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Complete List of Authors:	Graham, Fiona; Newcastle University, NIHR Policy Research Unit in Behavioural Science Tang, Mei ; Newcastle University, NIHR Policy Research Unit in Behavioural Science Jackson, Katherine; Durham University, Department of Sociology Martin, Helen; North of England Commissioning Support (NECS) O'Donnell, Amy; Newcastle University, NIHR Policy Research Unit in Behavioural Science Ogunbayo, Oladapo; Newcastle University , Population Health Science Institute Sniehotta, Falko; Newcastle University, NIHR Policy Research Unit in Behavioural Science; University of Twente, Faculty of Behavioural, Management and Social Sciences Kaner, Eileen; Newcastle University, NIHR Policy Research Unit in Behavioural Science
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Barriers and facilitators to implementation of shared medical appointments in primary care for the management of long-term conditions: a systematic review and synthesis of qualitative studies

[1]Fiona Graham, fiona.graham@newcastle.ac.uk*
[1]Mei Yee Tang, meiyee.tang@newcastle.ac.uk
[2]Kat Jackson, katherine.l.jackson@durham.ac.uk
[3]Helen Martin, helen.martin11@nhs.net
[1]Amy O'Donnell, amy.odonnell@newcastle.ac.uk
[1]Oladapo Ogunbayo, oladapo.ogunbayo@newcastle.ac.uk
[1]Falko Sniehotta, falko.sniehotta@newcastle.ac.uk
[1]Eileen Kaner, eileen.kaner@newcastle.ac.uk

1 NIHR Policy Research Unit in Behavioural Science, Population Health Science Institute, Newcastle University, Newcastle upon Tyne, UK
2 Department of Sociology, Durham University, Durham, UK
3 North of England Commissioning Support (NECS), Riverside House, Newcastle upon Tyne, UK

*Corresponding author

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ABSTRACT

Objective: To synthesise the published literature on practitioner, patient and carer views and experiences of shared medical appointments (SMAs) for the management of long-term conditions in primary care.

Design: Systematic review of qualitative primary studies.

Methods: A systematic search was conducted using MEDLINE (Ovid), PsycINFO (Ovid), CINAHL (EBSCOhost), Web of Science, Social Science Premium Collection (Proquest) and Scopus (SciVerse) from database starting dates to June 2019. Practitioner, patient and carer perspectives were coded separately. Deductive coding using a framework approach was followed by thematic analysis and narrative synthesis. Quality assessment was conducted using the Critical Appraisal Skills Programme for qualitative studies.

Results: We identified 18 unique studies that reported practitioner (n=11), patient (n=14) and/or carer perspectives (n=3). Practitioners reported benefits of SMAs including scope for comprehensive patient-led care, peer support, less repetition and improved efficiency compared to 1:1 care. Barriers included administrative challenges and resistance from patients and colleagues, largely due to uncertainties and unclear expectations. Skilled facilitators, tailoring of SMAs to patient groups, leadership support and teamwork were reported to be important for successful delivery. Patients' reported experiences were largely positive with the SMAs considered a supportive environment in which to share and learn about selfcare, though the need for good facilitation was recognised. Reports of carer experience were limited but included improved communication between carer and patient.

Conclusions: There is insufficient evidence to indicate whether views and experiences vary between staff, medical condition and/or patient characteristics. Participant experiences may be subject to reporting bias. Policies and guidance regarding best practice need to be developed with consideration given to

resource requirements. Further research is needed to capture views about wider and co-occurring conditions, to hear from those without SMA experience and to understand which groups of patients and practitioners should be brought together in an SMA for best effect.

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Keywords: Shared medical appointments, qualitative, chronic disease, long-term condition, self-management, systematic review

STRENGTHS AND LIMITATIONS OF THIS STUDY

- Focus on qualitative evidence provides rich insights into barriers to implementation of SMAs in primary care from the perspectives of practitioners, patients and carers.
- Robust search strategy, based on previous high-quality reviews; refined to allow us to better identify qualitative research
- The thematic synthesis approach has enabled the identification of analytical themes that offer a new interpretation practitioner and patient experiences of SMAs beyond earlier reviews.
- Rapidly evolving area of practice and publications and the most recent evidence may be missing
- Grey literature was excluded from the synthesis

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Competing interests

None to declare

Checklist

See supplementary material for ENTREQ checklist (Enhancing transparency in reporting the synthesis of qualitative research)

INTRODUCTION

Over 15 million people in England are living with one or more long-term conditions [1]. Such multimorbidity is more prevalent in those over 65 years, and in socio-economically deprived areas [2,3]. Long-term conditions require ongoing disease management and care, which consumes a significant amount of healthcare service delivery time [4]. Models of care that support patient self-management (or self-care) are at the centre of government policies worldwide [5] including NHS plans [6,7]. Shared medical appointments (SMAs), or group consultations, have been promoted as a new way of delivering primary care, to simultaneously improve patient self-management and resource use efficiency[8,9].

SMAs typically involve a group of patients with the same long-term condition(s) meeting with one or more healthcare practitioners. In contrast to group education programmes, the SMA usually replaces a 1:1 appointment and may include physical examinations, medication adjustments or other clinical interventions[8,10]. It has been theorised that SMAs may improve patient self-efficacy by enabling participants to witness the consultation experiences of others and observe disease management strategies of peers who act as realistic role models for their own self-care [4,10]. Whilst there is some evidence that SMAs can support self-management of long-term conditions [4], it is important to understand the feasibility and acceptability of implementing SMAs from the perspectives of primary healthcare practitioners, patients and carers to ascertain if this model of care can meet their needs and reduce health inequalities.

It has been reported that practitioners enjoy SMAs, sighting benefits including development of team relationships, learning

from patients, more variety in work [4,10]. Patients attending SMAs have also reported feelings of socialisation or normalisation of a condition, increased trust with healthcare practitioners and enhanced knowledge [4,11]. However, a small number of studies have reported patient concerns, including confidentiality and being unclear about the purpose of a session [4]. Providers have reported concerns around insufficient clinician and group facilitation training for SMAs and the need for suitable premises [4,11,12]. Earlier reviews have focused on secondary care [4] which is typically disease specific with time-limited follow-up after specialist treatment [11]. In contrast, primary care has an emphasis on ongoing disease management, often including multiple conditions, and care continuity. Hence this systematic review of qualitative research aims to provide an in-depth insight into the experiences and perceptions of SMAs for the management of long-term conditions in primary care including identifying barriers and facilitators regarding implementation.

Review research questions:

1. What are patient and practitioner views and experiences of SMAs in primary care?
2. Do these views and experiences vary by long-term condition and/or other patient/ practitioner characteristics?
3. What does the literature tell us about potential barriers and facilitators to the delivery and uptake of SMAs in primary care?

METHODS

A systematic review and narrative synthesis of qualitative studies was conducted.

Search strategy and selection criteria

We searched MEDLINE (Ovid), PsycINFO (Ovid), CINAHL (EBSCOhost), Web of Science, Social Science Premium Collection (Proquest) and Scopus (SciVerse) from database start dates to June 2019. A combination of keywords and medical subject headings (MeSH) to locate relevant qualitative studies were used. See Supplementary File 1. Database searches were supplemented by forward and backward citation searches of the included papers.

Primary qualitative studies were included that: i) explored the views of primary healthcare practitioners, staff, patients or carers that had been involved in the delivery of/ or attended SMAs within primary care, ii) met our criteria to be classed as an SMA (group appointments that: were intended to replace standard 1:1 appointments in general practice; were delivered by primary care practitioners; and included clinical advice and management as well as peer learning and support) iii) had a patient population with at least one long-term condition. For studies in which participants delivered/attended SMAs for both long-term conditions and non-long-term conditions, only data relating the former were extracted and synthesised. Papers were excluded if i) the group session did not include an individual assessment/examination/consultation with a primary healthcare professional; ii) papers reporting survey data only, iii) it was not possible to extract data collected from participants attending SMAs for long-term conditions from those attending SMAS for non-long-term conditions (e.g. antenatal care).
The title and abstracts of retrieved citations were double-screened and where there were discrepancies, screeners met to reach agreement. All studies at the full-text stage were similarly double-screened with any uncertainties resolved by discussion with a third member of the review team.

Quality assessment

Methodological quality of eligible studies was assessed by two independent reviewers using the Critical Appraisal Skills Programme checklist for qualitative studies [13]. This was done to assess conduct (validity and robustness), transparency, content and utility of findings. Studies were not excluded on the basis of this appraisal, as limited reporting is not necessarily indicative of low quality research and risks the exclusion of appropriate studies [14]. The strengths and limitations of each included study were considered during the analysis to ensure that findings from unreliable studies did not unduly influence our results [15].

Data extraction and synthesis

Key characteristics of the included studies and study participants were recorded using a data extraction form, with the extracted data double-checked by another team member. Full text papers were then imported into NVivo (version 12). A framework based on themes previously identified by reviews [4,10] was used to deductively code participant quotes and authors' interpretations in the results and discussion sections of the studies. All data was coded by one reviewer then checked by a second. Data reflecting the views of practitioner, patients and carers were analysed separately.

Data excerpts were compared and contrasted and descriptive themes were formed by merging codes and grouping them around existing themes [4] and emerging themes. This included condensing the existing themes into related /discordant subthemes which were subsequently translated into higher-level themes to better answer the research questions. Texts were re-read and data re-coded according to newly structured thematic framework through an iterative process to ensure these themes best reflected the data. Data excerpts were then examined to look for similarities and differences in the perspectives of practitioners or patients by characteristics (e.g. gender, age).

Patient and public involvement (PPI)

The proposed programme of shared medical appointment research was presented to PPI panel who provided their views and opinions about what potential barriers and facilitators to attending an SMA might be from a patient perspective thus providing insights into potential findings of the review. Our affiliated PPI group read and commented on the draft of this manuscript and have identified several patient community groups through which to share a lay summary of the research findings.

RESULTS

Figure 1 outlines the screening and selection process resulting in the inclusion of 18 studies in the final synthesis.

>Insert< Figure 1 Flow diagram of review search

Quality appraisal

Quality of the included studies was generally high; most papers met the majority of the CASP checklist criteria (Supplementary File 2). Weaknesses commonly related to lack of information about participant recruitment [16–22] and researcher reflexivity, which was missing in all but two studies [23,24].

Overview of included studies

Studies were published between 2004 and 2018 and are summarised in Table 1. Studies report the views and experiences of a total of 262 practitioners, 306 patients, and 39 carers. The majority of studies were from North America, two were from Australia. Only two studies looked at the views of those healthcare professionals that were not delivering SMAs [22,25], the rest of the studies reported the views of individuals with experience of having delivered/ attended SMAs. One study [26] involved virtual SMAs, all others were face to face. One study focused on an SMA for children [16].

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279 *Table 1 Overview of studies and participant characteristics*

				Participants: practitioners				Participants: patients				Participants: carers			
First author & date	**Country**	**Study objective**	**Methodology & data collection method**	**N, occupation**	**Age range**	**% female**	**Ethnicity**	**N**	**Age, years**	**% female**	**Ethnicity**	**N**	**Age**	**% female**	**Ethnicity**
Arney *et al.* 2018[23]	USA	To evaluate the implementation of an evidence-based, diabetes group intervention into routine primary care	Qualitative: interviews	35 (11 behavioural health staff, 18 AHP, 6 administrators)	35-64 years	80%	Varied: white / Caucasian 83%	0	N/A	N/A	N/A	0	N/A	N/A	N/A
Bauer *et al.* 2017[16]	USA	To assess the acceptability of group visits for ADHD in paediatric clinics.	Qualitative: interviews and verbal feedback session	9 (5 paediatricians, 3 AHP, 1 NP)	NR	NR	100% white / Caucasian	41	6-14	24%	Varied: 32% black, 34% Hispanic/ Latino, 18% white	34	53% <40 years, 23% ≥40 years	97	Varied: 33% black, 47% Hispanic/ Latino, 20% white
Cornelio-Flores *et al.* 2018[17]	USA	To assess the feasibility of an adapted Integrative Medical Group Visit curriculum for a Spanish-speaking Latino chronic pain population.	Mixed methods: focus groups and interviews	0	N/A	N/A	N/A	11	Mean 51.6	89%	100% Hispanic	0	N/A	N/A	N/A

Drake *et al.*2018[18]	USA	To assess the feasibility of implementing personalized health planning within SMAs for patients with type 2 diabetes mellitus.	Mixed methods: focus groups and interviews	6 (physician, nurse, AHP, administrators)	NR	NR	NR	8	NR*	NR*	NR*	0	N/A	N/A	N/A
Egger *et al.* 2015[19]	Australia	To measure patients' and providers' attitude and satisfaction with SMAs, and consider the most appropriate form of SMA suited to Australian conditions	Mixed methods: interviews	8 GPs	NR	NR	NR	NR*	NR*	NR*	NR*	0	N/A	N/A	N/A
Housden *et al.* 2016 [25]	Canada	To explore GMVs with nurse practitioners and describe why some are not using GMVs to deliver primary care.	Qualitative: interviews	7 NP	NR	86%	NR	0	N/A	N/A	N/A	0	N/A	N/A	N/A
Housden *et al.* 2017[27]	Canada	To examine NP-led GMVs for patients with chronic conditions and consider the barriers and enablers to implementing GMVs in one Canadian province, British Columbia.	Qualitative: interviews and observations	12 NP	NR	NR	NR	12	40-79	58%	Varied: 83% Euro-Canadian	0	N/A	N/A	N/A

Kowalski *et al.* 2018[28]	USA	To illustrate the role and importance of pre-implementation (early) interviews for guiding ongoing adaptations to improve implementation of a clinical program, achieve optimal change, and avoid type III errors.	Qualitative: interviews	28 (physicians, nurses, AHPs, facilitators and researchers)	NR	NR	NR	0	N/A	N/A	N/A	0	N/A	N/A	N/A
**Lavoie *et al.* 2013[29]	Canada	Explore dimensions identified as key in the patient-centred literature in the context of primary health care services delivered in a group setting.	Qualitative: interviews	34 (10 physicians, 7 NP, 2 nurses, 4 administrators, 11 AHPs)	NR	NR	NR	29	Mean 62	66%	Varied: 55% white, 45% Aboriginal	0	N/A	N/A	N/A
Miller *et al.* 2004[30]	USA	The feasibility of implementing a GMV model with low-income women in an inner-city clinic setting.	Mixed methods: interviews	0	N/A	N/A	N/A	26	NR*	NR*	NR*	0	N/A	N/A	N/A
Siple *et al.* 2015[20]	USA	To understand the experiences of veterans and to learn about the tools and methods they perceive to be most useful in improving patient education and motivation for	Qualitative: focus groups	0	N/A	N/A	N/A	18	30-80	6%	NR	3	NR	100	NR

		self-management of diabetes													
Stevens *et al.* 2014[21]	Australia	The aim was to qualitatively assess patient and provider interest in and attitudes towards SMAs in the Australian primary care context before extending the concept to further testing.	Qualitative: focus groups	46 (GP, nurse, AHP, administrators	NR	67%	NR	49	30–70	43%	Varied: 90% non-indigenous	0	N/A	N/A	N/A
Stowell *et al.* 2015[22]	USA	To provide clinicians with actionable education regarding innovative approaches to delivering care to patients with type 2 diabetes and to evaluate the effect of promoting the adoption of SMVs in clinical practice	Mixed methods: interviews	13 medical students	NR	NR	NR	4	NR*	NR*	NR*	0	N/A	N/A	N/A
Stults *et al.* 2016[31]	USA	To examine the patient's perspective on participation in SMAs	Qualitative: focus groups	0	N/A	N/A	N/A	30	52–93	33%	Varied: 87% white, 7% Hispanic/Latino, 3% Asian/P	0	N/A	N/A	N/A

										acific Islander					
Thompson *et al.* 2014[24]	Canada	To generate insights that could be used to guide the development of an inner-city community health centre's group medical visits (GMV) services.	Qualitative: semi-structured interviews	0	N/A	N/A	N/A	9	46-62	0%	Varied: 'predominantly' white	0	N/A	N/A	N/A
Tokuda *et al.* 2016[26]	USA	To explore whether video-shared medical appointments would improve diabetes outcomes in remote rural settings	Mixed methods: focus groups and interviews	2, NP, AHP	NR	NR	NR	15	NR*	NR*	NR*	2	NR	NR	NR
Thompson-Lastad (2018) [32]	USA	Study of how group medical visits and integrative medicine are combined and implemented for low-income people with chronic conditions.	Ethnography: ethnographic observations interviews conducted in English and Spanish	28 (13 doctors, 1 NP, 5 AHPs, 8 administrators)	NR	79%	Varied: 54% White / Caucasian	25	Mean 58	72%	Varied: 60% Black / African American	0	N/A	N/A	N/A

**Wong *et al.* 2015[33]	Canada	To report whether GMVs have tangible benefits for providers and patients.	Qualitative: interviews	34 (10 physicians, 7 NP, 2 nurses, 4 administrators, 11 AHPs)	NR	NR	NR	29	Mean 62	66%	Varied: 55% white, 45% Aboriginal	0	N/A	N/A	N/A

* Data given for SMA attendees but not separately for study participants

** Same study participants, different data analysis

NA- not applicable, NR = not recorded. Occupations; GP = general practitioner, NP = nurse practitioner, AHP = Allied Health Professional, including pharmacists, dieticians, psychologists, social worker, substance abuse counsellor, nutritionist. Administrators included healthcare/programme managers, primary care/group visit coordinators. Carers included parents/guardians, wives and social support.

The healthcare practitioner views most commonly reported were General Practitioners (GPs), family physicians, practice nurses and nurse practitioners [16,18,33,19,21,24,25,27–29,32]. Fewer studies captured the views of healthcare managers, programme/research coordinators and administrators [18,21,23,28,29,32,33].

The SMAs varied in terms of content, duration, numbers of attendees and frequency of sessions. The majority of studies focused on single condition SMAs (n=12), three reported on both single condition and mixed condition SMAs [29,31,33] and two on mixed condition SMAs only[27,30], and one gave no details [25]. 'Mixed condition' SMAs were for patients with one or more of a number of different conditions, thus included those with one condition and those with multimorbidity. Studies of SMAs for diabetes were most common (n = 15). A summary of the SMAs is given in Table 2.

304 *Table 2 Characteristics of SMAs delivered in reviewed studies*

First author & date	Description of SMAs						
	Duration (minutes)	No. attendees	No. of sessions	Frequency	Long-term condition(s) upon which SMA(s) focused	Attendees	Setting
Arney *et al.* 2018[23]	NR	5 – 7	4	NR	Diabetes (type 1)	Veterans	Hospital and community
Bauer *et al.* 2017[16]	60 - 75	NR	5	Monthly	ADHD	School age children	Academic centre and community
Cornelio-Flores *et al.* 2018[17]	NR	NR	9	Weekly	Chronic pain	Adults, Spanish-speaking Latino population, average age 51.6 years, 89% female	Hospital and community
Drake *et al.*2018[18]	120	NR	8	Monthly	Diabetes (type 2)	Adults, varied ethnicity (74% Black/African-American), average age 55.1, 72% female	Medical Home providing primary care services.
^Egger *et al.* 2015[19]	90	3 – 15	3	Monthly	Multiple single condition SMAs: diabetes (type 2), chronic pain, weight loss, general long-term conditions	Adults, 5% Aboriginal/Torres Strait Islander, aged between 24 – 86 years	Health centres
Housden *et al.* 2016[25]	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Housden *et al.* 2017[27]	N/A	N/A	N/A	N/A	Healthy living and nutrition focused mixed SMA for patients with diabetes, obesity, heart disease and/or arthritis	Adults incl. individuals with concurrent disorders, refugees, those with addiction or other mental health conditions, young adults, women, and individuals from First Nations.	Community and primary care
Kowalski *et al.* 2018[28]	120	8 – 10	NR	NR	Diabetes	Veterans	Veterans Affairs health systems
*Lavoie *et al.* 2013[29]	average 90	12 – 20	NR	NR	Single condition SMAs for chronic pain or diabetes and mixed SMAs for	Adults, living in rural communities	Primary health care services

					multimorbidities including, diabetes, hypertension, and arthritis		
Miller *et al.* 2004[30]	90 (+30 1:1)	7	6	Monthly	Mixed SMAs for one or mixed morbidity including cardiovascular disease, diabetes, and osteoarthritis	Adults, varied ethnicity (71% Hispanic/Latino), aged 40-64 years (mean 50), 100% female	Community health centres.
Siple *et al.* 2015[20]	NR	NR	4	NR	Diabetes (type 2)	Veterans	Veteran Association Health Care System
Stevens *et al.* 2014[21]	NR	NR	NR	NR	Diabetes or pre-diabetes (type 2)	Adults with diabetes or pre-diabetes	Regional medical centres
Stowell *et al.* 2015[22]	NR	NR	NR	NR	Diabetes	Adults with type 2 diabetes	Not specified
^Stults *et al.* 2016[31]	NR	NR	NR	NR	Single condition SMAs (1) prediabetes management, (2) type 2 diabetes management, (3) Successful Aging that covered issues of concern for seniors (memory, falls, and depression), (4) mind-body management, and (5) men's physicals.	Not specified	Primary care practices
Thompson *et al.* 2014[24]	NR	NR	24	Monthly	Diabetes (or at risk of)	Not specified	Community health centre that serves marginalised and vulnerable patients.
Thompson-Lastad (2018)[32]	60 - 120	NR	NR	Weekly	Single condition SMAs: Hypertension, mental health condition, chronic back pain, pre-diabetes, and diabetes*^	Low-income adults	Community health centres
Tokuda *et al.* 2016[26]	120	3 - 5	6	Weekly-bimonthly	Diabetes for > 10 years	Adults, varied ethnicity (55% Asian/Pacific Islander) mean age 60.4 years, 0% female	video-SMA to community-based outpatient clinic

*Wong *et al.* 2015[33]	60 – 90	9 – 15	NR	Weekly-quarterly	Single condition SMAs for chronic pain or diabetes and mixed SMAs for mixed diagnosis including, diabetes, hypertension, and arthritis	Adults living in rural communities	Community and primary care

* Same study, two papers

^ Study include SMAs run for non-chronic health conditions. Data extracted for long-term conditions.

Narrative synthesis

Tables 3 and Table 4 present the findings of the analysis of practitioner and patient perspectives, respectively. Each table outlines examples of codes that were used to group the data into subthemes, which were subsequently translated into higher level themes. Practitioner themes were: 'advantages and benefits', 'barriers and challenges' and 'implementation success and sustainability'.

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317 *Table 3 Views and experiences of practitioners and staff*

Themes	Subthemes	Exemplar codes	Exemplar quotes and data
Advantages and benefits	• Comprehensive patient led care • Peer support and accountability • Efficiency and lower cost	• Multi-disciplinary care, patient-led, increase patient understanding, increase practitioner understanding • Normalise condition, offer support, share experiences, encourage accountability, increases motivation • More efficient, less repetition, improved access, costs	…*"one person's worried about hyperglycemia and another person's worried about nocturia, and another person's worried about their vision you get information that can be both preventative and curative all in the same visit."* NP[25] *"The biggest part is just that they [the patients] get to kind of feed off of each other and they talk about what works and what doesn't… I think that the fact that they can help teach each other is most important."* Dietician [23]
Barriers and challenges to adoption and implementation	• Patient resistance and suitability • Role adjustment and uncertainties • Administrative & resource challenges	• Accustomed to 1:1 appointment, not for all patients, attached to physician, confidentiality • Colleague resistance, self-efficacy/new skills, power relationships, managing peer interaction • Coordinating schedules, patient reminders, funding and billing, lack of space/rooms, staff shortage, busy staff	*"I've got to tell you, it's a hard sell with physicians. Even now, I don't have a champion for the diabetes SMA. They see it as extra work. They don't see the added value. It troubles me a lot that it's so hard to get the docs involved." Nurse* [28] Author interpretation: *NPs described how physical space, administrative time, and buy-in were major barriers to the diffusion of GMVs. Many NPs described the challenges of lacking regular office space or having limited administrative time, which required them to engage in clinical organization during personal or unpaid time.*[25]

Implementation success and sustainability	• Skilled facilitator • Tailored to patient groups • Leadership, teamwork and communication	• Facilitator- important, group management • Patient background, disease stage • Leadership, teamwork, communication, collegiality	*"…critical that we [the video-SMA providers] were sensitive and expressed a value for diversity; that we were conscious of the dynamics inherent to the participant's cultures especially in the group interaction and demonstrated that we [the video-SMA providers] had knowledge regarding these differences and were willing to adapt our service delivery".* Provider [26] *"It cannot be one person because the key word is 'sustainability.' If that person ever leaves or something ever happens, everything falls apart,"* Administrator [18] *"I think speaking to the importance of research and teamwork, getting people together for the betterment of patient care and the collegial approach to doing the kind of thing that brings people from different disciplines together, particularly nursing and the primary care providers. I think that's where we've got to wear that cap to get the right people engaging and working together"* Administrator and primary care physician, [23]

Advantages and benefits

Comprehensive patient led care

Practitioners viewed the care delivered via SMA to be more comprehensive [25,29,33] and better suited to supporting self-management than 1:1 appointments [18]. Longer appointment times enabled a range of issues and concerns to be covered in the one session [18,22,25] and provided the opportunity for patients and practitioners to develop a care plan together [18,29,33]. Practitioners reflected that the group sessions had improved their own practice as they were able to gain further insights into patient circumstances, their conditions and the challenges to self-management that patients face in their daily lives [16,25,27–29]. Practitioners believed the presence of multiple clinicians with complementary expertise in the SMAs enabled more holistic care [23].

Peer support and accountability

Practitioners valued the peer support afforded to patients by group appointments [19,23,28,32,33], believing patients benefitted from listening to the experiences of their peers and from hearing responses to other participants' questions [22]. This in turn helped them to understand their condition better and how best to manage it [19,23]. Practitioners said patients were able to relate to each other which helped to normalise their conditions [16], and provide confidence in self-management [17]. Some clinicians explained there was '*cathartic value*' or '*therapeutic effect*' from patients sharing with others in the group their personal story of disease management [16,21,29]. The group format also enabled collective problem solving with clinicians and peers [33]. Two studies also reported that practitioners believed that patients felt accountable to other group members which increased their motivation to reach their self-set goals [28,29]. However, a clinician in another study reported that the peer-to-peer support element of the SMA,

'didn't work very well' when two patients were paired together who were both 'non-compliant' and 'didn't give off the best information' [28].

Efficiency and lower cost

Clinicians reported that they found the sessions enjoyable and made their work less repetitive [21,22,28] less rushed, and more relaxed [21]. GPs and other managerial staff perceived SMAs to be more time efficient and cost-effective than usual 1:1 appointments [19,28,33] and improved patient access to healthcare [28,33]. The multidisciplinary nature enabled them to get *'a lot of work done'* [23] and meet evidence-based guidelines [33].

Barriers and challenges to adoption and implementation

Patient resistance and suitability

Nurse practitioners without SMA experience had concerns about recruitment and attendance, as patients were '*historically*' and '*culturally*' accustomed to receiving 1:1 care [25]. They also expressed concerns over the appropriateness of group sessions for some patient population groups, particularly those with '*concurrent disorders*' that *'can't keep to the time line or sit long enough'* [25]. Lack of motivation to improve health [21] and reluctance to share information in a group setting were perceived reasons why patients may not attend SMAs. Concerns about the ability to maintain patient confidentiality during the group session were raised, but *'lessened when it was explained that this is dealt with through a signed confidentiality agreement'* [21,22].

Practitioners with SMA experience reported that the top barrier to implementing SMAs was *"convincing the patients to show up"* [28]. Patients were reported to be reluctant to take part in a group because they did not want to disclose medical history and

health complaints to peers [23] and in one case this was thought to contribute to SMAs being a short-lived and unsuccessful innovation [27]. Some providers described how they spent time identifying patients they thought might be '*willing to attend*' and did not invite those whom they felt were '*less suited*' to SMAs such as those who were hard of hearing, who had limited English speaking skills or who were uncomfortable in a group [33].

Role adjustment and uncertainties

Nurse practitioners experienced difficulties encouraging other staff within the practice to '*buy-in*' and support the SMAs [23,28], reporting it being a '*hard sell*' to doctors who perceived them as '*extra work*' [28] . There was uncertainty and hesitancy amongst practitioners about SMAs, what was expected of them. Some practitioners reported how SMAs changed the dynamics between patients and provider, with practitioners tending to step back or keep quiet and allow patients to explore and discuss and problem solve between themselves [29,32] but intervene if misinformation was shared [32]. A clinician with no previous experience of group care was initially concerned, recognising that different skills were needed for SMAs. Yet, with minimal coaching, she was '*surprised at how easy*' it was to sit back, observe and listen rather than having the burden of needing to '*always know the answers*'[16]. One study [27] reported that there were changes in the power dynamics between professionals particularly between NPs and GPs, as the former often take the lead in delivery of SMAs. One NP reported being irritated when the physician had minimal input during the SMA yet '*billed for the ten people that were in the group even though the NP had done all of the work, teaching, counselling and the prescriptions.*'[25]

Administrative & resource challenges

The most commonly cited challenge to implementing SMAs was the large number of administrative tasks involved in setting them up [16,19,21–23,25,28,33] clinicians reporting they can be particularly burdensome for 'non-medical staff' [22]. This included: the coordination of schedules for multi-disciplinary teamwork [16,21–23,28], access to the technological systems and support staff required to organise SMAs [25,26], identification of participants suitable for SMAs [28,33], difficulties in reminding patients of appointment times, and the preparation of clinical notes and documentation for each SMA. In the context of the US healthcare system, providers also expressed concerns over funding and billing for SMAs [16,18,19,22,27,28,33], with insurance reimbursement issues perceived as a barrier to providing SMAs. Lack of physical space to hold the SMAs was reported as key limitation [16,23,27,28,33] as well as insufficient staff to support the adoption, implementation and maintenance of SMAs [16,23,28] with some clinicians giving competing demands on their time as a key challenge to implementation [23,28].

Implementation success and sustainability

Skilled facilitator

Practitioners deemed the role of a facilitator to be crucial to success of SMAs [19,21,28,32,33]. They had an important role in making the atmosphere in the group session relaxed and conducive to sharing [33]. However, not all clinicians were equipped with group facilitation skills, as one dietician reported having difficulties in managing patients in the group who were '*over-bearing*' and 'offensive' rather than supportive of other group members [28]. Nurses reported that clinicians who could be flexible and were '*willing to take a back seat*' were most suited to the SMA model of working [28].

Tailored to patient groups

Several SMA studies were designed to target specific patient groups, for example veterans with low health literacy [23] and underserved Spanish speakers [17]. Practitioners reported having spent time identifying and designing the SMAs for these specific groups [33] and the need to be sensitive to the cultural diversity of group participants [26]. For disease specific SMAs clinicians acknowledged it was important to take into account the disease stage of the SMA participant, as patients with more disease experience may '*more adequately influence*' those with less experience [21]. Most studies in this review did not describe the process by which patients were selected and invited to attend. A NP believed that the SMAs they tried to implement were unsuccessful because they weren't organised and designed in a person-centred way, rather the incentive for the practice was '*to see a bunch of people all at once and sign off*"[25].

Leadership, teamwork and communication

Two studies described the importance of having leadership support in order to adopt and implement the innovation [23,28] to ensure sufficient time and resources were allocated to the SMAs. A team-based approach and effective communication between members healthcare practitioners and practice staff was reported to be important for effective implementation, maintenance and sustainability [18]. The delivery of care by multidisciplinary teams was also considered a key strength of group appointments [23].

Patient and carer view and experiences

A number of subthemes emerged from the patient and carers' perspectives within overarching themes of 'benefits of SMAs' and 'barriers to SMA attendance and success', see Table 4.

Table 4 Views and experiences of patients and carers

Themes	Subthemes	Exemplar codes	Exemplar quotes and data
Benefits of SMAs	• Peer support • Vicarious learning and collective problem solving • Motivation for self-management • Safe environment to share	• Feeling supported, reassurance • surrogate questioning and answers, listening and discussion, learning from peers' experience • learn self-management strategies, improved self-management, accountability • inviting and comfortable atmosphere, honesty, anonymity in group, enjoyment, more time	• *'I wasn't the only one who had ADHD. It's like there's more people to know how it feels… I really don't talk to anybody about my stuff I have to go through, so it was fun to tell people about it"* Patient ADHD[16] • *"I didn't even want to go on the medication. To me it was no you know. But hearing it from her [another group member], how it worked for her, I decided to try it. And I'm glad I have, because it has helped me control it."* Patient, diabetes [24] • *" … you come out of the group feeling much more self-confident … you've got your batteries recharged and you can really go till the next group … it's [Gmv] more motivating … you want to do more yourself and rely less on others … but then you always realize there's others out there to help you if needed."* Patient[33] • *"I just noticed that, listening to the other people, they brought up some things that may have related to me that I felt were my weaknesses or things that I did that I wouldn't wanna disclose because I might feel a bit of shame or embarrassment, but after hearing other people be open and honest, I think it gives me—or just allows you to be more honest yourself because you've already heard other people expose themselves or be honest. (Male, approximately 60 years old, type 2 diabetes SMA)* [31]
Barriers to SMA attendance and success	• Cultural barriers • Physical barriers	• Dislike group work, confidentiality and privacy concerns, can't relate to others, dislike divided time and attention, lacking motivation/ interest in health, sessions too long	• Author interpretation: *One male stated he was 'too busy' to be sitting around in a doctor's surgery for 90 minutes, although agreed that the total time taken for a consultation, with waiting time, etc, may equal this.*[21] • Author interpretation: *While some initially thought sharing information in the group situation was a problem, a concern over privacy tended to drop away*

• Accessibility of venue, transportation costs	*after talking about this. 'I suppose you don't have to disclose what you don't want to.' (Female)* [21] • *"I'm on a fixed income, I'm a retiree, and sometimes it gets a little expensive when you're charting out what you can spend each month … maybe if they could throw a little something in each month, like maybe $10 for transportation or something. Don't you think that would help?"* Patient, diabetes [18]

Benefits of SMAs

Peer support

Most patients described feeling supported by others in the group [16,19,21,22,27–29], feeling that '*they were not the only one*' with their condition and enjoyed having a safe environment in which to share their experiences and feelings [16]. Carers valued the group sessions reporting the additional support they received from being able to share with others in their situation [16].

Vicarious learning and collective problem solving

Patients described learning more about their condition, disease progression and treatment options by listening to the lived experiences of others and observing and engaging with other individuals at different stages of their disease [17,27]. Being able to ask multiple questions and hearing answers to questions they had not thought to ask was very beneficial [19,25,27]. They more readily absorbed/listened more closely to health-related information from peers than from the clinician [20,24,32] because they knew they had experienced it themselves. Hearing the experiences of others helped overcome feelings of isolation and provided patients with reassurance in their ability to self-manage [19]. Support for SMAs was particularly strong from those with previous health-related group experience [21]. Conversely, however, it was reported that some patients did not want to attend any further SMAs because they did not want to talk about their health concerns or listen to other people's concerns in a group [33].

Motivation for self-management

Patients reported feeling more motivated to self-manage their condition(s) [17,18,20] and accountable to others in the group to adhere to medication [26] and achieve goals that they set themselves [18,28,29,31]. Veterans reported that they were using

less medication following the group session and were better able to self-manage their condition [20]. Similarly, carers reported that their children had learned skills to manage their ADHD better [16].

Safe environment to share

Some patients reported feeling anxious prior to attending SMAs and ashamed of how they had been controlling their condition. However, once they had attended the SMA, they found the session a safe environment in which to share and face their fears and they had developed greater trust in their health practitioner [29,31]. Another study reported that some patients felt the group environment was more relaxed and enjoyable than one to one appointments, as 'there is a certain level of anonymity in a group setting' [29]. It was widely reported that patients were satisfied with the care they received during the group sessions [16,19,22,24,26,29,31].

Barriers to SMA attendance and success

Some studies reported that patients expressed dislike or lack of interest in group appointments [19,23]. Some patients also expressed reservations about sharing personal information and about confidentiality prior to attending [19,21,23,30], especially in smaller communities [21]; however this was not a concern after attending the group session [19]. In the study of virtual SMAs [26] some patients reported negative experiences including that the SMA was too big (even though there were only 4 – 6 patients per SMA), and there was poor control of group dynamics, but this might have been specific to the remote delivery. It was recognised that a skilled facilitator improved enjoyment and engagement [24] and how providers communicate and interact with patients during the appointment can affect their experience[20]. Others found it difficult to relate to other group members [30] or did not want to talk about their issues,

nor hear other patients' issues in a group [33]. Some patients reported they would have liked more individual time with the clinician [26,30] or to have seen their own doctor [21,31]. Barriers to attendance included scheduling conflicts with other commitments [18]and transportation or parking issues [28].

DISCUSSION

This systematic review has identified a detailed literature, primarily from North America, that provide rich accounts of practitioners involved in the delivery SMAs. Whilst most studies included patient perspectives, the richness of the supporting data was lower compared with practitioner perspectives. There was notably less comparable evidence examining carer perspectives. The experiences of some minority ethnic and indigenous groups were represented thus offering insights into the acceptability of SMAs for these patient groups. The systematic search and selection measures enabled the identification and synthesis of data which has brought to light several additional challenges to implementation.

Most practitioners and patients with experience of SMAs regarded them positively, and reported several advantages compared to one-to-one appointments. GPs and nurse practitioners with SMA experience, reported that they enjoyed the sessions, with several reporting they helped overcome the repetition fatigue often associated with traditional consultations. Practitioners also perceived SMAs could be a more efficient and effective way of delivering care. Most patients valued the provision of peer support and reported that being able to share and learn from each other helped improve their self-confidence and provided motivation to reach their goals. However, this experience was not shared by all patients, with some reporting that they were unable to relate to others in their group or that they felt others in the group talked too much. This highlights the need

for effective facilitation and careful patient selection in order for SMAs to be successful.

Some practitioners reported difficulties in recruiting patients and garnering support for the delivery of SMAs from other practice colleagues. Notable barriers to SMA implementation included insufficient staff, time and resources to set up and run SMAs. Practitioners were concerned that patients would be reluctant to participate in a group appointment due to low motivation, confidentiality concerns and preference for 1:1 appointments. Some patients also expressed reservations about the group setting due to confidentiality concerns and desire for more time to discuss individual needs.

The positive experiences and perceived benefits of SMAs reported by practitioners and patients in this review corroborate those reported previously [4,10], which suggests SMAs may offer advantages in primary care similar to those in other healthcare settings. However, studies included in this review may be subject to reporting bias due to a focus on attendees rather than those who declined SMAs [4,10,11]. Staff and facilities inadequacies, patient participation and attendance, group dynamic incompatibilities and cost-benefit concerns have been listed as barriers to implementation previously [9,11]. Our review of qualitative evidence provides additional, deeper insights into barriers linked to organisational culture. We found practitioner reports of difficulties in gaining support from colleagues in the wider practice, including managerial staff, some of whom expressed negative attitudes towards SMAs. Furthermore, SMAs involving multidisciplinary teams appear to challenge the traditional hierarchal role of practitioners in primary care which leads to improved collegiality in some cases, and frustration in others. This suggests that clear guidance and expectations around SMAs may not have been effectively

communicated within practices. Our review has also highlighted that SMAs appear to be most successful when practitioners have designed and prepared SMAs for particular patient groups, and this work is reported to be resource and time intensive. Practitioners report mixed views about the efficiency of SMAs compared to 1:1 appointments, which requires further exploration.

Limitations

Although the quality of included studies was generally good, most of the healthcare professionals were GPs and nurse practitioners which may limit the generalisability of our findings to other healthcare professionals in primary care such as pharmacists, physiotherapists and dieticians etc. Few studies provided rich detailed accounts of patient and carers, thus insights offered from the literature are limited. Given that many of the patients were recruited immediately after the SMAs, it is possible that patients with negative SMA experiences or those who declined to participate may be missed, therefore the sample may be biased [4,10,11]. Similarly, only two studies included the perspectives of practitioners not implementing SMAs, therefore other perceived barriers may not have been captured. Furthermore, the lack of researcher reflexivity reported in the studies highlighting a potential source of bias, those involved in developing or delivering SMAs could have influenced participants' responses. This may help explain the discrepancy between providers telling researchers that patients were hesitant to attend SMAs whilst the latter reported a great deal of enthusiasm. As most studies are from North America, it is unclear whether some barriers, such as payment/ insurance reimbursement concerns, are applicable in other global healthcare systems. Limited and inconsistent reporting of study participant demographic information limited our understanding as to whether patient experiences and perspectives differ by

long-term condition or other personal characteristics. None of the studies reported differences in patient perspectives based on gender, age ethnicity or cultural group. Similarly, the amount of detail reported about the SMA itself in terms of format, staffing, duration and mode of delivery was limited. It is possible that this underpins some of the differences in experiences of patients and practitioners reported in the studies. In addition, it is unclear whether patient willingness to attend SMAs is sustainable over time, due to limited study period and follow ups.

Most studies in this review reported SMAs designed to support patients with diabetes. Only a limited number of studies reported on other long-term conditions, yet the perceived benefits and experiences reported in mixed-condition studies were similar, and do not appear to be condition specific. Furthermore, only five studies explicitly stated that some SMA participants had multimorbidity. Thus, there was insufficient information reported to understand the acceptability of attending group appointments with individuals who have different combinations of conditions. Further exploration of the use and experience of SMAs for patients with multimorbidity is needed.

CONCLUSION

Practitioner, patient and carer experiences of SMAs delivered in primary care have generally been positive, with benefits to both practice and patients reported. However, there is not enough evidence to show if views and experiences vary by staff involved, medical condition and / or patient characteristics. Further research is needed to better understand which groups of patients and practitioners should be brought together in an SMA for best effect. Whether SMAs for single conditions, adequately meet the care needs of patients with multimorbidity also needs further exploration. This will help to inform guidance for

practitioners on how best to identify and recruit patients to SMAs, rather than identifying and inviting patients based on personal judgements, which could have implications for health inequalities. Having identified a number of barriers and facilitators, policies and guidance need to be developed and effectively communicated across and within practices on how best to implement and evaluate SMAs in practice. This in turn may help to improve staff expectations and overcome the hesitancy regarding SMA approaches. Additional resources may be needed to deliver SMAs such as additional administrative support, further training, compatible IT systems and physical space; a needs assessment may be required at practice level. The views of healthcare practitioners not currently delivering SMAs are required to ensure all barriers have been comprehensively explored. This is important to fully understand what interventions might be necessary to support the widespread adoption and implementation of SMAs in primary care. In addition, given the increased use of virtual consultations due to the outbreak of Covid-19, further exploration as to the acceptability and feasibility of SMAs delivered via videoconference is warranted.

AUTHOR CONTRIBUTIONS

EK, KJ, HM designed the study. MYT and KJ undertook the searches. FG, MYT, KJ, DO, EK and AOD carried out the screening. FG, MYT, KJ and HM carried out the data extraction and analysis. All authors contributed to the interpretation. FG wrote the manuscript that all authors contributed to and approved.

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AVAILABILITY OF DATA

Datasets available from the Open Science Framework repository, [unique persistent identifier- to be added].

SUPPLEMENTARY MATERIAL

ENTREQ checklist (Enhancing transparency in reporting the synthesis of qualitative research)
Supplementary File 1- Search strategy example
Supplementary File 2- Quality appraisal of primary studies

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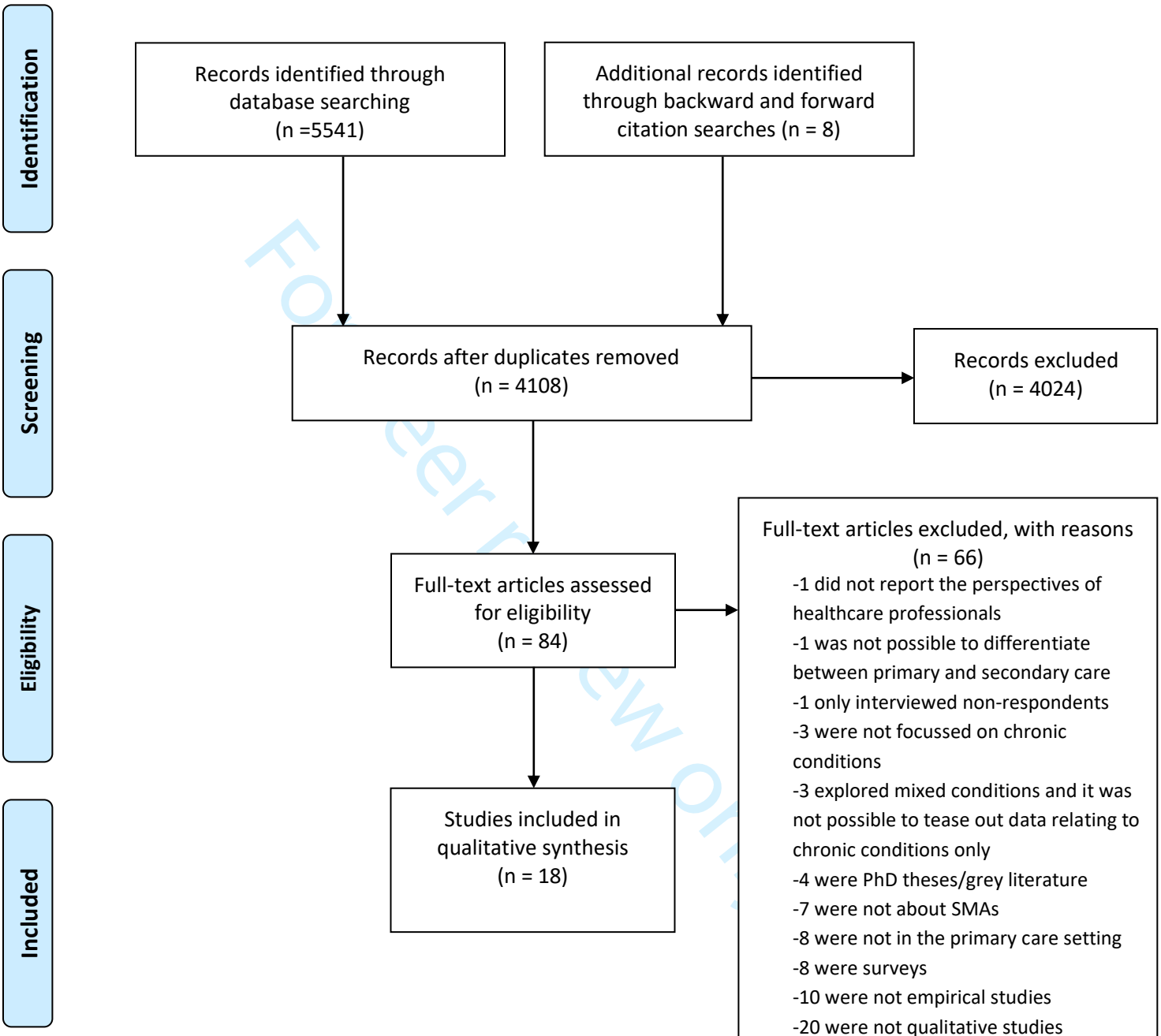
FIGURE LEGEND

Figure 1-Flow diagram of review search

Caption: Figure 1 Our search resulted in the retrieval of 84 papers for full-text review. Of these, 66 were ineligible for inclusion. Three additional studies were identified following forward and backward citation searches. This resulted in the inclusion of 18 studies in the final synthesis.



Supplementary File 1- Example search strategy

Medline Search (OVID **MEDLINE(R)** 1946 to June Week 4 2019)

Shared medical appointment$

OR shared medical visit$

OR cluster visit$

OR group visit$

OR group clinic$

OR group appointment$

OR group care$

OR group meeting$

OR group medical visit$

OR group medical appointment$

OR group medical clinic$

OR group consultation$

OR group medical care$

OR group medical meeting$

OR gmv

OR gma

OR co-operative health care clinic$

AND ((("semi-structured" OR “semistructured” OR “unstructured “ OR “informal “ OR "in-depth" OR ”indepth” OR "face-to-face" OR “structured” OR “guide”) adj3 (interview$ OR discussion$ OR questionnaire$)) OR (focus group$ OR qualitative OR ethnograph$ OR fieldwork OR "field work" OR "key informant")).ti,ab.

Supplementary File 2 Quality appraisal of studies included in review

First author & date	CASP criteria										Overview of limitations and richness of data
	Statement of aims	Appropriate methodology	Appropriate design	Recruitment	Data collection	Reflexivity	Ethical issues	Data analysis	Statement of findings	Valuable	
Arney *et al*. 2018[23]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Very	• Reasons for declining invitation to participate were not reported. Potential researcher bias not discussed. • Many quotations (with participant occupation) provided to support themes.
Bauer *et al*. 2017[16]	Yes	Yes	Yes	Can't tell	Yes	Can't tell	Can't tell	Yes	Yes	Moderately	• Recruitment strategy not reported. Unclear whether anyone declined to participate. Unclear how research was explained to participants. Potential researcher bias not discussed. • Many quotations (without participant characteristics) provided that support findings.
Cornelio-Flores *et al*. 2018[17]	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes	Yes	Very	• Unclear how participants were invited to participate in focus groups and whether any declined. Focus groups held during last GMV session by facilitator external to the research team. • Many quotes included without participant characteristics. Data relatively rich.
Drake *et al*.2018[18]	Yes	Yes	Yes	Can't tell	Yes	No	Yes	Yes	Yes	Very	• Unclear how participants were invited to participate in focus groups and whether any declined. Unclear who facilitated the focus groups and what role/relationship they had with study participants, no discussion of author biases. • Some quotes (without participant characteristics) included though not very rich. Very few patient accounts reported.
Egger *et al*. 2015[19]	Yes	Yes	Yes	Can't tell	Yes	No	Yes	Can't tell	Yes	Moderately	• Recruitment strategy not reported. Research team involved in delivering SMAs, no discussion of potential researcher bias. Acknowledged potential bias in self-selection of participants. • Fairly thin qualitative data about satisfaction/enjoyment. Quotations provided without participant characteristics.
Housden *et al*. 2016[25]	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Very	• No reflection on potential bias in data collection or analysis by authors. • Good illustrative quotes. In-depth accounts provided.
Housden *et al*. 2017[29]	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Very	• No reflection on potential bias in data collection or analysis by authors. • In-depth analysis. Rich illustrative quotes both HCP and patients.
Kowalski *et al*. 2018[28]	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Very	• Relationship between authors and study participants unclear. Authors appear to be involved data collection, analysis and subsequent SMA implementation. This source of potential bias not discussed. • Rich quotes included in narrative with participant occupation reported. Lots of thin quotes covering lots of aspects mapped onto CFIR framework. Difficult to untangle SMAs from SMA-with peer 2 peer support.
*Lavoie *et al*. 2013[30]	Yes	Yes	Yes	Can't tell	Yes	Can't tell	Yes	Yes	Yes	Very	• Unclear how providers were identified, how many were invited and how many declined or for what reason. Potential researcher bias not discussed • Rich data with illustrative quotes presented without reporting patient practitioner characteristics.

Miller *et al*. 2004[33]	Yes	Yes	Yes	Can't tell	Yes	Can't tell	Yes	Yes	Yes	Moderately	• Unclear if any participants declined to participate in an interview or why. Potential researcher bias not discussed. • Qualitative data very thin, no quotations provided.
Siple *et al*. 2015[20]	Yes	Yes	Yes	Can't tell	Yes	No	Can't tell	Yes	Yes	Very	• Participant recruitment not described. Reasons for declining invitation not reported. Focused on views of diabetes self-management (which so happened to be via SMA) so less of SMA experience. • Quotes are available but themes linked with factors influencing their self-care/motivation and less about SMA experience. Views of wives/carers not presented.
Stevens *et al*. 2014[21]	Yes	Yes	Yes	Can't tell	Yes	Can't Tell	Yes	Yes	Yes	Very	• Recruitment strategy not reported. Not clear if any participants declined to participate in an interview. Potential researcher bias not discussed. • Quotes from HCP and patents included with participant characteristics. Qualitative data thin.
Stowell *et al*. 2015[22]	Yes	Yes	Yes	Can't tell	Yes	Can't tell	Can't tell	Can't tell	Yes	Low	• Recruitment procedure not reported. No reflection on researcher bias. Unclear if ethical approval or informed consent required and/or obtained. No description of qualitative data analysis given. • No qualitative data reported - no quotations. Interview findings combined with survey findings and authors narrative does not contain quotes.
Stults *et al*. 2016[32]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Very	• Reasons for declining study invitation not reported. Potential researcher bias not discussed. • Provides rich data. Quotes together with participant characteristics reported-age, gender SMA attended, Only data from patients attending SMAs for chronic condition extracted.
Thompson *et al*. 2014[24]	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Very	• Unclear how participants were selected and contacted. Whether any declined to take part. • Some quotes (without participant characteristics) provided in a table with themes and key findings, thin data.
Thompson-Lastad (2018)[31]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Very	• Reflection on potential researcher bias and influence on group dynamics not discussed. • Limitation: some SMAs were run for non-long-term conditions therefore coding of only experiences/data that refers to long-term condition SMAs. Lots of rich qualitative data (quotes).
Tokuda *et al*. 2016[26]	Yes	Yes	Yes	Yes	Yes	No	Yes	Can't tell	Yes	Very	• Qualitative data analysis process not reported. Potential researcher bias not discussed. • Quotations (without patient characteristics) included to support findings, rich data.
*Wong *et al*. 2015[27]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Very	• Relationship between researcher and participants unclear. Potential researcher bias not discussed. • Rich data. Quotes (without participant characteristics) provided to support key findings.

HCP= healthcare practitioner

The ENTREQ Checklist

Enhancing transparency in reporting the synthesis of qualitative research

Item	Guide and description	Reported on page
Aim	State the research question the synthesis addresses.	5
Synthesis methodology	Identify the synthesis methodology or theoretical framework which underpins the synthesis, and describe the rationale for choice of methodology *(e.g. meta-ethnography, thematic synthesis, critical interpretive synthesis, grounded theory synthesis, realist synthesis, meta-aggregation, meta-study, framework synthesis).*	5 & 6
Approach to searching	Indicate whether the search was pre-planned (*comprehensive search strategies to seek all available studies)* or iterative (*to seek all available concepts until they theoretical saturation is achieved)*.	5
Inclusion criteria	Specify the inclusion/exclusion criteria *(e.g. in terms of population, language, year limits, type of publication, study type).*	5
Data sources	Describe the information sources used (e.g. *electronic databases (MEDLINE, EMBASE, CINAHL, psycINFO, Econlit), grey literature databases (digital thesis, policy reports), relevant organisational websites, experts, information specialists, generic web searches (Google Scholar) hand searching, reference lists)* and when the searches conducted; provide the rationale for using the data sources.	5
Electronic Search strategy	Describe the literature search *(e.g. provide electronic search strategies with population terms, clinical or health topic terms, experiential or social phenomena related terms, filters for qualitative research, and search limits)*.	5 and Supplementary file 1
Study screening methods	Describe the process of study screening and sifting *(e.g. title, abstract and full text review, number of independent reviewers who screened studies).*	6
Study characteristics	Present the characteristics of the included studies *(e.g. year of publication, country, population, number of participants, data collection, methodology, analysis, research questions).*	97, Table 1- p8, Table 2 p13
Study selection results	Identify the number of studies screened and provide reasons for study exclusion *(e,g, for comprehensive searching, provide numbers of studies screened and reasons for exclusion indicated in a figure/flowchart; for iterative searching describe reasons for study exclusion and inclusion based on modifications t the research question and/or contribution to theory development).*	Figure 1, p7

The ENTREQ Checklist

Enhancing transparency in reporting the synthesis of qualitative research

Rationale for appraisal	Describe the rationale and approach used to appraise the included studies or selected findings *(e.g. assessment of conduct (validity and robustness), assessment of reporting (transparency), assessment of content and utility of the findings).*	P6
Appraisal items	State the tools, frameworks and criteria used to appraise the studies or selected findings (e.g. Existing tools: CASP, QARI, COREQ, Mays and Pope [25]; reviewer developed tools; describe the domains assessed: research team, study design, data analysis and interpretations, reporting).	P6
Appraisal process	Indicate whether the appraisal was conducted independently by more than one reviewer and if consensus was required.	P6
Appraisal results	Present results of the quality assessment and indicate which articles, if any, were weighted/excluded based on the assessment and give the rationale.	P7 Supplementary File 2,
Data extraction	Indicate which sections of the primary studies were analysed and how were the data extracted from the primary studies? *(e.g. all text under the headings "results /conclusions" were extracted electronically and entered into a computer software).*	P6
Software	State the computer software used, if any.	P6
Number of reviewers	Identify who was involved in coding and analysis.	P6
Coding	Describe the process for coding of data *(e.g. line by line coding to search for concepts).*	P6
Study comparison	Describe how were comparisons made within and across studies *(e.g. subsequent studies were coded into pre-existing concepts, and new concepts were created when deemed necessary).*	P6
Derivation of themes	Explain whether the process of deriving the themes or constructs was inductive or deductive.	P6
Quotations	Provide quotations from the primary studies to illustrate themes/constructs, and identify whether the quotations were participant quotations of the author's interpretation.	Table 3, -p16 and Table 4-p21
Synthesis output	Present rich, compelling and useful results that go beyond a summary of the primary studies (e.g. *new interpretation, models of evidence, conceptual models, analytical framework, development of a new theory or construct).*	P23-26

BMJ Open

Barriers and facilitators to implementation of shared medical appointments in primary care for the management of long-term conditions: a systematic review and synthesis of qualitative studies

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Barriers and facilitators to implementation of shared medical appointments in primary care for the management of long-term conditions: a systematic review and synthesis of qualitative studies

[1]Fiona Graham, fiona.graham@newcastle.ac.uk* 0000-0001-5828-0955

[1]Mei Yee Tang, meiyee.tang@newcastle.ac.uk 0000-0002-3116-6025

[2]Katherine Jackson, katherine.l.jackson@durham.ac.uk 0000-0003-0332-0475

[3]Helen Martin, helen.martin11@nhs.net

[1]Amy O'Donnell, amy.odonnell@newcastle.ac.uk 0000-0003-4071-9434

[1]Oladapo Ogunbayo, oladapo.ogunbayo@newcastle.ac.uk 0000-0003-3189-4169

[1]Falko F. Sniehotta, falko.sniehotta@newcastle.ac.uk 0000-0003-1738-4269

[1]Eileen Kaner, eileen.kaner@newcastle.ac.uk 0000-0002-7169-9344

1 NIHR Policy Research Unit in Behavioural Science, Population Health Science Institute, Newcastle University, Newcastle upon Tyne, UK

2 Department of Sociology, Durham University, Durham, UK

3 North of England Care Support (NECS), Riverside House, Newcastle upon Tyne, UK

*Corresponding author

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ABSTRACT

Objective: To synthesise the published literature on practitioner, patient and carer views and experiences of shared medical appointments (SMAs) for the management of long-term conditions in primary care.

Design: Systematic review of qualitative primary studies.

Methods: A systematic search was conducted using MEDLINE (Ovid), PsycINFO (Ovid), CINAHL (EBSCOhost), Web of Science, Social Science Premium Collection (Proquest) and Scopus (SciVerse) from database starting dates to June 2019. Practitioner, patient and carer perspectives were coded separately. Deductive coding using a framework approach was followed by thematic analysis and narrative synthesis. Quality assessment was conducted using the Critical Appraisal Skills Programme for qualitative studies.

Results: We identified 18 unique studies that reported practitioner (n=11), patient (n=14) and/or carer perspectives (n=3). Practitioners reported benefits of SMAs including scope for comprehensive patient-led care, peer support, less repetition and improved efficiency compared to 1:1 care. Barriers included administrative challenges and resistance from patients and colleagues, largely due to uncertainties and unclear expectations. Skilled facilitators, tailoring of SMAs to patient groups, leadership support and teamwork were reported to be important for successful delivery. Patients' reported experiences were largely positive with the SMAs considered a supportive environment in which to share and learn about selfcare, though the need for good facilitation was recognised. Reports of carer experience were limited but included improved communication between carer and patient.

Conclusions: There is insufficient evidence to indicate whether views and experiences vary between staff, medical condition and/or patient characteristics. Participant experiences may be

subject to reporting bias. Policies and guidance regarding best practice need to be developed with consideration given to resource requirements. Further research is needed to capture views about wider and co-occurring conditions, to hear from those without SMA experience and to understand which groups of patients and practitioners should be brought together in an SMA for best effect.

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https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=141893

Keywords: Shared medical appointments, qualitative, chronic disease, long-term condition, self-management, systematic review

STRENGTHS AND LIMITATIONS OF THIS STUDY

- Focus on qualitative evidence provides rich insights into barriers to implementation of SMAs in primary care from the perspectives of practitioners, patients and carers.
- Robust search strategy, based on previous high-quality reviews; refined to allow us to better identify qualitative research
- The thematic synthesis approach has enabled the identification of analytical themes that offer a new interpretation practitioner and patient experiences of SMAs beyond earlier reviews.
- Rapidly evolving area of practice and publications and the most recent evidence may be missing
- Grey literature was excluded from the synthesis

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Competing interests

None to declare

Checklist

See supplementary material for ENTREQ checklist (Enhancing transparency in reporting the synthesis of qualitative research)

INTRODUCTION

Over 15 million people in England are living with one or more long-term conditions [1]. Such multimorbidity is more prevalent in those over 65 years, and in socio-economically deprived areas [2,3]. Long-term conditions require ongoing disease management and care, which consumes a significant amount of healthcare service delivery time [4]. Models of care that support patient self-management (or self-care) are at the centre of government policies worldwide [5] including NHS plans [6,7]. Shared medical appointments (SMAs), or group consultations, have been promoted as a new way of delivering primary care, to simultaneously improve patient self-management and resource use efficiency[8,9].

SMAs typically involve a group of patients with the same long-term condition(s) meeting with one or more healthcare practitioners. In contrast to group education programmes, the SMA usually replaces a 1:1 appointment and may include physical examinations, medication adjustments or other clinical interventions[8,10]. It has been theorised that SMAs may improve patient self-efficacy by enabling participants to witness the consultation experiences of others and observe disease management strategies of peers who act as realistic role models for their own self-care [4,10]. Whilst there is some evidence that SMAs can support self-management of long-term conditions [4], it is important to understand the feasibility and acceptability of implementing SMAs from the perspectives of primary healthcare practitioners, patients and carers to ascertain if this model of care can meet their needs and reduce health inequalities.

It has been reported that practitioners enjoy SMAs, sighting benefits including development of team relationships, learning from patients, more variety in work [4,10]. Patients attending

SMAs have also reported feelings of socialisation or normalisation of a condition, increased trust with healthcare practitioners and enhanced knowledge [4,11]. However, a small number of studies have reported patient concerns, including confidentiality and being unclear about the purpose of a session [4]. Providers have reported concerns around insufficient clinician and group facilitation training for SMAs and the need for suitable premises [4,11,12]. Earlier reviews have focused on secondary care [4] which is typically disease specific with time-limited follow-up after specialist treatment [11]. In contrast, primary care has an emphasis on ongoing disease management, often including multiple conditions, and care continuity. Hence this systematic review of qualitative research aims to provide an in-depth insight into the experiences and perceptions of SMAs for the management of long-term conditions in primary care including identifying barriers and facilitators regarding implementation.

Review research questions:

1. What are patient and practitioner views and experiences of SMAs in primary care?
2. Do these views and experiences vary by long-term condition and/or other patient/ practitioner characteristics?
3. What does the literature tell us about potential barriers and facilitators to the delivery and uptake of SMAs in primary care?

METHODS

A systematic review and narrative synthesis of qualitative studies was conducted.

Search strategy and selection criteria

We searched MEDLINE (Ovid), PsycINFO (Ovid), CINAHL (EBSCOhost), Web of Science, Social Science Premium Collection (Proquest) and Scopus (SciVerse) from database start dates to June 2019. A combination of keywords and medical subject headings (MeSH) to locate relevant qualitative studies were used. See Supplementary File 1. Database searches were supplemented by forward and backward citation searches of the included papers.

Primary qualitative studies were included that: i) explored the views of primary healthcare practitioners, staff, patients or carers that had been involved in the delivery of/ or attended SMAs within primary care, ii) met our criteria to be classed as an SMA (group appointments that: were intended to replace standard 1:1 appointments in general practice; were delivered by primary care practitioners; and included clinical advice and management as well as peer learning and support) iii) had a patient population with at least one long-term condition. For studies in which participants delivered/attended SMAs for both long-term conditions and non-long-term conditions, only data relating the former were extracted and synthesised. Papers were excluded if i) the group session did not include an individual assessment/examination/consultation with a primary healthcare professional; ii) papers reporting survey data only, iii) it was not possible to extract data collected from participants attending SMAs for long-term conditions from those attending SMAS for non-long-term conditions (e.g. antenatal care).

The title and abstracts of retrieved citations were double-screened and where there were discrepancies, screeners met to reach agreement. All studies at the full-text stage were similarly double-screened with any uncertainties resolved by discussion with a third member of the review team.

Quality assessment

Methodological quality of eligible studies was assessed by two independent reviewers using the Critical Appraisal Skills Programme checklist for qualitative studies [13]. This was done to assess conduct (validity and robustness), transparency, content and utility of findings. Studies were not excluded on the basis of this appraisal, as limited reporting is not necessarily indicative of low quality research and risks the exclusion of appropriate studies [14]. The strengths and limitations of each included study were considered during the analysis to ensure that findings from unreliable studies did not unduly influence our results [15].

Data extraction and synthesis

Key characteristics of the included studies and study participants were recorded using a data extraction form, with the extracted data double-checked by another team member. Full text papers were then imported into NVivo (version 12). A framework based on themes previously identified by reviews [4,10] was used to deductively code participant quotes and authors' interpretations in the results and discussion sections of the studies. All data was coded by one reviewer then checked by a second. Data reflecting the views of practitioner, patients and carers were analysed separately.

Data excerpts were compared and contrasted and descriptive themes were formed by merging codes and grouping them around existing themes [4] and emerging themes. This included condensing the existing themes into related /discordant subthemes which were subsequently translated into higher-level themes to better answer the research questions. Texts were re-read and data re-coded according to newly structured thematic framework through an iterative

process to ensure these themes best reflected the data. Data excerpts were then examined to look for similarities and differences in the perspectives of practitioners or patients by characteristics (e.g. gender, age).

The ENTREQ (Enhancing transparency in reporting the synthesis of qualitative research) checklist was used for reporting this review, see supplementary material.

Patient and public involvement (PPI)

The proposed programme of shared medical appointment research was presented to a PPI panel who provided their views and opinions about what potential barriers and facilitators to attending an SMA might be from a patient perspective thus providing insights into potential findings of the review. Our affiliated PPI group read and commented on the draft of this manuscript and have identified several patient community groups through which to share a lay summary of the research findings.

RESULTS

Figure 1 outlines the screening and selection process resulting in the inclusion of 18 studies in the final synthesis.

>Insert< Figure 1 Flow diagram of review search

Quality appraisal

Quality of the included studies was generally high; most papers met the majority of the CASP checklist criteria (Supplementary File 2). Weaknesses commonly related to lack of information

about participant recruitment [16–22] and researcher reflexivity, which was missing in all but two studies [23,24].

Overview of included studies

Studies were published between 2004 and 2018 and are summarised in Table 1. Studies report the views and experiences of a total of 262 practitioners, 306 patients, and 39 carers. The majority of studies were from North America, two were from Australia. Only two studies looked at the views of those healthcare professionals that were not delivering SMAs [22,25], the rest of the studies reported the views of individuals with experience of having delivered/ attended SMAs. One study [26] involved virtual SMAs, all others were face to face. One study focused on an SMA for children [16].

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214 *Table 1 Overview of studies and participant characteristics*

First author & date	Country	Methodology & data collection method	Participants: practitioners				Participants: patients				Participants: carers			
			N, job	Age range	% female	Ethnicity	N	Age, years	% female	Ethnicity	N	Age	% female	Ethnicity
Arney *et al.* 2018[23]	USA	Qualitative: interviews	35 (11 behavioural health staff, 18 AHP, 6 admin)	35–64 years	80	Varied: White 83%	0	N/A	N/A	N/A	0	N/A	N/A	N/A
Bauer *et al.* 2017[16]	USA	Qualitative: interviews and verbal feedback session	9 (5 paediatricians, 3 AHP, 1 NP)	NR	NR	100% White	41	6–14	24	Varied: 32% Black, 34% Hispanic/ Latino, 18% White	34	53% <40 years, 23% ≥40 years	97	Varied: 33% Black, 47% Hispanic/ Latino, 20% White
Cornelio-Flores *et al.* 2018[17]	USA	Mixed methods: focus groups and interviews	0	N/A	N/A	N/A	11	Mean 51.6	89	100% Hispanic	0	N/A	N/A	N/A
Drake *et al.* 2018[18]	USA	Mixed methods: focus groups and interviews	6 (physician, nurse, AHP, admin)	NR	NR	NR	8	NR*	NR*	NR*	0	N/A	N/A	N/A
Egger *et al.* 2015[19]	Australia	Mixed methods: interviews	8 GPs	NR	NR	NR	NR*	NR*	NR*	NR*	0	N/A	N/A	N/A
Housden *et al.* 2016 [25]	Canada	Qualitative: interviews	7 NP	NR	86	NR	0	N/A	N/A	N/A	0	N/A	N/A	N/A
Housden *et al.*	Canada	Qualitative:	12 NP	NR	NR	NR	12	40–79	58	Varied: 83%	0	N/A	N/A	N/A

2017[27]		interviews and observations							Euro-Canadian					
Kowalski *et al.* 2018[28]	USA	Qualitative: interviews	28 (physicians, nurses, AHPs, facilitators and researchers)	NR	NR	NR	0	N/A	N/A	N/A	0	N/A	N/A	N/A
**Lavoie *et al.* 2013[29]	Canada	Qualitative: interviews	34 (10 physicians, 7 NP, 2 nurses, 4 admin, 11 AHPs)	NR	NR	NR	29	Mean 62	66	Varied: 55% White, 45% Aboriginal	0	N/A	N/A	N/A
Miller *et al.* 2004[30]	USA	Mixed methods: interviews	0	N/A	N/A	N/A	26	NR*	NR*	NR*	0	N/A	N/A	N/A
Siple *et al.* 2015[20]	USA	Qualitative: focus groups	0	N/A	N/A	N/A	18	30-80	6	NR	3	NR	100	NR
Stevens *et al.* 2014[21]	Australia	Qualitative: focus groups	46 (GP, nurse, AHP, admin	NR	67	NR	49	30–70	43	Varied: 90% non-indigenous	0	N/A	N/A	N/A
Stowell *et al.* 2015[22]	USA	Mixed methods: interviews	13 medical students	NR	NR	NR	4	NR*	NR*	NR*	0	N/A	N/A	N/A
Stults *et al.* 2016[31]	USA	Qualitative: focus groups	0	N/A	N/A	N/A	30	52–93	33	Varied: 87% White, 7% Hispanic/Latino, 3% Asian/Pacific Islander	0	N/A	N/A	N/A
Thompson *et*	Canada	Qualitative:	0	N/A	N/A	N/A	9	46-62	0	Varied:	0	N/A	N/A	N/A

al. 2014[24]		semi-structured interviews								‘predominantly’ White				
Tokuda *et al.* 2016[26]	USA	Mixed methods: focus groups and interviews	2, NP, AHP	NR	NR	NR	15	NR*	NR*	NR*	2	NR	NR	NR
Thompson-Lastad (2018)[32]	USA	Ethnography: ethnographic observations interviews conducted in English and Spanish	28 (13 doctors, 1 NP, 5 AHPs, 8 admin)	NR	79	Varied: 54% White	25	Mean 58	72	Varied: 60% Back / African American	0	N/A	N/A	N/A
**Wong *et al.* 2015[33]	Canada	Qualitative: interviews	34 (10 physicians, 7 NP, 2 nurses, 4 admin, 11 AHPs)	NR	NR	NR	29	Mean 62	66	Varied: 55% White, 45% Aboriginal	0	N/A	N/A	N/A

* Data given for SMA attendees but not separately for study participants

** Same study participants, different data analysis

NA- not applicable, NR = not recorded. Occupations; GP = general practitioner, NP = nurse practitioner, AHP = Allied Health Professional, including pharmacists, dieticians, psychologists, social worker, substance abuse counsellor, nutritionist. Admin=Administrators included healthcare/programme managers, primary care/group visit coordinators. Carers included parents/guardians, wives and social support.

The healthcare practitioner views most commonly reported were General Practitioners (GPs), family physicians, practice nurses and nurse practitioners [16,18,33,19,21,24,25,27–29,32]. Fewer studies captured the views of healthcare managers, programme/research coordinators and administrators [18,21,23,28,29,32,33].

The SMAs varied in terms of content, duration, numbers of attendees and frequency of sessions. The majority of studies focused on single condition SMAs (n=12), three reported on both single condition and mixed condition SMAs [29,31,33] and two on mixed condition SMAs only[27,30], and one gave no details [25]. 'Mixed condition' SMAs were for patients with one or more of a number of different conditions, thus included those with one condition and those with multimorbidity. Studies of SMAs for diabetes were most common (n = 15). A summary of the SMAs is given in Table 2.

233 *Table 2 Characteristics of SMAs delivered in reviewed studies*

First author & date	Description of SMAs						
	Duration (minutes)	No. attendees	No. of sessions	Frequency	Long-term condition(s) upon which SMA(s) focused	Attendees	Setting
Arney *et al.* 2018[23]	NR	5 – 7	4	NR	Diabetes (type 1)	Veterans	Hospital and community
Bauer *et al.* 2017[16]	60 - 75	NR	5	Monthly	ADHD	School age children	Academic centre and community
Cornelio-Flores *et al.* 2018[17]	NR	NR	9	Weekly	Chronic pain	Adults, Spanish-speaking Latino population, average age 51.6 years, 89% female	Hospital and community
Drake *et al.*2018[18]	120	NR	8	Monthly	Diabetes (type 2)	Adults, varied ethnicity (74% Black/African- American), average age 55.1, 72% female	Medical Home providing primary care services.
^Egger *et al.* 2015[19]	90	3 – 15	3	Monthly	Multiple single condition SMAs: diabetes (type 2), chronic pain, weight loss, general long-term conditions	Adults, 5% Aboriginal/Torres Strait Islander, aged between 24 – 86 years	Health centres
Housden *et al.* 2016[25]	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Housden *et al.* 2017[27]	N/A	N/A	N/A	N/A	Healthy living and nutrition focused mixed SMA for patients with diabetes, obesity, heart disease and/or arthritis	Adults incl. individuals with concurrent disorders, refugees, those with addiction or other mental health conditions, young adults, women, and individuals from First Nations.	Community and primary care
Kowalski *et al.* 2018[28]	120	8 – 10	NR	NR	Diabetes	Veterans	Veterans Affairs health systems
*Lavoie *et al.* 2013[29]	average 90	12 – 20	NR	NR	Single condition SMAs for chronic pain or diabetes and mixed SMAs for	Adults, living in rural communities	Primary health care services

					multimorbidities including, diabetes, hypertension, and arthritis		
Miller *et al.* 2004[30]	90 (+30 1:1)	7	6	Monthly	Mixed SMAs for one or mixed morbidity including cardiovascular disease, diabetes, and osteoarthritis	Adults, varied ethnicity (71% Hispanic/Latino), aged 40-64 years (mean 50), 100% female	Community health centres.
Siple *et al.* 2015[20]	NR	NR	4	NR	Diabetes (type 2)	Veterans	Veteran Association Health Care System
Stevens *et al.* 2014[21]	NR	NR	NR	NR	Diabetes or pre-diabetes (type 2)	Adults with diabetes or pre-diabetes	Regional medical centres
Stowell *et al.* 2015[22]	NR	NR	NR	NR	Diabetes	Adults with type 2 diabetes	Not specified
^Stults *et al.* 2016[31]	NR	NR	NR	NR	Single condition SMAs (1) prediabetes management, (2) type 2 diabetes management, (3) Successful Aging that covered issues of concern for seniors (memory, falls, and depression), (4) mind-body management, and (5) men's physicals.	Not specified	Primary care practices
Thompson *et al.* 2014[24]	NR	NR	24	Monthly	Diabetes (or at risk of)	Not specified	Community health centre that serves marginalised and vulnerable patients.
Thompson-Lastad (2018)[32]	60 - 120	NR	NR	Weekly	Single condition SMAs: Hypertension, mental health condition, chronic back pain, pre-diabetes, and diabetes*^	Low-income adults	Community health centres
Tokuda *et al.* 2016[26]	120	3 – 5	6	Weekly-bimonthly	Diabetes for > 10 years	Adults, varied ethnicity (55% Asian/Pacific Islander) mean age 60.4 years, 0% female	video-SMA to community-based outpatient clinic

	*Wong *et al.* 2015[33]	60 – 90	9 – 15	NR	Weekly-quarterly	Single condition SMAs for chronic pain or diabetes and mixed SMAs for mixed diagnosis including, diabetes, hypertension, and arthritis	Adults living in rural communities	Community and primary care

* Same study, two papers

^ Study include SMAs run for non-chronic health conditions. Data extracted for long-term conditions.

Narrative synthesis

Tables 3 and Table 4 present the findings of the analysis of practitioner and patient perspectives, respectively. Each table outlines examples of codes that were used to group the data into subthemes, which were subsequently translated into higher level themes. Practitioner themes were: 'advantages and benefits', 'barriers and challenges' and 'implementation success and sustainability'.

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244 *Table 3 Views and experiences of practitioners and staff*

Themes	Subthemes	Exemplar codes	Exemplar quotes and data
Advantages and benefits	Comprehensive patient led care	Multi-disciplinary care, patient-led, increase patient understanding, increase practitioner understanding	*…"one person's worried about hyperglycemia and another person's worried about nocturia, and another person's worried about their vision you get information that can be both preventative and curative all in the same visit."* NP [25]
	Peer support and accountability	Normalise condition, offer support, share experiences, encourage accountability, increases motivation	*"The biggest part is just that they [the patients] get to kind of feed off of each other and they talk about what works and what doesn't… I think that the fact that they can help teach each other is most important."* Dietician [23]
	Efficiency and lower cost	More efficient, less repetition, improved access, costs	*"It's [Gmvs] kind of a win all around because when you increase your productivity you increase access for patients, your waiting times go down…we're better able to meet evidence-based guidelines because there's a team taking care of patients rather than a single provider."* (Provider #1) [33]
Barriers and challenges to adoption and implementation	Patient resistance and suitability	Accustomed to 1:1 appointment, not for all patients, attached to physician, confidentiality	*"Definitely the top barrier will be convincing the patients to show up. We invite an average of 10 people and we usually have between 4 and 7 who come and continue to show up. I think patient buy-in is definitely a barrier."* Primary care physician [28]
	Role adjustment and uncertainties	Colleague resistance, self-efficacy/new skills, power relationships, managing peer interaction	*"I've got to tell you, it's a hard sell with physicians. Even now, I don't have a champion for the diabetes SMA. They see it as extra work. They don't see the added value. It troubles me a lot that it's so hard to get the docs involved."* Nurse [28]

	Administrative & resource challenges	Coordinating schedules, patient reminders, funding and billing, lack of space/rooms, staff shortage, busy staff	Author interpretation: *NPs described how physical space, administrative time, and buy-in were major barriers to the diffusion of GMVs. Many NPs described the challenges of lacking regular office space or having limited administrative time, which required them to engage in clinical organization during personal or unpaid time.* [25]
Implementation success and sustainability	Skilled facilitator	Facilitator- important, group management	Author interpretation: *The role of the facilitator was thought to be crucial to the successful operation of the group, and selection and training for the facilitator was seen as crucial to success.* [21]
	Tailored to patient groups	Patient background, disease stage	*"…critical that we [the video-SMA providers] were sensitive and expressed a value for diversity; that we were conscious of the dynamics inherent to the participant's cultures especially in the group interaction and demonstrated that we [the video-SMA providers] had knowledge regarding these differences and were willing to adapt our service delivery".* Provider [26]
	Leadership, teamwork and communication	Leadership, teamwork, communication, collegiality	*"It cannot be one person because the key word is 'sustainability.' If that person ever leaves or something ever happens, everything falls apart,"* Administrator [18] *"I think speaking to the importance of research and teamwork, getting people together for the betterment of patient care and the collegial approach to doing the kind of thing that brings people from different disciplines together, particularly nursing and the primary care providers. I think that's where we've got to wear that cap to get the right people engaging and working together"* Administrator and primary care physician [23]

Advantages and benefits

Comprehensive patient led care

Practitioners viewed the care delivered via SMA to be more comprehensive [25,29,33] and better suited to supporting self-management than 1:1 appointments [18]. Longer appointment times enabled a range of issues and concerns to be covered in the one session [18,22,25] and provided the opportunity for patients and practitioners to develop a care plan together [18,29,33]. Practitioners reflected that the group sessions had improved their own practice as they were able to gain further insights into patient circumstances, their conditions and the challenges to self-management that patients face in their daily lives [16,25,27–29]. Practitioners believed the presence of multiple clinicians with complementary expertise in the SMAs enabled more holistic care [23].

Peer support and accountability

Practitioners valued the peer support afforded to patients by group appointments [19,23,28,32,33], believing patients benefitted from listening to the experiences of their peers and from hearing responses to other participants' questions [22]. This in turn helped them to understand their condition better and how best to manage it [19,23]. Practitioners said patients were able to relate to each other which helped to normalise their conditions [16], and provide confidence in self-management [17]. Some clinicians explained there was *'cathartic value'* or '*therapeutic effect'* from patients sharing with others in the group their personal story of disease management [16,21,29]. The group format also enabled collective problem solving with clinicians and peers [33]. Two studies also reported that practitioners believed that patients felt accountable to other group members which increased their motivation to reach their self-set

goals [28,29]. However, a clinician in another study reported that the peer-to-peer support element of the SMA, *'didn't work very well'* when two patients were paired together who were both 'non-compliant' and 'didn't give off the best information' [28].

Efficiency and lower cost

Clinicians reported that they found the sessions enjoyable and made their work less repetitive [21,22,28] less rushed, and more relaxed [21]. GPs and other managerial staff perceived SMAs to be more time efficient and cost-effective than usual 1:1 appointments [19,28,33] and improved patient access to healthcare [28,33]. The multidisciplinary nature enabled them to get '*a lot of work done'* [23] and meet evidence-based guidelines [33]. However, nursing staff did not report time and cost efficiencies, rather they described the additional time and resources involved in setting-up the SMAs.

Barriers and challenges to adoption and implementation

Patient resistance and suitability

Nurse practitioners without SMA experience had concerns about recruitment and attendance, as patients were '*historically'* and '*culturally'* accustomed to receiving 1:1 care [25]. They also expressed concerns over the appropriateness of group sessions for some patient population groups, particularly those with '*concurrent disorders'* that *'can't keep to the time line or sit long enough'* [25]. Lack of motivation to improve health [21] and reluctance to share information in a group setting were perceived reasons why patients may not attend SMAs. Concerns about the ability to maintain patient confidentiality during the group session were

raised, but *'lessened when it was explained that this is dealt with through a signed confidentiality agreement'* [21,22].

Practitioners with SMA experience reported that the top barrier to implementing SMAs was *"convincing the patients to show up*" [28]. Patients were reported to be reluctant to take part in a group because they did not want to disclose medical history and health complaints to peers [23] and in one case this was thought to contribute to SMAs being a short-lived and unsuccessful innovation [27]. Some providers described how they spent time identifying patients they thought might be '*willing to attend'* and did not invite those whom they felt were '*less suited'* to SMAs such as those who were hard of hearing, who had limited English speaking skills or who were uncomfortable in a group [33].

Role adjustment and uncertainties

Nurse practitioners experienced difficulties encouraging other staff within the practice to *'buy-in'* and support the SMAs [23,28], reporting it being a '*hard sell'* to doctors who perceived them as *'extra work'* [28] . There was uncertainty and hesitancy amongst practitioners about SMAs, what was expected of them. Some practitioners reported how SMAs changed the dynamics between patients and provider, with practitioners tending to step back or keep quiet and allow patients to explore and discuss and problem solve between themselves [29,32] but intervene if misinformation was shared [32]. A clinician with no previous experience of group care was initially concerned, recognising that different skills were needed for SMAs. Yet, with minimal coaching, she was '*surprised at how easy'* it was to sit back, observe and listen rather than having the burden of needing to *'always know the answers'* [16]. One study [27] reported

that there were changes in the power dynamics between professionals particularly between NPs and GPs, as the former often take the lead in delivery of SMAs. One NP reported being irritated when the physician had minimal input during the SMA yet *'billed for the ten people that were in the group even though the NP had done all of the work, teaching, counselling and the prescriptions.* '[25]

Administrative & resource challenges

The most commonly cited challenge to implementing SMAs was the large number of administrative tasks involved in setting them up [16,19,21–23,25,28,33] clinicians reporting they can be particularly burdensome for 'non-medical staff' [22]. This included: the coordination of schedules for multi-disciplinary teamwork [16,21–23,28], access to the technological systems and support staff required to organise SMAs [25,26], identification of participants suitable for SMAs [28,33], difficulties in reminding patients of appointment times, and the preparation of clinical notes and documentation for each SMA. In the context of the US healthcare system, providers also expressed concerns over funding and billing for SMAs [16,18,19,22,27,28,33], with insurance reimbursement issues perceived as a barrier to providing SMAs. Lack of physical space to hold the SMAs was reported as key limitation [16,23,27,28,33] as well as insufficient staff to support the adoption, implementation and maintenance of SMAs [16,23,28] with some clinicians giving competing demands on their time as a key challenge to implementation [23,28].

Implementation success and sustainability

Skilled facilitator

Practitioners deemed the role of a facilitator to be crucial to success of SMAs [19,21,28,32,33]. They had an important role in making the atmosphere in the group session relaxed and conducive to sharing [33]. However, not all clinicians were equipped with group facilitation skills, as one dietician reported having difficulties in managing patients in the group who were '*over-bearing*' and 'offensive' rather than supportive of other group members [28]. Nurses reported that clinicians who could be flexible and were *'willing to take a back seat'* were most suited to the SMA model of working [28].

Tailored to patient groups

Several SMA studies were designed to target specific patient groups, for example veterans with low health literacy [23] and underserved Spanish speakers [17]. Practitioners reported having spent time identifying and designing the SMAs for these specific groups [33] and the need to be sensitive to the cultural diversity of group participants [26]. For disease specific SMAs clinicians acknowledged it was important to take into account the disease stage of the SMA participant, as patients with more disease experience may '*more adequately influence'* those with less experience [21]. Most studies in this review did not describe the process by which patients were selected and invited to attend. A NP believed that the SMAs they tried to implement were unsuccessful because they weren't organised and designed in a person-centred way, rather the incentive for the practice was '*to see a bunch of people all at once and sign off*'[25].

Leadership, teamwork and communication

Two studies described the importance of having leadership support in order to adopt and implement the innovation [23,28] to ensure sufficient time and resources were allocated to the SMAs. A team-based approach and effective communication between members healthcare practitioners and practice staff was reported to be important for effective implementation, maintenance and sustainability [18]. The delivery of care by multidisciplinary teams was also considered a key strength of group appointments [23].

Patient and carer view and experiences

A number of subthemes emerged from the patient and carers' perspectives within overarching themes of 'benefits of SMAs' and 'barriers to SMA attendance and success', see Table 4.

370 *Table 4 Views and experiences of patients and carers*

Themes	Subthemes	Exemplar codes	Exemplar quotes and data
Benefits of SMAs	Peer support	Feeling supported, reassurance	*'I wasn't the only one who had ADHD. It's like there's more people to know how it feels… I really don't talk to anybody about my stuff I have to go through, so it was fun to tell people about it"*Patient ADHD [16]
	Vicarious learning and collective problem solving	Surrogate questioning and answers, listening and discussion, learning from peers' experience	*"I didn't even want to go on the medication. To me it was no you know. But hearing it from her [another group member], how it worked for her, I decided to try it. And I'm glad I have, because it has helped me control it."*Patient, diabetes [24]
	Motivation for self-management	Learn self-management strategies, improved self-management, accountability	*"… you come out of the group feeling much more self-confident … you've got your batteries recharged and you can really go till the next group … it's [Gmv] more motivating … you want to do more yourself and rely less on others … but then you always realize there's others out there to help you if needed."*Patient [33]
	Safe environment to share	Inviting and comfortable atmosphere, honesty, anonymity in group, enjoyment, more time	*"I just noticed that, listening to the other people, they brought up some things that may have related to me that I felt were my weaknesses or things that I did that I wouldn't wanna disclose because I might feel a bit of shame or embarrassment, but after hearing other people be open and honest, I think it gives me—or just allows you to be more honest yourself because you've already heard other people expose themselves or be honest. (Male, approximately 60 years old, type 2 diabetes SMA)* [31]
Barriers to SMA attendance and success	Cultural barriers	Dislike group work, confidentiality and privacy concerns, can't relate to others, dislike divided time and attention, lacking motivation/ interest in health, sessions too long	Author interpretation: *One male stated he was 'too busy' to be sitting around in a doctor's surgery for 90 minutes, although agreed that the total time taken for a consultation, with waiting time, etc, may equal this.* [21] Author interpretation: *While some initially thought sharing information in the group situation was a problem, a concern over privacy tended to drop away after talking about this. 'I suppose you don't have to disclose what you don't want to.' (Female)* [21]

Physical barriers	Accessibility of venue, transportation costs	*"I'm on a fixed income, I'm a retiree, and sometimes it gets a little expensive when you're charting out what you can spend each month … maybe if they could throw a little something in each month, like maybe $10 for transportation or something. Don't you think that would help?"* Patient, diabetes [18]

Benefits of SMAs

Peer support

Most patients described feeling supported by others in the group [16,19,21,22,27–29], feeling that '*they were not the only one'* with their condition and enjoyed having a safe environment in which to share their experiences and feelings [16]. Carers valued the group sessions reporting the additional support they received from being able to share with others in their situation [16].

Vicarious learning and collective problem solving

Patients described learning more about their condition, disease progression and treatment options by listening to the lived experiences of others and observing and engaging with other individuals at different stages of their disease [17,27]. Being able to ask multiple questions and hearing answers to questions they had not thought to ask was very beneficial [19,25,27]. They more readily absorbed/listened more closely to health-related information from peers than from the clinician [20,24,32] because they knew they had experienced it themselves. Hearing the experiences of others helped overcome feelings of isolation and provided patients with reassurance in their ability to self-manage [19]. Support for SMAs was particularly strong from those with previous health-related group experience [21]. Conversely, however, it was reported that some patients did not want to attend any further SMAs because they did not want to talk about their health concerns or listen to other people's concerns in a group [33].

Motivation for self-management

Patients reported feeling more motivated to self-manage their condition(s) [17,18,20] and accountable to others in the group to adhere to medication [26] and achieve goals that they set themselves [18,28,29,31]. Veterans reported that they were using less medication following the group session and were better able to self-manage their condition [20]. Similarly, carers reported that their children had learned skills to manage their ADHD better [16].

Safe environment to share

Some patients reported feeling anxious prior to attending SMAs and ashamed of how they had been controlling their condition. However, once they had attended the SMA, they found the session a safe environment in which to share and face their fears and they had developed greater trust in their health practitioner [29,31]. Another study reported that some patients felt the group environment was more relaxed and enjoyable than one to one appointments, as 'there is a certain level of anonymity in a group setting' [29]. It was widely reported that patients were satisfied with the care they received during the group sessions [16,19,22,24,26,29,31].

Barriers to SMA attendance and success

Some studies reported that patients expressed dislike or lack of interest in group appointments [19,23]. Some patients also expressed reservations about sharing personal information and about confidentiality prior to attending [19,21,23,30], especially in smaller communities [21]; however this was not a concern after attending the group session [19]. In the study of virtual SMAs [26] some patients reported negative experiences including that the SMA was too big (even though there were only 4 – 6 patients per SMA), and there was poor control of group

dynamics, but this might have been specific to the remote delivery. It was recognised that a skilled facilitator improved enjoyment and engagement [24] and how providers communicate and interact with patients during the appointment can affect their experience[20]. Others found it difficult to relate to other group members [30] or did not want to talk about their issues, nor hear other patients' issues in a group [33]. Some patients reported they would have liked more individual time with the clinician [26,30] or to have seen their own doctor [21,31]. Barriers to attendance included scheduling conflicts with other commitments [18]and transportation or parking issues [28].

DISCUSSION

This systematic review has identified a detailed literature, primarily from North America, that provide rich accounts of practitioners involved in the delivery SMAs. Whilst most studies included patient perspectives, the richness of the supporting data varied between studies and overall was lower compared with practitioner perspectives. The patient quotes reported to support author interpretation were short and few in some studies and often demographic information was missing limiting the readers ability to judge the transferability of the findings. There was notably less comparable evidence examining carer perspectives. The experiences of some minority ethnic and indigenous groups were represented thus offering insights into the acceptability of SMAs for these patient groups. The systematic search and selection measures enabled the identification and synthesis of data which has brought to light several additional challenges to implementation.

Most practitioners and patients with experience of SMAs regarded them positively, and reported several advantages compared to one-to-one appointments. GPs and nurse practitioners with SMA experience, reported that they enjoyed the sessions, with several reporting they helped overcome the repetition fatigue often associated with traditional consultations. Practitioners also perceived SMAs could be a more efficient and effective way of delivering care. Most patients valued the provision of peer support and reported that being able to share and learn from each other helped improve their self-confidence and provided motivation to reach their goals. However, this experience was not shared by all patients, with some reporting that they were unable to relate to others in their group or that they felt others in the group talked too much. This highlights the need for effective facilitation and careful patient selection in order for SMAs to be successful.

Some practitioners reported difficulties in recruiting patients and garnering support for the delivery of SMAs from other practice colleagues. Notable barriers to SMA implementation included insufficient staff, time and resources to set up and run SMAs. Practitioners were concerned that patients would be reluctant to participate in a group appointment due to low motivation, confidentiality concerns and preference for 1:1 appointments. Some patients also expressed reservations about the group setting due to confidentiality concerns and desire for more time to discuss individual needs.

The positive experiences and perceived benefits of SMAs reported by practitioners and patients in this review corroborate those reported previously [4,10], which suggests SMAs may offer advantages in primary care similar to those in other healthcare settings. However, studies

included in this review may be subject to reporting bias due to a focus on attendees rather than those who declined SMAs [4,10,11]. Staff and facilities inadequacies, patient participation and attendance, group dynamic incompatibilities and cost-benefit concerns have been listed as barriers to implementation previously [9,11]. Our review of qualitative evidence provides additional, deeper insights into barriers linked to organisational culture. We found practitioner reports of difficulties in gaining support from colleagues in the wider practice, including managerial staff, some of whom expressed negative attitudes towards SMAs. Furthermore, SMAs involving multidisciplinary teams appear to challenge the traditional hierarchal role of practitioners in primary care which leads to improved collegiality in some cases, and frustration in others. This suggests that clear guidance and expectations around SMAs may not have been effectively communicated within practices. Our review has also highlighted that SMAs appear to be most successful when practitioners have designed and prepared SMAs for particular patient groups, and this work is reported to be resource and time intensive. Practitioners report mixed views about the efficiency of SMAs compared to 1:1 appointments in light of the time and resources to set them up, which requires further exploration.

Limitations

Although the quality of included studies was generally good, most of the healthcare professionals were GPs and nurse practitioners which may limit the generalisability of our findings to other healthcare professionals in primary care such as pharmacists, physiotherapists and dieticians etc. Few studies provided rich detailed accounts of patient and carers, thus insights offered from the literature are limited. Whilst PPI members were involved throughout this review, we did not involve nor conduct member checking with practitioners. This would

have helped to strengthen the credibility of the review findings. Given that many of the patients were recruited immediately after the SMAs, it is possible that patients with negative SMA experiences or those who declined to participate may be missed, therefore the sample may be biased [4,10,11]. Similarly, only two studies included the perspectives of practitioners not implementing SMAs, therefore other perceived barriers may not have been captured. Furthermore, the lack of researcher reflexivity reported in the studies highlighting a potential source of bias, those involved in developing or delivering SMAs could have influenced participants' responses. This may help explain the discrepancy between providers telling researchers that patients were hesitant to attend SMAs whilst the latter reported a great deal of enthusiasm. As most studies are from North America, it is unclear whether some barriers, such as payment/ insurance reimbursement concerns, are applicable in other global healthcare systems. Limited and inconsistent reporting of study participant demographic information limited our understanding as to whether patient experiences and perspectives differ by long-term condition or other personal characteristics. None of the studies reported differences in patient perspectives based on gender, age ethnicity or cultural group. Similarly, the amount of detail reported about the SMA itself in terms of format, staffing, duration and mode of delivery was limited. It is possible that this underpins some of the differences in experiences of patients and practitioners reported in the studies. In addition, it is unclear whether patient willingness to attend SMAs is sustainable over time, due to limited study period and follow ups.

Most studies in this review reported SMAs designed to support patients with diabetes. Only a limited number of studies reported on other long-term conditions, yet the perceived benefits and experiences reported in mixed-condition studies were similar, and do not appear to be

condition specific. Furthermore, only five studies explicitly stated that some SMA participants had multimorbidity. Thus, there was insufficient information reported to understand the acceptability of attending group appointments with individuals who have different combinations of conditions. Further exploration of the use and experience of SMAs for patients with multimorbidity is needed.

CONCLUSION

Practitioner, patient and carer experiences of SMAs delivered in primary care have generally been positive, with benefits to both practice and patients reported. However, there is not enough evidence to show if views and experiences vary by staff involved, medical condition and / or patient characteristics. Further research is needed to better understand which groups of patients and practitioners should be brought together in an SMA for best effect. Whether SMAs for single conditions, adequately meet the care needs of patients with multimorbidity also needs further exploration. This will help to inform guidance for practitioners on how best to identify and recruit patients to SMAs, rather than identifying and inviting patients based on personal judgements, which could have implications for health inequalities. Having identified a number of barriers and facilitators, policies and guidance need to be developed and effectively communicated across and within practices on how best to implement and evaluate SMAs in practice. This in turn may help to improve staff expectations and overcome the hesitancy regarding SMA approaches. Additional resources may be needed to deliver SMAs such as additional administrative support, further training, compatible IT systems and physical space; a needs assessment may be required at practice level. The views of healthcare practitioners not currently delivering SMAs are required to ensure all barriers have been comprehensively

explored. This is important to fully understand what interventions might be necessary to support the widespread adoption and implementation of SMAs in primary care. In addition, given the increased use of virtual consultations due to the outbreak of Covid-19, further exploration as to the acceptability and feasibility of SMAs delivered via videoconference is warranted.

AUTHOR CONTRIBUTIONS

EK, KJ, HM designed the study. MYT and KJ undertook the searches. FG, MYT, KJ, OO, EK and AOD carried out the screening. FG, MYT, KJ and HM carried out the data extraction and analysis. AOD, EK, FG, FFS, HM, KJ, MYT, OO contributed to the interpretation. FG wrote the manuscript that all authors contributed to and approved.

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AVAILABILITY OF DATA

As this study is a systematic review, all data reported has been previously published and is in the public domain.

SUPPLEMENTARY MATERIAL

ENTREQ checklist (Enhancing transparency in reporting the synthesis of qualitative

research)

Supplementary File 1- Search strategy example

Supplementary File 2- Quality appraisal of primary studies

ETHICS STATEMENT

Ethical approval was not required as this is a systematic review of published literature, no primary data was collected.

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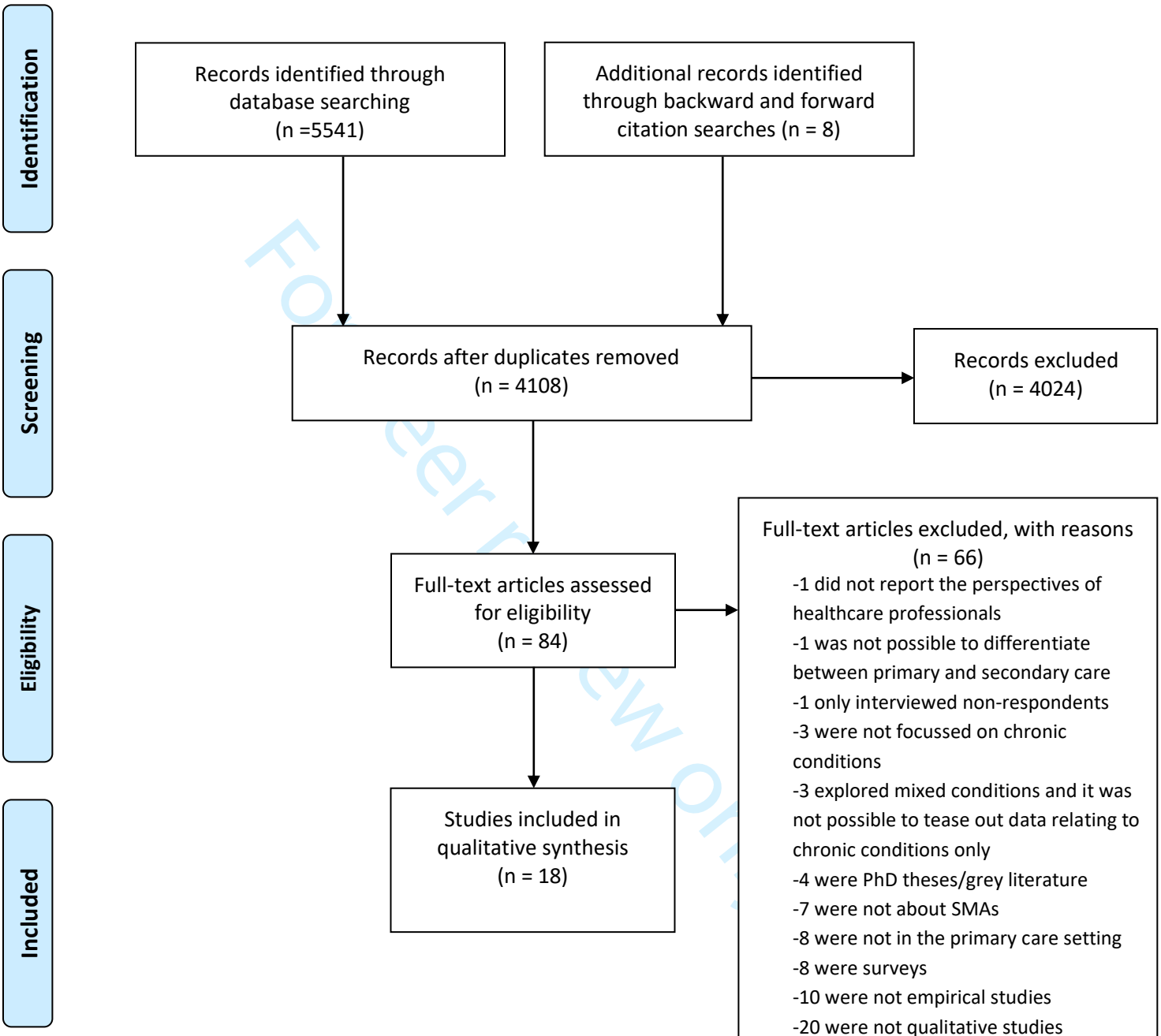
32 Thompson-Lastad A. Group Medical Visits as Participatory Care in Community Health Centers. *Qual Health Res* 2018;**28**:1065–76. doi:10.1177/1049732318759528

33 Wong NT, Te Browne AT, Avoie JL, *et al.* Incorporating Group Medical Visits into Primary Healthcare: Are There Benefits? Intégrer les visites médicales de groupe aux soins de santé primaires%: y a-t-il des avantages? *Healthc Policy* 2015;**1127**:27–42. doi:10.3969/j.issn.1002-0829.2014.01

FIGURE LEGEND

Figure 1-Flow diagram of review search

Caption: Figure 1 Our search resulted in the retrieval of 84 papers for full-text review. Of these, 66 were ineligible for inclusion. Three additional studies were identified following forward and backward citation searches. This resulted in the inclusion of 18 studies in the final synthesis.



Supplementary File 1- Example search strategy

Medline Search (OVID **MEDLINE(R)** 1946 to June Week 4 2019)

Shared medical appointment$
OR shared medical visit$
OR cluster visit$
OR group visit$
OR group clinic$
OR group appointment$
OR group care$
OR group meeting$
OR group medical visit$
OR group medical appointment$
OR group medical clinic$
OR group consultation$
OR group medical care$
OR group medical meeting$
OR gmv
OR gma
OR co-operative health care clinic$

AND ((("semi-structured" OR “semistructured” OR “unstructured “ OR “informal “ OR "in-depth" OR ”indepth” OR "face-to-face" OR “structured” OR “guide”) adj3 (interview$ OR discussion$ OR questionnaire$)) OR (focus group$ OR qualitative OR ethnograph$ OR fieldwork OR "field work" OR "key informant")).ti,ab.

Supplementary File 2 Quality appraisal of studies included in review

First author & date	CASP criteria										Overview of limitations and richness of data
	Statement of aims	Appropriate methodology	Appropriate design	Recruitment	Data collection	Reflexivity	Ethical issues	Data analysis	Statement of findings	Valuable	
Arney *et al*. 2018[23]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Very	• Reasons for declining invitation to participate were not reported. Potential researcher bias not discussed. • Many quotations (with participant occupation) provided to support themes.
Bauer *et al*. 2017[16]	Yes	Yes	Yes	Can't tell	Yes	Can't tell	Can't tell	Yes	Yes	Moderately	• Recruitment strategy not reported. Unclear whether anyone declined to participate. Unclear how research was explained to participants. Potential researcher bias not discussed. • Many quotations (without participant characteristics) provided that support findings.
Cornelio-Flores *et al*. 2018[17]	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes	Yes	Very	• Unclear how participants were invited to participate in focus groups and whether any declined. Focus groups held during last GMV session by facilitator external to the research team. • Many quotes included without participant characteristics. Data relatively rich.
Drake *et al*.2018[18]	Yes	Yes	Yes	Can't tell	Yes	No	Yes	Yes	Yes	Very	• Unclear how participants were invited to participate in focus groups and whether any declined. Unclear who facilitated the focus groups and what role/relationship they had with study participants, no discussion of author biases. • Some quotes (without participant characteristics) included though not very rich. Very few patient accounts reported.
Egger *et al*. 2015[19]	Yes	Yes	Yes	Can't tell	Yes	No	Yes	Can't tell	Yes	Moderately	• Recruitment strategy not reported. Research team involved in delivering SMAs, no discussion of potential researcher bias. Acknowledged potential bias in self-selection of participants. • Fairly thin qualitative data about satisfaction/enjoyment. Quotations provided without participant characteristics.
Housden *et al*. 2016[25]	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Very	• No reflection on potential bias in data collection or analysis by authors. • Good illustrative quotes. In-depth accounts provided.
Housden *et al*. 2017[29]	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Very	• No reflection on potential bias in data collection or analysis by authors. • In-depth analysis. Rich illustrative quotes both HCP and patients.
Kowalski *et al*. 2018[28]	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Very	• Relationship between authors and study participants unclear. Authors appear to be involved data collection, analysis and subsequent SMA implementation. This source of potential bias not discussed. • Rich quotes included in narrative with participant occupation reported. Lots of thin quotes covering lots of aspects mapped onto CFIR framework. Difficult to untangle SMAs from SMA-with peer 2 peer support.
*Lavoie *et al*. 2013[30]	Yes	Yes	Yes	Can't tell	Yes	Can't tell	Yes	Yes	Yes	Very	• Unclear how providers were identified, how many were invited and how many declined or for what reason. Potential researcher bias not discussed • Rich data with illustrative quotes presented without reporting patient practitioner characteristics.

Miller *et al*. 2004[33]	Yes	Yes	Yes	Can't tell	Yes	Can't tell	Yes	Yes	Yes	Moderately	• Unclear if any participants declined to participate in an interview or why. Potential researcher bias not discussed. • Qualitative data very thin, no quotations provided.
Siple *et al*. 2015[20]	Yes	Yes	Yes	Can't tell	Yes	No	Can't tell	Yes	Yes	Very	• Participant recruitment not described. Reasons for declining invitation not reported. Focused on views of diabetes self-management (which so happened to be via SMA) so less of SMA experience. • Quotes are available but themes linked with factors influencing their self-care/motivation and less about SMA experience. Views of wives/carers not presented.
Stevens *et al*. 2014[21]	Yes	Yes	Yes	Can't tell	Yes	Can't Tell	Yes	Yes	Yes	Very	• Recruitment strategy not reported. Not clear if any participants declined to participate in an interview. Potential researcher bias not discussed. • Quotes from HCP and patents included with participant characteristics. Qualitative data thin.
Stowell *et al*. 2015[22]	Yes	Yes	Yes	Can't tell	Yes	Can't tell	Can't tell	Can't tell	Yes	Low	• Recruitment procedure not reported. No reflection on researcher bias. Unclear if ethical approval or informed consent required and/or obtained. No description of qualitative data analysis given. • No qualitative data reported - no quotations. Interview findings combined with survey findings and authors narrative does not contain quotes.
Stults *et al*. 2016[32]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Very	• Reasons for declining study invitation not reported. Potential researcher bias not discussed. • Provides rich data. Quotes together with participant characteristics reported-age, gender SMA attended, Only data from patients attending SMAs for chronic condition extracted.
Thompson *et al*. 2014[24]	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Very	• Unclear how participants were selected and contacted. Whether any declined to take part. • Some quotes (without participant characteristics) provided in a table with themes and key findings, thin data.
Thompson-Lastad (2018)[31]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Very	• Reflection on potential researcher bias and influence on group dynamics not discussed. • Limitation: some SMAs were run for non-long-term conditions therefore coding of only experiences/data that refers to long-term condition SMAs. Lots of rich qualitative data (quotes).
Tokuda *et al*. 2016[26]	Yes	Yes	Yes	Yes	Yes	No	Yes	Can't tell	Yes	Very	• Qualitative data analysis process not reported. Potential researcher bias not discussed. • Quotations (without patient characteristics) included to support findings, rich data.
*Wong *et al*. 2015[27]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Very	• Relationship between researcher and participants unclear. Potential researcher bias not discussed. • Rich data. Quotes (without participant characteristics) provided to support key findings.

HCP= healthcare practitioner

The ENTREQ Checklist

Enhancing transparency in reporting the synthesis of qualitative research

Item	Guide and description	Reported on page
Aim	State the research question the synthesis addresses.	5
Synthesis methodology	Identify the synthesis methodology or theoretical framework which underpins the synthesis, and describe the rationale for choice of methodology *(e.g. meta-ethnography, thematic synthesis, critical interpretive synthesis, grounded theory synthesis, realist synthesis, meta-aggregation, meta-study, framework synthesis).*	5 & 6
Approach to searching	Indicate whether the search was pre-planned (*comprehensive search strategies to seek all available studies)* or iterative (*to seek all available concepts until they theoretical saturation is achieved)*.	5
Inclusion criteria	Specify the inclusion/exclusion criteria *(e.g. in terms of population, language, year limits, type of publication, study type).*	5
Data sources	Describe the information sources used (e.g. *electronic databases (MEDLINE, EMBASE, CINAHL, psycINFO, Econlit), grey literature databases (digital thesis, policy reports), relevant organisational websites, experts, information specialists, generic web searches (Google Scholar) hand searching, reference lists)* and when the searches conducted; provide the rationale for using the data sources.	5
Electronic Search strategy	Describe the literature search *(e.g. provide electronic search strategies with population terms, clinical or health topic terms, experiential or social phenomena related terms, filters for qualitative research, and search limits)*.	5 and Supplementary file 1
Study screening methods	Describe the process of study screening and sifting *(e.g. title, abstract and full text review, number of independent reviewers who screened studies).*	6
Study characteristics	Present the characteristics of the included studies *(e.g. year of publication, country, population, number of participants, data collection, methodology, analysis, research questions).*	97, Table 1- p8, Table 2 p13
Study selection results	Identify the number of studies screened and provide reasons for study exclusion *(e,g, for comprehensive searching, provide numbers of studies screened and reasons for exclusion indicated in a figure/flowchart; for iterative searching describe reasons for study exclusion and inclusion based on modifications t the research question and/or contribution to theory development).*	Figure 1, p7

The ENTREQ Checklist

Enhancing transparency in reporting the synthesis of qualitative research

Rationale for appraisal	Describe the rationale and approach used to appraise the included studies or selected findings *(e.g. assessment of conduct (validity and robustness), assessment of reporting (transparency), assessment of content and utility of the findings).*	P6
Appraisal items	State the tools, frameworks and criteria used to appraise the studies or selected findings (e.g. Existing tools: CASP, QARI, COREQ, Mays and Pope [25]; reviewer developed tools; describe the domains assessed: research team, study design, data analysis and interpretations, reporting).	P6
Appraisal process	Indicate whether the appraisal was conducted independently by more than one reviewer and if consensus was required.	P6
Appraisal results	Present results of the quality assessment and indicate which articles, if any, were weighted/excluded based on the assessment and give the rationale.	P7 Supplementary File 2,
Data extraction	Indicate which sections of the primary studies were analysed and how were the data extracted from the primary studies? *(e.g. all text under the headings "results /conclusions" were extracted electronically and entered into a computer software).*	P6
Software	State the computer software used, if any.	P6
Number of reviewers	Identify who was involved in coding and analysis.	P6
Coding	Describe the process for coding of data *(e.g. line by line coding to search for concepts).*	P6
Study comparison	Describe how were comparisons made within and across studies *(e.g. subsequent studies were coded into pre-existing concepts, and new concepts were created when deemed necessary).*	P6
Derivation of themes	Explain whether the process of deriving the themes or constructs was inductive or deductive.	P6
Quotations	Provide quotations from the primary studies to illustrate themes/constructs, and identify whether the quotations were participant quotations of the author's interpretation.	Table 3, -p16 and Table 4-p21
Synthesis output	Present rich, compelling and useful results that go beyond a summary of the primary studies (e.g. *new interpretation, models of evidence, conceptual models, analytical framework, development of a new theory or construct).*	P23-26