better go and do a couple of walks, because she is going to bloody ask me"* (Walters et al., 2012, p5). Where self-management support was delivered during routine consultations, the infrequency of contact between participants and nurses was a barrier to the development of a trusting relationship that facilitated behaviour change (Padhila et al., 2017).

Group self-management training gave participants the opportunity to interact with others with COPD and this aspect of the interventions was perceived as highly beneficial (Benzo, 2013; Monninkhof et al., 2004a; Mousing and Lomborg, 2012). Many patients had previously experienced social isolation caused by the restrictions COPD placed on their social activities: "*I felt like an outsider- outside a group of people that I had known for over 40 years and it was really distressing"* (Mousing and Lomborg, 2012, p22). Learning with others who had experienced a similar condition presented participants with the opportunity to feel connected with those who understood and accepted their difficulties*: "And then you think to yourself: I am not the only one who has COPD"* (Monninkhof et al., 2004a, p180). This social fellowship provided motivation as well as support, as participants were inspired by seeing others engaged in physical activity. Peer support also helped participants to maintain behaviour change; in two studies patients continued to meet many months after the intervention ended (Benzo, 2013; Mousing and Lomborg, 2012). In contrast, participants in individual home-based exercise programmes lacked the motivation and encouragement provided by peers: *"I think I need*

others to gee me up. I do the ones that don't bore me, but not every day" (Milne et al., 2009).

3.4.4. Increasing physical activity

Participants in most studies discussed changes in health behaviour related to physical activity (Benzo, 2013; Johnston et al., 2009; Jonsdottir, 2007; Kasikci, 2011; Langer et al., 2014; Milne et al., 2009; Monninkhof et al., 2004a; Mousing and Lomborg, 2012; Padilha et al., 2015; Walters et al., 2012; Willis et al., 2011). Analysis of the studies indicated that physical activity was the most frequently mentioned and seemingly the most important component of self-management interventions. Patients were highly positive about exercise programmes, valuing their increased exercise capacity: "*I started walking and exercising . . . I used to get winded doing the steps up one floor. Now I'm up to four floors".* (Benzo, 2013, p12). Some mechanisms by which activity was increased have been discussed above: participants perceived a sense of responsibility towards nurses to participate on exercise or were motivated by solidarity with their peers. Although goal setting was a device commonly employed by nurses to encourage physical activity, many participants did not find this process useful or necessary (Willis et al., 2011). Participants who were already moderately active saw goal setting as superfluous, while constraints imposed by severe co-morbidity limited the ability of others to achieve goals: " *. . . I just hope I can continue because of the osteoporosis and arthritis I have not been doing the exercises, but I go for a walk"* (Milne et al., 2009, p302). Involvement in self-management interventions led many participants to consider their daily activities, and behaviour change was achieved through simple strategies such as incorporating additional walking or cycling into daily routines to increase physical activity: *"Parking in say one spot and going to the post office and bakery and chemist from the one spot instead of going to the chemist and getting in the car and driving down to the bakery and post office"* (Walters et al., 2012).

Other self-management behaviours, such as medication use and management of exacerbations, appeared as much more minor themes in the studies, and even smoking cessation featured far less frequently than physical activity. In some studies, there were reports of participants changing behaviour change around smoking (Jonsdottir, 2007; Walters et al., 2012), while in another (Willis et al., 2011) patients identified smoking cessation as a desirable goal yet had no conviction that they could realistically achieve this. Many patients had already stopped smoking.

4. Discussion

This review aimed to synthesise qualitative studies that address the benefits of nursing interventions to support COPD self-management from a patients' perspective. It was evident from the 14 qualitative papers included in this systematic review that participants regarded these programmes positively. The findings highlighted four major themes describing benefits that patient perceived they derived from involvement in these interventions: increased knowledge, improved psychological well-being, enhanced social interaction and increased physical activity.

4.1. Empowerment through new knowledge

The self-management interventions involved the provision of disease specific information and lifestyle advice, and as with previous research (Adams et al., 2007; Harrison et al., 2015; Baker and Fatoye, 2017a), participants reported increased knowledge of COPD and its management. Increased knowledge alone, however, does not improve the everyday lives of patients with COPD (Bourbeau et al., 2004; Blackstock and Webster, 2007) and key differences between traditional patient education and self-management education have been identified. Self-management teaches problem solving skills rather than simply imparting information; problems are patient identified rather than delineated from the perspective of health care professionals and techniques that aid patient decision making are included (Bodenheimer et al., 2002). Increased knowledge is the first step in a causal model that leads to changed health behaviour. Self-efficacy is a key concept in self-management; this is the individual's confidence in their ability to carry out a behaviour necessary to reach a desired goal (Bandura, 1977, 1986). As patients acquire skills and knowledge in managing their condition effectively, they develop greater confidence and a sense of control over their disease (Monninkhof et al., 2004a). Subsequently, patients develop a more positive attitude with increased hope for the future. Improved self-confidence and self- efficacy are thus seen as important mediating variables in the process of promoting long-term behaviour change (Stellefson et al., 2012). Increased self-efficacy has been identified as a predictor of reduced psychosocial impact of COPD, increased physical activity and higher health related QoL (Bentsen et al., 2012).

Participants reported increased confidence with greater knowledge, which is perhaps predictable as developing self-efficacy and goal achievement were common concepts across the studies. This finding was not universal, however, with participants in Van Kruijssen et al. (2015) study reporting that they did not initiate self-treatment of COPD exacerbations, even though they had the tools and knowledge to do so. This contrasted with asthma patients in the same study who adjusted their medication in response to their symptoms. Participants in this study could trigger an e-consult with nurse but did not routinely receive support when commencing self-management diary use. Van Kruijssen et al. (2015) suggest that nurse support when starting self-management diary use could improve patients' self-management ability. Mousing et al (2012) also suggest that a greater time investment at specific points in the self-management programme could enhance its effects. Patients in this study stated that the interview process itself helped them to reflect on their progress and re-evaluate the positive effects of the intervention. De-briefing at the end of an intervention could therefore be useful in reinforcing the support given. Patients with COPD may have low levels of health literacy (Roberts et al., 2008) and additional time may be necessary to provide more intense support than is required by patients with other long-term conditions. In two studies in which self-management support was integrated into routine consultations (Hillebregt et al., 2016; Padilha et al., 2015), time constraints led to an emphasis on the monitoring and assessment aspects of COPD. This focus also inhibited patients who seemed unfamiliar with the role of pro-active patient (Hillebregt et al., 2016).

4.2. Psychological wellbeing

Depression is more prevalent in COPD patients compared to the general population (Wilson, 2006; Yohannes and Alexopoulos, 2014) and patients in the included studies described experiencing low mood following diagnosis. Previous quantitative reviews have not reported any effect from self-management interventions on this comorbidity (Taylor et al., 2005; Majothi et al., 2015; Zwerink et al., 2014). Conversely, participants with COPD in this qualitative review did perceive positive psychological effects. Some programmes in the included studies were not explicitly psychological interventions but did include the use of psychotherapeutic techniques which patients identified as beneficial (i.e. Benzo et al., 2013; Benzo, 2013; Langer et al., 2014). Nurses in these studies received additional training in strategies to promote psychological wellbeing. Less than one-third of COPD patients with comorbid depression or anxiety receive appropriate treatment,

and when untreated these comorbidities have adverse effects on physical functioning and social interaction and may increase fatigue and healthcare utilisation (Yohannes and Alexopoulos, 2014). While improving self-efficacy is fundamental to reducing the psychosocial impact of COPD, these factors suggest that a greater emphasis on psychological support is also required to maximise the effects self-management interventions.

Anxiety is also more common in patients with COPD than with other chronic conditions and is linked to number of factors including restrictions in daily activities due to dyspnoea, frequency of hospitalisations, and the progressive, disabling nature of the disease (Booker, 2005; Willgoss and Yohannes, 2013). Participants in the included studies recognised breathing and relaxation exercises as beneficial techniques in lowering anxiety, and reductions in anxiety have also been reported in reviews of quantitative studies (Harrison et al., 2015; Majothi et al., 2015; Baker and Fatoye, 2017a). A further mechanism by which anxiety was reduced was identified by participants in this qualitative study. Patients reported feelings of safety and security engendered by the frequent monitoring, follow-up visits and contact with health professionals associated with self-management interventions. Monninkhof et al. (2004a) accept that the value placed on feeling safe seems contradictory to principles such as empowerment and responsibility that are fundamental to self-management education. However, the authors emphasise that some aspects of self-management, particularly self-management of exacerbations, cannot work without adequate backup from healthcare professionals.

4.3. Expanding social worlds

Social contact with other COPD patients was a highly valued aspect of group based self-management programmes that was also closely linked to psychological wellbeing. Social isolation is frequently reported by patients with COPD, due both to functional impairment and the social stigma of a disease often judged to be self-inflicted through past smoking behaviour (Williams et al., 2007). The importance of peer support was emphasised by participants who greatly appreciated talking with someone who understood and empathised with their situation. The group aspect of exercise programmes can be seen as essential to the overall purpose of the programmes as it not only provides social support, but is also seen by patients as motivating, inspiring and stimulating (Mousing and Lomborg, 2012; O'Shea et al., 2007). One of the included studies (Monninkhof et al., 2004a) was the qualitative arm of a mixed methods study and a discrepancy was noted between the positive effects reported by patients during interviews and the lack of effect on health related QoL as measured in by the St George's Respiratory Questionnaire (SGRQ) (Jones et al., 1991). The authors suggested that this is because the SGRQ Impact domain does not measure disease specific social isolation or the importance of social support. The SGRQ is an outcome measure that is frequently used in self-management studies and it may fail to capture emotional and social aspects of patients' health status and may therefore underestimate the impact of nurse-led self-management interventions.

Improved social interaction was perceived by patients in individual face-to-face and telephone interventions as they valued contact with the nurse interventionists. Regular personal contact may influence patients' self-management capacity, as demonstrated in a trial which included a placebo arm where usual care patients received empathetic phone calls which contained no self-management education (Walters et al., 2013). Improvements in self-management capacity and anxiety were seen in both intervention and control groups. Hillebregt et al. (2016) consider social support to be essential to self-management as exploring the patient's social context, including daily activities, motivation and values, is necessary to formulate a personalised health plan. One of the included studies (van Kruijssen et al., 2015) consisted entirely of an online self-management diary, with no scheduled interaction between participants and nurses who monitored the diaries. Participants in this study did express a desire to have at least one face-to-face meeting with a nurse. Although internet-based self-management programmes have been shown to be effective for other long-term conditions including diabetes (Pal et al., 2013), a recent Cochrane review could not conclude that these interventions are beneficial for people with COPD due to the paucity of good quality studies on which to base recommendations (McCabe et al., 2017). Due to the greater prevalence of social isolation and low levels of health literacy, computer-based self-management interventions may be less effective in supporting self-management in patients with COPD.

4.4. Increasing physical activity

Every included study included an element that addressed physical activity, either by including an exercise programme, or through discussion or advice. Participants frequently expressed a positive view of this aspect of self-management during interviews. Strategies to increase physical activity levels are included in COPD self-management programmes to break a downward spiral of increasing breathlessness and disability. Dyspnoea attacks may trigger anxiety, resulting in exercise avoidance and increased inactivity. This in turn causes diminished fitness, increasing breathlessness and difficulties with activities of daily living (Booker, 2005). The efficacy of physical exercise as a component of self-management his arguable. Physical exercise is a key component of pulmonary rehabilitation (PR), a strategy recognised as effective in alleviating symptoms and optimise the functional capacity of patients with COPD (Lacasse et al., 2006; McCarthy et al., 2015) and it has been suggested that it is this aspect of self-management that produces positive results (Rimington, 2011). A quantitative evaluation by Zwerink et al. (2014), however, reported improved QoL and reduced respiratory-related hospital admissions with self-management support in the absence of exercise components.

This qualitative review explored further evidence on the benefits that people with COPD perceive are conferred by physical exercise. Participants in two studies emphasized that the social aspect of group exercise was highly valued (Monninkhof et al., 2004a; Mousing and Lomborg, 2012) but Monninkhof et al reported that patients did not become more active outside the exercise programme. In some cases, patients were already moderately active (Monninkhof et al., 2004a) while others were limited by co-morbid conditions (Milne et al., 2009). Two included studies (Monninkhof et al., 2004a; Walters et al., 2012) represented the qualitative arm of RCTs that did not report improvements on health related QoL (Monninkhof et al., 2003b, b; Walters et al., 2013). The incongruence between the results of quantitative studies and the effects revealed in qualitative interviews perhaps supports Dixon-Woods (2007) assertion that the general sense of well-being and perceived improved function so highly valued by patients should not be dismissed, despite the difficulty in measuring them quantitatively. Additionally, some participants were resistant to goal setting, although it was a method nurses frequently employed to encourage physical activity. Increases in physical activity were often successfully implemented when participants incorporated additional activity in to their everyday pursuits. This highlights the importance of understanding and accepting the social, psychological and environmental context of patients' lives. Goal setting should aim to develop individualised, patient-centred goals rather than targeting health behaviours based on the priorities and preferences of health professionals.

4.5. Implications for practice

The findings of this review indicate that patients value nurse-led self-management, but time constraints make it difficult to include this aspect of care in routine appointments. Due to lower health literacy and social isolation, patients with COPD may need intense support from nurses, particularly at the beginning of a self-management intervention. De-briefing at the end of a programme may help consolidate self-management skills. When engaging in collaborative goal setting, nurses should consider the complexities of patients' lives and aim to develop goals that have relevance for individual patients.

The psychological and social support provided by self-management interventions was highly valued by patients, yet some programmes contained neither element. The allocation of time for group based self-management could address social isolation faced by many patients. Enhanced training in psycho-therapeutic techniques could enable nurses to manage the anxiety and depression that is so prevalent amongst COPD patients. The sense of security provided by nurse contact is also vital to patients' psychological wellbeing, and adequate access to professional advice and care is essential to patients' ability self-manage. This is particularly relevant when patients are encouraged to self-treat exacerbations.

4.6. Implications for research

Interventions in the studies included in this review were highly variable in terms of length, content, mode of delivery and components, making any conclusions on patient perceived benefits problematic. The effectiveness of the different components of self-management interventions should be evaluated which could lead to the formulation of more standardised approaches. Further research is required to evaluate the benefits computer-based self-management interventions for patients with COPD. It is possible that augmenting this type of intervention with limited face-to-face contact with nurses or with connections with other COPD patients may enhance their effectiveness by adding a social and supportive aspect. Future studies should focus on which features of physical exercise programmes affect patient wellbeing as it is unclear as to what degree the social element confers benefit. Finally, this review suggests that quantitative outcome measures may fail to capture the impact of self-management from the patients' perspective. The development of measures that reflect the improvements that patients perceive in psychological, social and general wellbeing could facilitate a more comprehensive evaluation of nurse-led self-management interventions.

4.7. Strengths and limitations

This review was guided by the ENTREQ statement (Tong et al., 2012). A major strength of this review is the broad search strategy which is likely to have identified all articles relevant to the aims of the qualitative synthesis. It is acknowledged, however, that the comprehensive scope of the systematic search was limited by the non-inclusion of grey literature and non-English language papers. The review included data from large numbers of participants from diverse populations, however, the focus on Western countries may limit generalisability to other settings as there may be cultural differences in how people perceive and engage with self-management.

The process of synthesis is dependent on the interpretations of the authors and it is possible that original experiences or analyses were misconstrued, however, the use of framework method of synthesis and involvement of two reviewers improves robustness and transparency of coding (Dixon-Woods, 2011). Combination of data from several theoretical and methodological perspectives (i.e. grounded theory, phenomenology) could be considered a strength of this review as triangulation of findings is achieved by combining data from multiple approaches (Finfgeld, 2003).

5. Conclusion

Patients' evaluations of nurse-led self-management were generally positive and recognised a number of benefits that enhanced their physical, psychological and social wellbeing. Deficits in the self-management interventions offered were also identified. The synthesis of qualitative data extracted from the original studies revealed common themes that expands the understanding of the experience of self-management from the perspective of patients. Consequently, implications for practice and proposals for areas that merit further research are presented which could contribute to the development of acceptable and effective self-management strategies.

Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:https://doi.org/10.1016/j.ijnurstu.2018.12.004.

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