

BMJ Open Is self-management a burden? What are the experiences of women self-managing chronic conditions during pregnancy? A systematic review

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ABSTRACT

Objective This systematic review examines the qualitative literature on women's experiences of self-managing chronic conditions in pregnancy.

Design Systematic review of qualitative literature. Searches were performed in PubMed and CINAHL from inception to February 2021. Critical interpretive synthesis informed the coding framework and the analysis of the data. The Burden of Treatment theory emerged during the initial analysis as having the most synergy with the included literature, themes were refined to consider key concepts from this theory.

Participants Pregnant women who are self-managing a chronic condition.

Results A total of 2695 articles were screened and 25 were reviewed in detail. All 16 included studies concerned diabetes self-management in pregnancy. Common themes coalesced around motivations for, and barriers to, self-management. Women self-managed primarily for the health of their baby. Barriers identified were anxiety, lack of understanding and a lack of support from families and healthcare professionals.

Conclusions Pregnant women have different motivating factors for self-management than the general population and further research on a range of self-management of chronic conditions in pregnancy is needed.

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INTRODUCTION

Chronic diseases that manifest during pregnancy, or exist pre-pregnancy, can have a lasting impact on the health of the mother.¹ Numerous conditions can affect women during pregnancy, some confined to that time (eg, pre-eclampsia or gestational diabetes) and others that are longer lasting (chronic hypertension and diabetes). These conditions may lead to harm for both the mother and the baby; hypertensive disorders, for example, are one of the leading causes of maternal mortality globally.²

SELF-MANAGEMENT

Self-management has been shown to support and improve the management of chronic

Strengths and limitations of this study

- Pregnant women's experiences of self-managing during pregnancy is under researched compared with the general population. Lived experiences are often overlooked in self-management literature and by using qualitative literature we have been able to address some of these research gaps.
- Limitations include that the coding framework is constrained by how the original researchers interpreted the interviews and their interactions with patients.
- Distinguishing between pre-existing chronic conditions and pregnancy acquired chronic conditions is important, but it was not a distinction that was reflected in the dataset; it is both a limitation of the included studies and this review.
- The burden of treatment theory does not perfectly map to pregnancy, however elements of this theory are helpful in understanding how and why patients interact with self-management.

conditions in the general population and there is a growing body of research to suggest self-management of chronic conditions in the pregnant population is also effective.³ Self-management interventions in pregnancy tend to focus on self-monitoring (blood pressure, blood glucose, etc) and in some cases titrating medication (insulin). Self-management following a hypertensive pregnancy has been explored post-partum, the evidence to date suggests not only is it feasible, but it may result in better diastolic blood pressure control at 6 months post partum.⁴ In the antenatal period, the OPTIMUM-BP (Optimising Titration and Monitoring of Maternal Blood Pressure) pilot trial suggested that self-monitoring of blood pressure was both feasible and acceptable to women with chronic hypertension.⁵ Self-management of diabetes in pregnancy has also been explored. In pregnant women

with type 1 and type 2 diabetes, self-monitoring of blood glucose is common⁶ and self-management programmes in women with gestational diabetes are also becoming more commonplace.^{3 7} In the general population, self-management has been explored in numerous chronic conditions; in particular hypertension and diabetes, where there is a large body of research around understanding the patient experience.^{8 9 10} Much of this research has demonstrated patient's confidence and ability to self-manage (sometimes referred to as self-efficacy)⁸ and suggests that self-management strategies improve health outcomes for those with chronic conditions.¹¹ These conditions also affect women during pregnancy, but thus far this population are under-represented in this field of research. Moreover, research on self-management in the general population may not be wholly applicable to the pregnant population. Pregnancy presents an additional set of motivations for self-management, not accounted for in current self-management frameworks which often assume long-term self-management, whereas with pregnancy the period of management is often temporarily bounded even if it continues post partum and considerations are for the mother and baby dyad.

METHODS

This review was influenced by the critical interpretive synthesis (CIS) approach.¹² A CIS approach leaves more space for interpretation than a conventional systematic review and in theory using this approach allowed us more space to consider lived experiences across a range of chronic conditions. This approach also allowed us to iteratively develop the research question and the inclusion criteria as the search progressed and the lack of research on the self-management of chronic conditions in pregnancy became apparent. In light of a lack of data, it was necessary to limit the scope of the review to the following research question: 'what are the current behaviours and attitudes among pregnant women regarding the self-management and self-monitoring of chronic conditions in pregnancy?' (see online supplemental appendix 1).

Searches were performed in PubMed and CINAHL (EBSCOHost) (1982–present) from inception to February 2021 (see online supplemental appendix 2).

Potentially eligible studies were screened by two independent reviewers against the following inclusion criteria:

1. Chronic condition: including but not exclusively diabetes (gestational or chronic), hypertension (gestational or chronic), obesity, kidney disease.
2. Pregnancy.
3. Self-management: including but not exclusively self-monitoring, self-weighing, self-care.
4. Qualitative methods.

This review used a broad definition of self-management, 'the ability of an individual, in conjunction with family, community and healthcare professionals, to manage symptoms, treatments and lifestyle changes'.¹³ We expanded the search criteria retrospectively to include risk factors

for chronic conditions, in order to capture as much data as possible. The authors felt that qualitative literature was best placed to explore the lived experiences of people self-managing during pregnancy. Papers were excluded if the reviewers concluded that commonly recognised qualitative methods were not used, that is, interviews, focus groups, or ethnographic observations.

Two reviewers (BEJ and JK) independently reviewed the titles and abstracts of identified articles, a full-text assessment of the relevant papers by both reviewers followed. The reference lists of included studies were screened but found no further articles to include. Disagreements on articles were resolved by consensus or discussion with a third reviewer (KLT). Data extraction was conducted by BEJ and checked by the study team.

Data analysis

CIS also informed the analysis of the data.¹² Analysis began with a detailed examination of the included papers, identifying themes and developing an understanding of the material. Dixon-Woods *et al* emphasise what distinguishes a systematic review using a CIS approach is 'the aim of being critical' and questioning 'taken-for-granted-assumptions'¹² meaning that the coding framework for this review was developed to critique the idea that general population self-management research was applicable to pregnancy. During the initial analysis, elements of the Burden of Treatment theory, developed for chronic condition management in the general population, were identified in the included literature. The coding framework was revised considering this theory's key concepts, such as the effect of patient work (eg, self-monitoring, self-management, lifestyle changes) on self-management efficacy and the role of support networks, allowing for a more nuanced interpretation of the woman's experience of self-management. Data extraction was conducted by BEJ using NVivo V.12 Pro (QSR International Pty Ltd, released 2018), and a coding framework was developed by BEJ and agreed on by the study team (LH, KLT and RJM).

The burden of treatment

May *et al* have developed a theory explaining the relationship between 'sick people' and their healthcare providers in the context of chronic disease. In the absence of a possible cure, patients must engage in 'routine work' to manage the disease.¹⁴ May *et al* explain that patient work in the context of the Burden of Treatment theory includes symptom monitoring, treatment management and lifestyle changes while 'maintaining (these tasks) alongside the demands of other aspects of everyday life'.¹⁴ Transferring the burden of treatment to the patient prompts a change in the patient-clinician relationship. Within pregnancy this could theoretically provide women with more agency, as well as more responsibility.

The first interpretation of the data, reviewing the themes that already existed in the included papers, revealed the synergy with the Burden of Treatment theory; therefore,

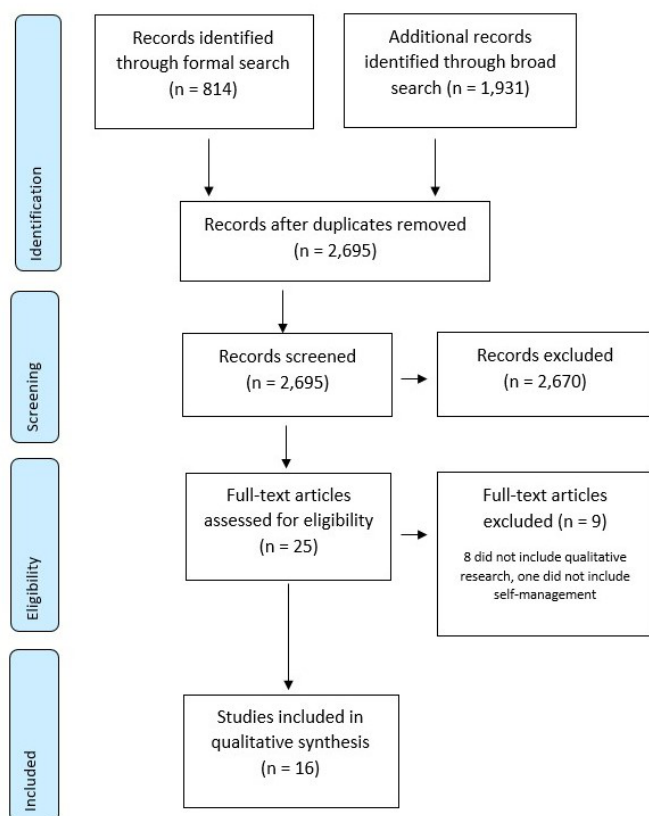


Figure 1 Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram of study search strategy.

the coding framework was iteratively mapped to two broad themes reflecting elements of the burden of treatment. These themes were grouped around motivations for self-management and barriers to self-management. As the coding progressed, more elements of the theory were incorporated into the analysis. One element of the theory is ‘the structure and performance of patient work’ a process that May *et al* call ‘sense making’ where ‘people and members of their social networks are expected to identify, understand and explain the diverse tasks that make up their work’.¹⁴ This idea was reflected in the themes concerning support from healthcare professionals and family, the impact of a lack of support, and women’s anxiety and understanding of their diagnosis.

RESULTS

Searches in PubMed and CINAHL identified 2745 articles, which when controlled for duplicates left 2695 for screening (see online supplemental appendix 2 and figure 1 for further details). The majority of articles were excluded as they did not include qualitative research or self-management, or the study population was not pregnant women. 25 articles were identified by the two reviewers for full-text review, of which 16 fulfilled the inclusion criteria (see table 1). Data quality checks using the Consolidated Criteria for Reporting Qualitative Research (COREQ) guidelines were carried out (see

online supplemental appendix 3). Fifteen of the included studies were of medium to high quality. One was considered low quality because of the small sample size.

Included studies were published between 2011 and 2020 and all focused on diabetes in pregnancy. Six were conducted in the USA, four in Australia and the remaining studies were carried out in Canada, Spain, Thailand, China, Singapore and New Zealand. The studies recruited from a range of settings: gestational diabetes clinics, antenatal clinics supporting low-income women, healthcare provider’s offices, day care centres and hospital based obstetric clinics. Fifteen of the studies used one-to-one interviews and one used focus groups for primary data collection. Two studies supplemented the interviews with focus groups, one supplemented with additional diary entries. One study was a mixed-methods study, including one-to-one interviews alongside survey data. The study population for all included studies was pregnant women, although one study had a mixed population of women who were currently pregnant, women planning on getting pregnant, and women who had previously been pregnant. Only papers concerning diabetes self-management in pregnancy fulfilled the inclusion criteria, leading to the results focusing on the challenges of self-management in this disease.

The two broad themes that emerged from the data were motivations for and, conversely, barriers to self-management during pregnancy (see table 2). Under the former, women express that having a healthy baby, supportive families and supportive healthcare professionals were their primary motivating factors. Barriers to self-management included a lack of knowledge and understanding of the condition lead to feelings of anxiety, as well as a lack of support from families and healthcare professionals. The following sections will address each subtheme in detail.

Motivations for self-management

Desire for a healthy baby

The most significant motivating factor for self-management was the desire for a healthy baby. Pregnancy comes with specific concerns and anxieties, women felt anxious over the burden of self-management and the health of their baby. It was clear that many women wanted to ‘do the right thing by the baby’,¹⁵ to ensure they had a healthy start in life. Women expressed fear about the potential to pass their ill health onto the baby. Most often, the initial response to their diagnosis was concern for the baby; ‘oh my God...you know is the baby gonna be OK?’.¹⁶ Some women expressed feelings of responsibility for their condition, and their desire to minimise the effect on their baby’s health; ‘I knew I had brought it on myself by being overweight...I felt very responsible’.¹⁵

Supportive environment: family

When the familial support was positive, women were motivated to self-manage for reasons beyond the health of the baby: ‘The biggest thing I can recommend is getting support. If you try to do it on your own, it’s going to seem very confusing and tedious’.¹⁷ When speaking about her partner one woman said ‘he was very supportive in helping

Table 1 Characteristics of included studies

Title	Year	Authors	Chronic condition	Journal	Sample size	Setting	Qualitative method
Living with gestational diabetes in a rural community	2014	Abraham and Wilk ¹⁷	Diabetes	The American Journal of Maternal and Child Nursing	10	USA	One on one interviews
Women's experiences of gestational diabetes self-management: A qualitative study	2013	Carolan ¹⁸	Diabetes	Midwifery	15	Australia Diabetes clinic	One on one interviews, focus group
Women's experiences of factors that facilitate or inhibit gestational diabetes self-management	2012	Carolan <i>et al</i> ¹⁵	Diabetes	BMC Pregnancy and Childbirth	15	Australia Diabetes clinic	One on one interviews, focus group
Experiences, perceptions and self-management of gestational diabetes in a group of overweight multiparous women	2014	Chavez-Courtois <i>et al</i> ²⁹	Diabetes	Cien Saude Colet	5	Spain	One on one interviews
'Is gestational diabetes a severe illness?' exploring beliefs and self-care among women with gestational diabetes living in a rural area of the south east of China	2016	Ge, <i>et al</i> ²¹	Diabetes	Australian Journal of Rural Health	17	China Obstetric clinics, wards	One on one interviews
The maternal experience of having diabetes in pregnancy	2011	Nolan <i>et al</i> ²³	Diabetes	Journal of the American Academy of Nurse Practitioners	8	USA	Focus groups
Self-monitoring lifestyle behaviour in overweight and obese pregnant women: qualitative findings	2018	Sheih and Draucker ³⁰	Overweight/obese	Journal of Clinical Nursing	13	USA Clinics (community health centre and health network)	One on one interviews
Socio-cultural aspects of self-management in gestational diabetes	2012	Wazqar and Evans ²²	Diabetes	Diabetes Nursing	12	Canada	Secondary analysis of one on one interviews
'I was tired of all the sticking and poking': Identifying barriers to diabetes self-care among low-income pregnant women	2015	Yee <i>et al</i> ³¹	Diabetes	Journal of Healthcare for the Poor and Underserved	10	USA Clinic	One on one interviews
Factors promoting diabetes self-care among low-income, minority pregnant women	2016	Yee <i>et al</i> ¹⁶	Diabetes	Journal of Perinatology	10	USA Diabetes clinic	One on one interviews
Lived experience of blood glucose self-monitoring among pregnant women with gestational diabetes mellitus: a phenomenological research	2017	Youngwanichsetha and Phumdoung ¹⁹	Diabetes	Journal of Clinical Nursing	30	Thailand Antenatal clinic, diabetes clinic, obstetric ward	One on one interviews
Self-management of gestational diabetes among Chinese migrants: A qualitative study	2018	Wah <i>et al</i> ²⁴	Diabetes	Women and Birth	18	Australia Antenatal clinic	One on one interviews
Ethnic Differences in Dietary Management of Gestational Diabetes Mellitus: A Mixed Methods Study Comparing Ethnic Chinese Immigrants and Australian Women	2019	Wan <i>et al</i> ²⁰	Diabetes	Journal of the Academy of Nutrition and Dietetics	83	Australia Maternity services, tertiary hospitals	One on one interviews and diary entries
The experience of gestational diabetes for indigenous Māori women living in rural New Zealand: qualitative research informing the development of decolonising interventions	2018	Reid <i>et al</i> ³²	Diabetes	BMC Pregnancy and Childbirth	10	New Zealand Primary care clinic	One on one interviews

Continued

Table 1 Continued

Title	Year	Authors	Chronic condition	Journal	Sample size	Setting	Qualitative method
'Diabetes Just Tends to Take Over Everything': Experiences of Support and Barriers to Diabetes Management for Pregnancy in Women With Type 1 Diabetes	2019	Singh <i>et al</i> ³³	Diabetes	Diabetes Spectrum	15	USA Diabetes clinic	One on one interviews
Barriers to Gestational Diabetes Management and Preferred Interventions for Women With Gestational Diabetes in Singapore: Mixed Methods Study	2020	Hewage <i>et al</i> ³⁴	Diabetes	JMIR Formative Research	15	Singapore Gestational Diabetes clinic	One on one interviews, in a mixed methods study also including a survey

me get over things',¹⁸ due to her partner's support she was able to overcome her fear of blood glucose self-testing. Families and partners who got involved in the recommended lifestyle changes and self-management activities, such as following the same diet, was motivational for pregnant women and increased their adherence to self-management and increased adherence to self-management.

Supportive environment: healthcare professionals

Similarly, a supportive and constructive relationship with healthcare professionals proved to be a strong motivator for self-management, often minimising feelings of anxiety and uncertainty. Healthcare professionals who provided self-management advice gave women more autonomy over their pregnancy, 'the diabetes educator is really friendly...she did a demo in front of me, how to inject yourself'.¹⁸ Women who

understood their condition better were able to make positive choices about their self-management; 'I would limit my foods in order to control my blood sugar'.¹⁹

Barriers to self-management

Feeling anxious and overwhelmed

In this dataset, women often described feelings of anxiety and were overwhelmed by the prospect of managing their new condition. Women reported feelings of unhappiness or low mood while learning to self-manage, calling it 'frustrating'. Some women found trying to follow self-management guidelines created lot of anxiety: 'It creates a lot of anxiety. Like I am hungry but I don't want to eat now because I don't know if I harm the baby. But I feel hungry and could not eat'.²⁰ While it was often a lack of information that made women feel anxious, there was

Table 2 Quote table: barriers and motivations for self-management

Barriers to self-management	Motivations for self-management		
Lack of knowledge and understanding	'Actually, I didn't know anything about it...So, I...thought that if you were diabetic then you kind of get it. But then I didn't know something you can just develop during pregnancy as well. So, it was quite new to me.' ³⁴	Desire for healthy baby	'I have a responsibility to care for my child...and to care for this baby inside of me...For me, I wasn't going to let anything get in the way...' ³³
Feeling anxious and overwhelmed	'With the fourth pregnancy, I had sort of lost control. I was living in the garage with my three children [and husband]. I was huge and six months [along in my pregnancy] when I was diagnosed with depression....I didn't want to do anything. I'd just wake up [and] went through the motions.' ³²	Supportive environment: family	'If it's not because of my husband, I couldn't have made it this far, like he would remind me, sometimes when I want to eat something he would just remind me not to, and like when we go for shopping he would buy the healthy stuff.' ²⁴
Lack of support: family	'I need to cook for my husband and I can't make him eat the same thing...I need to follow him because he needs energy for his work...and I can't avoid using sauce, you know how on the menu it says you need to avoid sauces and stuff, I can't do that, my husband wouldn't want to eat according to that.' ²⁴	Supportive environment: HCP	'The diabetes educator is really friendly...she explained things very like, in a very good way Yes, yes and—like, she did a demo in front of me, how to inject yourself. It was really scary first time. They told me everything.' ¹⁹ 'The first pregnancy I had a lady (educator) that was really excellent, very understanding, very approachable. She would listen to my concerns and we had a conversation rather than just a one-way flow of information. And so I had a very positive experience with her.' ¹⁵
Lack of support: HCP	'You are told that you have this and nobody spends time with you, it's kind of frustrating because you want to cry. You think that it's something you did wrong' ¹⁷ 'According to my experience, what they (health professionals) discussed are all about the dietary habit of women here (in Australia), so if the suggestions could be more relevant to Chinese lifestyle, a lot of things that have been taught currently are not meaningful.' ²⁰		

HCP, healthcare professional.

some evidence that being given ‘too much information (about gestational diabetes),¹⁵ also made women feel overwhelmed. Women were negative about self-management when they perceived that it had not gone to plan: ‘When I took the higher dose [of insulin], I felt defeated...this is crazy, I don’t think my body is ever going to be perfect’.¹⁶

Lack of knowledge and understanding

A lack of knowledge and understanding often led to a lack of motivation to self-manage. Women who did not understand their condition often underestimated the seriousness of their diagnosis or heard anecdotally from other women that it was not ‘a severe illness’²¹ thus preventing women from committing to self-management. Contrastingly, others felt as though it was ‘the end of the world’¹⁷ leading to women feeling too overwhelmed to self-manage efficiently. Central to the lack of understanding was a perception of insufficient education from healthcare professionals; one woman said that she was given ‘a list of food but no instructions’ meaning ‘you really have to work it out for yourself’.¹⁵

Lack of support: family

This dataset reported traditional forms of support networks: women’s families, friends, and their healthcare professionals. A key theme to emerge from the data was the negative effect of a lack of familial support, which made women feel isolated and alone. Without strong family support networks women either stopped complying with self-management or lost the motivation to self-manage. Concerning dietary self-management women reported their families being unwilling to follow the same dietary restrictions because ‘you can’t expect everybody to change everything’,¹⁵ or failing to understand the importance of the dietary guidelines. Some women expressed that adhering to the strict diabetes diet made them feel socially isolated.

Lack of support: healthcare professionals

A discordant relationship with healthcare professionals made women feel less motivated to self-manage, ‘I love my OBGYN, but I feel they are always in a hurry. Like they don’t have time to sit there and talk to you about what to do about it (GDM), but they are always in a hurry’.¹⁷ One woman described her healthcare professional’s attitude as ‘here, you take the ball, and you run with it’,²² but found that when her family were not informed about her self-management needs, it was difficult for her to stay on track. Women who wanted to self-manage reported either not being supported adequately by their healthcare professionals or subject to paternalistic responses: ‘you have no idea what you’re doing, I know best, here’s what we’re going to do’.²³ Some women had difficulty accessing information and understanding the self-management tasks, particularly when there were language barriers: ‘It’s a bit difficult because my English isn’t very good...I have always been asking for an interpreter, but I have never got one’.²⁴ There were also concerns ranging from a lack of

information (‘they didn’t tell me what’s the side effects for the baby’¹⁵) to accusations of patronising healthcare professionals who ‘talked down to [me]’ and ‘didn’t trust me’.¹⁷

DISCUSSION

Principal findings

This review found that women with diabetes predominantly undertake self-management during pregnancy for the health of their baby. Support networks are crucial in alleviating the burden that comes with managing a chronic condition, particularly a new one, such as gestational diabetes. When these networks are less effective, women may feel overwhelmed by the self-management, which is compounded by a lack of knowledge and understanding.

One of the most notable findings from this review was the lack of research dedicated to managing chronic conditions in pregnancy. Diabetes was the only condition represented in the included literature, but with only 16 papers eligible for inclusion, the qualitative evidence base around managing gestational or chronic diabetes in pregnancy is still thin. While the findings of this review are framed by the self-management challenges of diabetes, a number of generic activities are applicable across other chronic conditions. Self-management of diabetes (type 1, type II and gestational) includes self-testing (of blood glucose levels) and diet and exercise management, all of which are applicable more widely in pregnancy. However, it is clear there is a lack of specific research on other chronic conditions in pregnancy, such as hypertension. It is also worth noting that in the general population chronic conditions are self-managed due to the absence of a ‘cure’, but this is not strictly the case in pregnancy where conditions can be temporarily bounded by the pregnancy; gestational diabetes and hypertension (or pre-eclampsia) can be resolved with delivery, and if they are not resolved, they are recategorised as type 2 diabetes or hypertension²⁵—thus, they are no longer conditions brought about by pregnancy.

While some of the motivations and barriers identified in this review are applicable to chronic conditions in the general population, this review has also demonstrated that the motivating factors for pregnant women to self-manage are different to those motivating the general population; none more so than the desire to improve outcomes for the baby. As far as the authors are aware this paper is the first to use the burden of treatment theory as a theoretical lens to explore experiences of chronic disease management in pregnancy. Although this theory does not fully account for the specific challenges of pregnancy, as demonstrated by this review, it still broadly accounts for the actors and work involved in self-management in this context. Using this theory allowed for a deeper understanding of the burden of self-management and the work involved.

Interpretation

Acting for the baby

May *et al* argue that the work of self-management in the general population is often done in the context of 'holding together something larger and more complex',¹⁴ alluding to everyday life. While this applies in pregnancy, the work of self-management is also done in the context of maintaining the health of the unborn baby. Previous literature has touched on pregnant people acting 'not for the self but also for the unborn 'other'²⁶ and the burden of pregnant women having to be accountable for the health of their baby alongside their own health cannot be underestimated. Current self-management models are not equipped to consider that particular burden of treatment.

Support networks

Current self-management models emphasise that 'self-management is manifested as both an individual and family construct'²⁷ and underscore the importance and necessity of social networks. The importance of social networks is also realised in the Burden of Treatment theory. May asserts that 'knowledge and beliefs about health and healthcare are often shared [within social networks]...decisions about what to do, and how to access services, are often distributed amongst multiple participants in a social process'.¹⁴ In pregnancy, the sharing of lay knowledge and expertise is commonplace. Hinton *et al* demonstrated the nature of information sharing among pregnant people, often now in the form of online communities, in those with pregnancy hypertension or raised blood pressure.²⁸ Pregnant women with hypertension valued the advice and support of their peers, and in the online space peer advice tended to trump the advice of medical professionals.²⁸ Support networks are a central part of any self-management model in the general population, often emphasising that 'self-management is manifested as both an individual and family construct'.²⁷ As both a barrier and a facilitator of self-management, it is evident family support is an important factor in continued adherence. While current self-management models do not accommodate pregnancy entirely, this review demonstrates that elements of existing models, such as social networks and the need for education around diagnosis, are applicable.

Strengths and limitations

The research question evolved throughout the search as it became apparent that little data on self-management in pregnancy existed, and none outside of diabetes management. This review should act as a call for further work. Lived experiences are often over looked in self-management literature and by using qualitative literature we have been able to address some of these research gaps.

Limitations include that the coding framework is constrained by how the original researchers interpreted the interviews and their interactions with patients. Distinguishing between pre-existing chronic conditions and

pregnancy acquired chronic conditions is important, but it was not a distinction that was reflected in the dataset; it is both a limitation of the included studies and this review. While the majority of the included papers were on gestational diabetes, there were two on pre-existing diabetes, and three with a mixed population of gestational and chronic diabetes. The burden of treatment theory does not perfectly map to pregnancy, however, elements of this theory are helpful in understanding how and why patients interact with self-management. Many of the included papers specifically considered barriers to self-management, as opposed to facilitators, thus potentially creating a negative bias towards self-management.

Included studies took place across a variety of international settings, operating within different health systems, ranging from those dominated by private insurance-based systems to those with national healthcare systems aimed at universal healthcare coverage. Individualised medicine is intertwined with self-management; six of the included studies took place in the USA, where they operate within an insurance-based system that lends itself to an individualised approach to medicine. With the exception of Canada, New Zealand and Singapore, none of the other countries included in this review have health systems based on almost near universal healthcare coverage. A patient's relationship with their healthcare system also affects their relationship with the acceptability of self-management and their efficacy undertaking it. As none of the included studies were conducted in the UK, it raises questions about how pregnancy self-management would operate within the National Health Service.

CONCLUSIONS

Clinical implications

This review suggests there are several ways to improve adherence to self-management interventions in pregnancy, these interventions often involve self-monitoring and titrating medication. Healthcare professionals communicating the importance of self-management in terms that focus on the health of the baby, and educating women on the condition they have been diagnosed with, could have a positive impact on self-management adherence.

Research implications

There is a need for research on the self-management of chronic conditions in pregnancy, particularly in chronic conditions other than diabetes. There are ongoing trials on self-management in pregnancy, predominantly in hypertension, but how self-management will fit into usual care remains to be seen. Remote forms of care are now more commonplace, in light of this, a better, qualitative understanding of the new burden of treatment self-management creates is needed.

Main conclusions

This review shows that the primary motivating factor for women self-managing is the health of their baby. Their support networks and their understanding of the condition contribute to whether they self-manage effectively. The burden of treatment shifting to women requires further research, as patient work increases, feelings of anxiety can also increase. In this dataset, it was clear that some women found this treatment shift to be overwhelming but their anxiety largely stemmed from a lack of knowledge and understanding of the condition with which they had been diagnosed. Evidently, education is a barrier to pregnant women effectively self-managing, as when these issues are addressed women are willing and able to self-manage.

Contributors BEJ, KLT, LH, RJM and NR contributed to creating the research question and parameters of the review, including the search strategy. BEJ conducted the search with assistance from NR. BEJ and JK reviewed the titles and abstracts of identified articles and carried out the full text assessments. Disagreements on reviewed articles were resolved by consensus or discussion with KLT. Data extraction and complete analysis was conducted by BEJ and reviewed by KLT, LH and RJM. The write up was led by BEJ, with edits provided by KLT, LH and RJM. BEJ is the guarantor for this research.

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