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Review Article

Midwives' experiences of supporting healthy gestational weight management: A mixed methods systematic literature review

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ABSTRACT

Background: Excessive levels of gestational weight gain (GWG) are linked with poorer health outcomes for mother and baby, including an increased risk of pregnancy-related hypertension, labour induction, caesarean delivery and increased birth weight.
Objective: To explore literature relating to midwives' experiences and challenges and identify interventions relating to GWG.
Design: This review was conducted in accordance with the Joanna Briggs Institute methodology for mixed methods systematic reviews. CINAHL complete, APA PsycArticles, APA PsycInfo, the Cochrane Library and MEDLINE were systematically searched in May 2022. Search terms related to midwives, advice, weight management and experiences were used. A PRISMA approach was taken to identify data, and thematic analysis combined with descriptive statistics allowed synthesis and integration.
Findings: Fifty-seven papers were included and three overarching themes were generated; i) emotion and weight, ii) ability to influence and iii) practical challenges and strategies for success. Weight was consistently described as a sensitive topic. Challenges included level of expertise and comfort, perceptions of ability to influence and an awareness of incongruence of midwives' own weight and the advice they are delivering. Interventions evaluated well with some self-reports of improved knowledge and confidence. There was no evidence of impact on practice or GWG.
Key conclusions: Although addressing maternal weight gain is an international priority due to the significant risks incurred, in this review we have identified multiple challenges for midwives to support women in healthy weight management. Identified interventions targeting midwives do not directly address the challenges identified and are therefore likely to be insufficient to improve existing practice.
Implications for practice: Partnership working and co-creation with women and midwives is essential to ensure knowledge about maternal weight gain is effectively shared across communities to catalyse change.

Introduction

Excessive levels of gestational weight gain (GWG) are linked with poorer health outcomes for mother and baby, including an increased risk of pregnancy-related hypertension (Institute of Medicine, 2009; Johnson et al., 2013, labour induction (Maier et al., 2016), caesarean delivery (de Oliveira Reis et al., 2019; Johnson et al., 2013) and increased birth weight (Johnson et al., 2013; Nunnery et al., 2018; Santos et al., 2019; Zhang et al., 2019). Other critical correlates include poorer body image, depression (Hartley et al., 2015), obesity in the mother up to 15 years later (Linne et al., 2004) and obesity in childhood (Laitinen et al., 2012; Wan et al., 2018).

Guidelines on GWG are available (American College of Obstetricians and Gynaecologists, 2013), however, despite media reports of midwives voicing a need (BBC News, 2018; The Guardian, 2018) there are no current guidelines in the UK. The National Institute for Health and Clinical Excellence (NICE) recommend midwives and other health professionals explain the risks of being overweight to women with a body mass index (BMI) of over 30 and the benefits of a healthy diet and moderate physical activity (PA) (NICE, 2010). Being a woman's first and most frequent source of formal contact, midwives are ideally placed to encourage healthy levels of GWG. Furthermore, supporting healthy weight manage-

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Midwi* or "matern* provider" or "matern* professional"

AND

interven* or service* or interact* or advi* or strateg* or address* or commun* or manag*

AND

obes* or weight or diet or nutrition* or physical activity or exercise

AND

attitude* or experience* or view* or perspective or evaluat* or challeng*

Fig. 1. Search terms used across databases

ment before, during and after pregnancy forms one of the maternity high impact areas within the Maternity Transformation Programme and NHS Long Term Plan (Public Health England, 2020). There is evidence that interventions incorporating midwifery advice in relation to a healthy lifestyle are associated with significantly lower levels of GWG (Bogaerts et al., 2013; Haby et al., 2018; McGiveron et al. 2015). It is therefore important to explore midwives' current level of comfort in supporting healthy GWG.

A preliminary search of Google Scholar revealed a scoping review (Dieterich and Demirci, 2020) focusing on communication and counselling practices between healthcare practitioners (including midwives) and pregnant women with obesity. This review did not consider the wider experiences, challenges and interventions experienced or delivered by midwives and it focused only on pregnant women living with *obesity*. Our review places a specific focus on midwives and incorporates women of all weight categories. The aim of this review is therefore to explore the literature relating to midwives' experiences and challenges and identify interventions relating to GWG, which incorporate lifestyle components in relation to nutrition and physical activity.

Methods

The protocol of the review was not registered. This review was conducted in accordance with the Joanna Briggs Institute (JBI) methodology for mixed methods systematic reviews (Lizarondo et al., 2020).

Search strategy

We searched CINAHL complete, APA PsycArticles, APA PsycInfo, the Cochrane Library and MEDLINE using PRISMA methodology (Page et al., 2021). The checklist is provided in the first supplementary file. The search strategy included keywords related to the study population, exposure and outcome of interest as reported in figure 1. The search was conducted in March 2022 and updated in May 2022. The full search strategy for all databases is provided in the second supplementary file.

Backward and forward citation searches of included studies were also conducted by screening reference lists and identifying articles that cited the included papers.

Eligibility

Studies were included if they explored midwives' experiences of advising or supporting women to achieve healthy GWG, which incorporated assistance with nutrition and physical activity. Inclusion and exclusion criteria are summarised in table 1.

Study selection

Titles and abstracts were screened independently by two reviewers (SR and FC) against the inclusion and exclusion criteria. Studies that met the inclusion criteria were retrieved and full texts reviewed independently by two reviewers (SR and JD). Any disagreements were resolved by the full author team. Numbers identified at each stage are identified in figure 2 with reasons for exclusion. A list of studies excluded at full-text review is provided in the third supplementary file. Studies that included staff other than midwives were only selected if data could be disaggregated.

Data extraction and quality assessment

Data were extracted from studies using a bespoke spreadsheet which captured: aim, participants, study design, intervention (where relevant), findings and summary score and exceptions to quality. Eligible studies were appraised for methodological quality using the JBI appraisal tools (Moola et al., 2017) according to study design. Studies reporting interventions were assessed using the template for intervention description and replication (TIDieR) (Hoffmann et al., 2014).

Analysis

Qualitative data were analysed thematically (Clarke et al., 2015) and involved the following stages: familiarisation with the data, initial code generation, searching for themes, reviewing themes, defining and naming themes and producing the report (Braun and Clarke, 2006). Rigour was ensured through the following: i) providing detailed examples from the data (Geertz, 1973) and ii) creating a decision trail (SR) that was shared between the full author team to ensure that interpretations were transparent and consistent. Quantitative data were synthesised descriptively and presented as frequencies and means. Key overarching findings are subsequently summarised.

Results

Study characteristics

In total, 57 papers were included. A summary of study characteristics is provided in table 2. Quality appraisal scores and denominators were based upon the number of relevant criteria for methodological quality that were met. Exceptions indicate descriptions of criteria that were not met. In addition, an overview of interventions in relation to their description and replicability (TIDieR) (Hoffmann et al., 2014) is provided in table 3. Forty-eight studies explored midwives' experiences and challenges or

Table 1
Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
Midwives (including student midwives) Empirical papers 2014 onwards (inclusive yet current to ensure a contemporary overview that accounts for the increasing complexity of the midwifery workload (Royal College of Midwives, 2016)). English language International in any setting	Other health care practitioners Non-empirical papers (e.g., editorials and opinion papers)

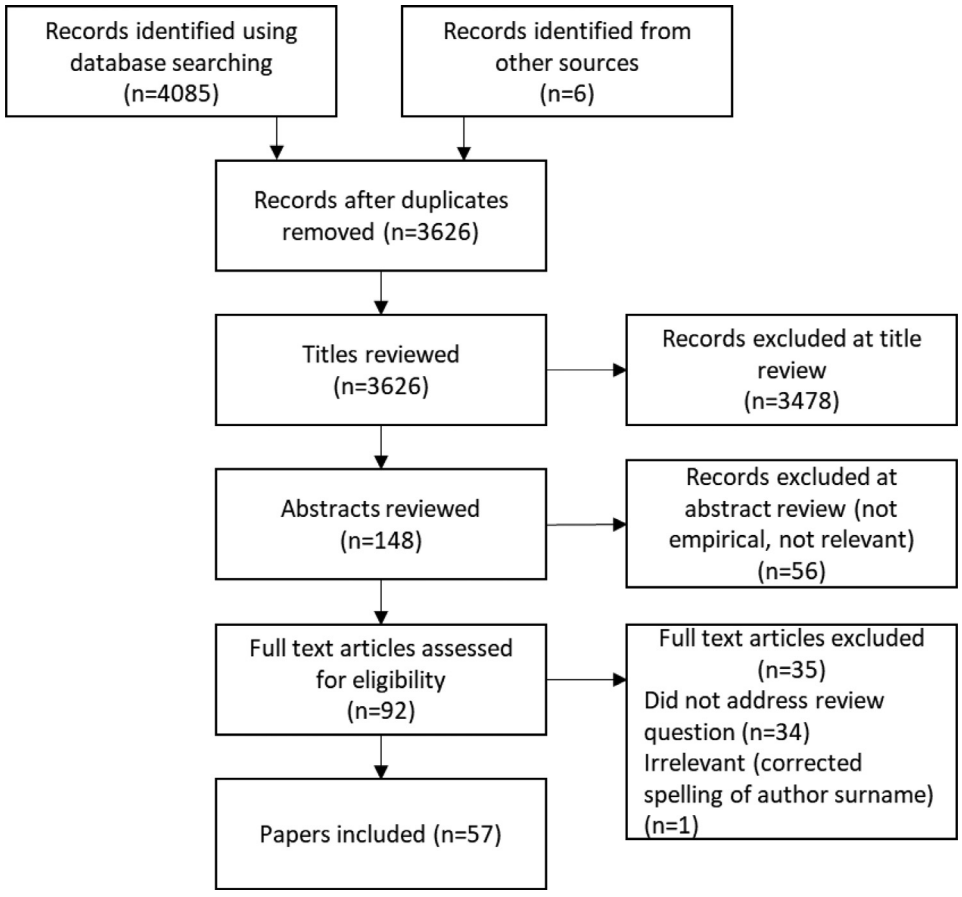

Fig. 2. PRISMA 2020 flow diagram of the study selection and screening process

strategies for supporting weight management during pregnancy. Eight explored their experiences of interventions to support practice (Basu et al., 2014; de Jersey et al., 2018; de Jersey et al., 2019; Hart et al., 2018; Heslehurst et al., 2021; Lawrence et al., 2020; Othman et al., 2020; Sanders et al., 2020) and one used both approaches (Hazeldine, 2018). Thirty-nine studies adopted qualitative techniques including interviews (n=25) (Arrish et al., 2017; Asefa et al., 2020; Beulen et al., 2021; Christenson et al., 2018; Doughty, 2019; Flannery et al., 2019; Foster and Hirst, 2014; Goldstein et al., 2020; Hodgkinson et al., 2017; Holton et al., 2017; Lindhardt et al., 2015; Lucas et al., 2020; MacAulay et al., 2019; McCann et al., 2018; McLellan et al., 2019; Morris et al., 2017; Murray-Davis et al., 2020; Okafor and Goon, 2021; Olander et al., 2019; Roberts, 2016; Rundle et al., 2018; Söderström et al., 2022; Strömmer et al., 2021; Wennberg et al., 2014; Wennberg et al., 2015), focus groups (n=9) (Guthrie et al., 2020; Hasted et al., 2016; Knight-Agarwal et al., 2014; Kominiarek et al., 2015; Lawrence et al., 2020; Lindqvist et al., 2014; McKerracher et al., 2020; Moffat et al., 2021; Sanders et al., 2020) and more than one qualitative method (n=5) (Atkinson et al., 2017; Dayyani et al., 2021; Fieldwick et al., 2014; Furness et al., 2015; Greig et al., 2021). Eleven studies were based on a mixed-methods approach (Arrish et al., 2016; Basu et al., 2014; Christenson et al., 2020; de Jersey et al., 2018; Hart et al., 2018; Hazeldine, 2018; Heslehurst et al., 2015; Hopkinson et al., 2018; MacAulay et al., 2019; Murray-Davis et al., 2022; Othman et al., 2018) and seven used quantitative techniques. Quantitative studies were cross-sectional surveys (n=6) (de Jersey et al., 2019; Haakstad et al., 2020; Pan et al., 2014; Pan et al., 2015; Soltani et al., 2017; Stuart et al., 2016) and a pilot cluster RCT (n=1) (Heslehurst et al., 2021). Most studies were conducted in the United Kingdom (n=23) (Atkinson et al., 2017; Basu et al., 2014; Doughty, 2019; Foster et al., 2014; Furness et al., 2015; Greig et al., 2021; Hart et al., 2018; Hazeldine, 2018; Heslehurst et al., 2015; Heslehurst et al., 2021; Hodgkinson et al., 2017; Hopkinson et al., 2018; Lawrence et al., 2020; Lucas et al., 2020; MacAulay et al., 2019; McCann et al., 2018; McLellan et al., 2019; McParlin et al., 2017; Roberts, 2016; Rundle et al., 2018; Sanders et al., 2020; Soltani et al., 2017; Strömmer et al., 2021), followed by Australia (n=10) (Arrish et al., 2016; Arrish et al., 2017; de Jersey et al., 2018;

Table 2
Summary of included papers

First author (Year) Country	Aim and participants	Methods Intervention description (where relevant)	Findings	Quality appraisal score and exceptions
Arrish (2016) Australia	To investigate the knowledge, attitudes and confidence relating to GWG. Midwives (n=369)	Web-based survey	Inaccurate knowledge of healthy levels of weight gain, moderate or high confidence in providing advice on weight gain and obesity.	7/7
Arrish (2017) Australia	To explore perceptions of providing nutritional advice. Midwives (n=16)	Semi-structured interviews	Challenges: Time, beliefs and practices of obstetricians, desire to minimise maternal guilt, the need to tailor advice (particularly ethnic minorities), poor resources, belief that women didn't trust their advice, poor access to dieticians. Enabler: Role responsibility.	9/10: Philosophical perspective
Asefa (2020) Ethiopia	To explore views in relation GWG and postpartum weight management. Midwives (n=11)	Interviews	Challenges: lack of knowledge and training, time, workload, competing priorities and lack of confidence.	9/10: Philosophical perspective
Atkinson (2017) UK	To explore experiences of referral to antenatal weight management services. Midwives (n=23)	Interviews and focus group	Challenges: Lack of knowledge of service offered, sensitive subject, women's reluctance.	7/10: Philosophical perspective, researcher positionality and influence
Basu (2014) UK	To explore the efficacy of training on self-reported knowledge and confidence. Midwives (n=32).	Evaluative feasibility pre/post design Motivational Interviewing (Miller and Rollnick, 2013)/best practice based; dietician led intervention. 3-5 hours of lectures, discussions and activities.	Improvements in knowledge and confidence at post-test. Training was "relevant" and "valuable."	7/8: Control group
Beulen (2021) Netherlands	To explore views of communication practices. Midwives (n=20).	Semi-structured interviews	Challenges: sensitive subject, time, lack of reliable information sources and a need for dietician input.	8/10: Researcher positionality, data analysis not transparent
Christenson (2018) Sweden	To explore communication with women. Midwives (n=17)	Semi-structured interviews	Challenges: sensitive subject, time, need for communication skills training and clearer guidelines and resources for women.	7/10: Philosophical perspective, researcher positionality and influence
Christenson (2020) Sweden	To discuss willingness and attitudes. Midwives n=205	Web-based survey	Challenges: sensitive subject, lack of knowledge, communication skills, time, lack of collaborative working. Enabler: Training, sufficient knowledge.	6/7: Setting was not described in sufficient detail
Dayyani (2021) Denmark	To explore experiences of care and health promotion. Midwives (n=18)	Semi-structured interviews (n=8) and two focus groups (n=10)	Challenges: documentation demands and lack of time. Enablers: Relationship building with pregnant women.	10/10
de Jersey et al. (2018) Australia	To investigate a brief intervention. Midwives (n=270)	Implementation evaluation involving pre and post questionnaires "Healthy pregnancy healthy baby" 5As (Glasgow et al., 2003) based, 40-minute training session.	Intervention resulted in increased self-reported knowledge and confidence. Knowledge test score increased pre/post training. Challenges: Lack of time, need for diet and portion size guidance and PA.	7/8: No control group
de Jersey et al. (2019) Australia	To evaluate the use of a pregnancy weight gain chart. Midwives (n=39)	Cross-sectional survey	Most used the tool. Challenges to use: Beliefs that it is the woman's responsibility to complete, lack of time, need for counselling training.	8/8

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Table 2 (*continued*)

First author (Year) Country	Aim and participants	Methods Intervention description (where relevant)	Findings	Quality appraisal score and exceptions
		Adapted from an existing chart (Institute of Medicine and National Research Council, 2009). Practitioners plotted weight antenatal appointments.		
Doughty (2019) UK	To explore experiences of caring for pregnant women with obesity Midwives (n=11), student midwives (n=4)	Semi-structured interviews	Challenges: Sensitive topic, some did not consider BMI useful, normalisation of obesity, judgements of women, frustration with women who gain weight. Enablers: empathy for women.	10/10
Fieldwick (2014) New Zealand	To investigate knowledge about GWG. Midwives and lead maternity carers (n=12)	Three semi-structured focus groups (n=11) and one in-depth interview	Challenges: Perceived futility of referral, sensitive subject, normalisation of obesity, poor access to scales, a need for clearer guidelines. Enablers: Awareness of risks, empathy, role identity.	8/10: Philosophical perspective, researcher positionality
Flannery (2019) Ireland	To explore attitudes and beliefs about GWG. Midwives (n=4)	Semi-structured interviews	Challenges: Sensitive subject, beliefs not midwife's role.	7/10: Philosophical perspective, researcher positionality and analysis not transparent
Foster (2014) UK	To explore attitudes. Midwives (n=9)	In-depth individual interviews	Challenges: Sensitive subject, advice compromised by societal stigmatisation and normalisation of obesity and an association between midwife's body image and the perceived credibility of weight-related advice.	8/10: Philosophical perspective, researcher positionality
Furness (2015) UK	To explore the perspectives on GWG management. Midwives (n=8)	Three focus groups (n=7) and one interview	Challenges: Sensitive subject, emotional reactions from women, assumptions that women with obesity lack motivation, feelings of futility in discussing weight, feelings of frustration, social and family norms. Enabler: Role responsibility.	10/10
Goldstein (2020) Australia	To investigate views on a "healthy pregnancy service" (no other details provided). Midwives (n=7)	Semi-structured interviews	Challenges: Sensitive topic, lack of confidence in discussing GWG, women reluctant to engage, lack awareness of the service, waiting times, perceived lack of importance. Enablers: Service embedded, role responsibility, perceived positive impact on women.	9/10: Philosophical perspective
Greig (2021) UK	To explore communication about obesity. Midwives (n=13)	In-depth interviews and reflective practice diaries.	Challenges: Sensitive subject. Enablers: Prioritising the relationship, use of practical experience, learning communication techniques through observation of colleagues.	8/10: Philosophical perspective, researcher positionality
Guthrie (2020) Australia	To investigate different models of care on GWG conversations. Midwives (n=66)	Focus groups	Challenges: Sensitive subject, dietician input and lack of time. Enablers: Empathy. Continuity of care influenced more advice and monitoring of lifestyle.	10/10
Haakstad (2020) Norway	To explore GWG views and practices. Midwives (n=65)	Cross-sectional survey	Challenges: Sensitive subject, nutrition and PA considered more important than GWG, many did not report advice or gave advice not in line with guidelines.	5/5
Hart (2018) UK	To investigate current experiences and impact of online training. Student midwives (n=52)	Pre-post questionnaire and semi-structured interviews (n=8)	Subjective norms, perceived behavioural control and knowledge of BCTs improved. Attitudes and intentions did not change. Interviews identified enhanced knowledge of communication.	Quasi-experimental: 6/8: Confounders not reported, no control group. Interviews: 7/10: Philosophical perspective, researcher positionality, unclear analysis

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Table 2 (*continued*)

First author (Year) Country	Aim and participants	Methods Intervention description (where relevant)	Findings	Quality appraisal score and exceptions
		Adapted from "TEnT PEGS" (Chisholm et al., 2014) and based upon Theory of Planned Behaviour (Ajzen, 1985). Intervention guides health professionals in using behaviour change techniques (BCTs) and tailoring input.		
Hasted (2016) Australia	To investigate factors influencing weighing. Midwives (n=28)	Focus groups	Challenges: Lack of privacy when weighing, attitudes towards usefulness of measuring weight, inconsistent protocols, midwife judgement, poor training/guidelines, midwife's own body image, sensitive subject and confidence. Enablers: Weight tracker tool prompted GWG conversations.	8/10: Philosophical perspective researcher positionality
Hazeldine (2018) UK	1. To explore perspectives on obesity, GWG management. 2. Impact of an intervention. Midwives (n=33 and 24 respectively).	1. Focus groups, interviews and 2. questionnaire Booklet about weight management in pregnancy based upon Theory of Planned Behaviour (Ajzen, 1985) for midwives to give to women.	1. Challenges: sensitive subject, lack of knowledge and resources for women, women being defensive, midwives' frustration with women, lack of guidance re acceptable GWG, lack of role responsibility. 2. Booklet led to increased support offered, no changes in intention or self-efficacy.	1: 10/10. 2: 8/9: No report of confounders
Heslehurst (2015) UK	To explore perspectives on obesity care pathways. Midwives (n=209)	Mixed-methods postal survey	Challenges: Sensitive subject, need for more training, tailoring of guidelines. Enablers: A specific care pathway and good relationships with women made GWG discussions easier, positive relationships.	5/5
Heslehurst (2021) UK	To investigate intervention to support the implementation of GWG guidelines. Midwives (n=68)	Pilot cluster RCT "GLOWING" (Heslehurst et al., 2018), underpinned by Social Cognitive Theory (Bandura, 1998). Midwife led one day training session to groups of six including information and communication skills. Training pack with reflection activities. One year supply of information resources for women.	In the intervention group, mean self-efficacy scores were higher at post than pre-intervention and control groups for: weight communication, diet, nutrition and PA, risk communication, weight management and signposting/referrals.	8/10: Treatment groups were not similar at baseline and follow-up not reported
Hodgkinson (2017) UK	To explore how midwives and pregnant women view one another in relation to BMI. Midwives (n=11)	Semi-structured interviews	Midwives judged pregnant women as anxious and vulnerable and those with a raised BMI as less health conscious and complacent.	8/10: Philosophical perspective and researcher positionality
Holton (2017) Australia	To explore perspectives about weight management. Midwives (n=2).	Semi-structured interviews	Challenges: women reluctant to discuss weight, stigma and frustration when women did not follow their advice.	6/10: Philosophical perspective, researcher positionality, analysis not transparent
Hopkinson (2018) UK	To examine understanding of physical activity (PA) guidelines and advice given. Midwives (n=59)	Online survey	Challenge: Lack of training. Enabler: Most were confident or very confident about PA knowledge.	5/5

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Table 2 (*continued*)

First author (Year) Country	Aim and participants	Methods Intervention description (where relevant)	Findings	Quality appraisal score and exceptions
Knight-Agarwal (2014) Australia	To investigate the views and attitudes towards women with BMI >30, Midwives, (n=28)	Focus groups	Challenges: sensitive subject, normalisation of obesity, denial of risks from women, need for consistent guidelines, discomfort in discussing if midwife experienced being overweight and a sense of powerlessness.	9/10: Researcher positionality.
Kominiarek (2015) USA	To explore perspectives on management of obesity. Midwives (n=25)	Focus groups	Challenges: Frustration with women's lack of understanding of the risks of obesity, need for group-based support, ambivalence about BMI measurement.	7/10: Philosophical perspective, researcher positionality, analysis not transparent.
Lawrence (2020) UK	To explore the acceptability and feasibility of an intervention. Midwives n=4.	Focus group Healthy Conversation Skills (Barker et al., 2011) based on Social Cognitive Theory (Bandura, 1998). Training guides practitioners in asking open questions around barriers, listening skills and goal setting with women. Two 3–4 hour group sessions delivered by a health trainer, a workbook and follow up call.	Challenges: Lack of time. Enablers: Positive perceptions and perceived utility of the training (in particular addressing sensitive subject/not causing offence) enhanced ability to address barriers.	10/10
Lindhardt (2015) Denmark	To explore experiences of motivational interviewing (MI) when communicating with women with obesity. Midwives (n=6)	Semi-structured interviews	Challenges: Lack of time. Enablers: MI facilitated understanding of how to communicate with women and colleagues.	9/10: No statement of philosophical perspective
Lindqvist (2014) Sweden	To explore experiences in advising women on PA. Midwives (n=41)	Focus group discussions	Challenges: Lack of time and resources, frustration with women's social, psychological and cultural barriers to PA, resignation to women's misunderstanding of PA, challenges in engaging immigrant women. Enablers: Identification of individual facilitators in women. Mixed views on the influence of the midwife's own body.	8/10: Philosophical perspective and analysis not transparent
Lucas (2020) UK	To explore experiences in supporting PA during and after pregnancy. Midwives (n=5)	Semi-structured interviews	Challenges: Lack of training, frustration with women's health behaviours, competing priorities, lack of motivation and responsibility in women, BMI considered unhelpful, sensitive subject. Enablers: Role responsibility.	10/10
MacAulay (2019) UK	To explore barriers and facilitators to GWG interventions. Midwives (n=7)	One-to-one telephone interviews	Challenges: Conflict between knowledge of women and guidelines, lack of time, lack of tailoring to women's needs, need for inter-disciplinary working, sensitive subject, engaging women. Enablers: Confidence in discussing weight following training in motivational interviewing.	8/10: Philosophical perspective and researcher positionality

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Table 2 (*continued*)

First author (Year) Country	Aim and participants	Methods Intervention description (where relevant)	Findings	Quality appraisal score and exceptions
McCann (2018) UK	To understand experiences and weight management. Midwives (n=17)	Semi-structured interviews	Challenges: Lack of GWG knowledge, need for guidelines, futility in assessing weight gain, lack of time, lack of clarity on referral pathways, growing numbers of women with obesity, normalisation of obesity. Enablers: awareness of risks of obesity, role responsibility, women's denial of a problem.	9/10: No philosophical perspective stated
McKerracher (2020) Canada	To explore perspectives on diet. Midwives (n=16)	Focus group discussions and stakeholder engagement meeting	Challenge: Sensitive subject. Enabler: empathy with financial barriers for women.	9/10: Philosophical perspective
McLellan (2019) UK	To investigate barriers and facilitators to promoting health behaviours. Midwives (n=11)	Semi-structured interviews	Challenges: Lack of preventative approaches, sensitive subject, lack of time, lack of belief in positive outcome of health behaviours, competing priorities, normalising obesity, fear of being judged on own size. Enabler: Motivation.	10/10
McParlin (2017) UK	To explore the implementation of PA guidelines. Midwives (n=192).	Cross-sectional questionnaire based upon the Theoretical Domains Framework (Michie et al., 2005).	Challenges: Lack of skills (communication), sensitive subject, lack of time, guidelines and referral pathways. Enabler: Role responsibility. Confidence levels varied.	8/8
Moffat (2021) Canada	To examine perceptions of GWG. Midwives (n=16)	Focus group discussions, methods reported elsewhere (McKerracher et al., 2020)	Challenges: Concerns about the impact of women's weight monitoring on their wellbeing. A need for flexibility in nutrition counselling.	Methods reported elsewhere (McKerracher et al., 2020)
Morris (2017) Canada	To explore the link between GWG counselling, knowledge. Midwives (n=5)	Semi-structured interviews	Challenges: Lack of time, perceived need to emphasise wellness instead of weight.	8/10: Philosophical perspective, researcher positionality
Murray-Davis (2020) Canada	To explore GWG counselling practice. Midwives (n=6)	Semi-structured interviews	Challenges: Lack of time, belief that advice would not be effective, women believing myths, awareness of own body size impacted confidence to discuss, need for education.	8/10: Philosophical perspective and analysis not transparent
Murray-Davis (2022) Canada	To investigate experiences of caring for women with obesity. Midwives (n=164)	Web-based surveys (n=144) and semi-structured interviews (n=20)	Challenges: Belief that obesity is not a risk, lack of clarity on best practice, need for communication skills training and guidelines, negative attitudes toward obesity. Enablers: Empathy for women and collaboration.	Survey: 4/4. Interviews: 8/10: Philosophical perspective, researcher positionality
Okafor (2021) South Africa	To explore perspectives on advising women about PA. Midwives. (n=17)	Semi-structured interviews	Challenges: Competing priorities, frustration about women's lack of engagement, lack of knowledge, lack of time, staff shortages, midwives' exhaustion.	8/10: Philosophical perspective, researcher positionality
Olander (2019) Sweden	To investigate GWG prevention strategies. Midwives (n=16)	Semi-structured interviews	Challenges: Communication through interpreters, difficulties changing cultural eating. Enablers: Relationship building, sensitive use of weight terminology, conveying risks without causing worry, use of MI, goal setting and encouragement.	9/10: Philosophical perspective
Othman (2020) Australia	To examine the impact of an intervention. Midwives (n=44)	Quasi-experimental study "Healthy Eating in Pregnancy" 2-hour researcher led educational workshop or webinar (Othman et al., 2018). Content included guidance on dietary requirements, portion sizes, options for vegans and vegetarians and for women from different cultural backgrounds.	Total knowledge and confidence scores increased immediately after and at 6-8 weeks follow up.	7/8: No control group

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Table 2 (*continued*)

First author (Year) Country	Aim and participants	Methods Intervention description (where relevant)	Findings	Quality appraisal score and exceptions
Pan (2014) New Zealand	To explore nutrition, PA and GWG discussions. Midwives (n=428)	Cross-sectional survey	Challenges: varied practice in weight measurement (some using women's report), varied awareness of guidelines, frustration with normalisation of obesity, lack of time. Enablers: Empathy for barriers. Midwives were less likely to recommend PA in women with obesity or who were overweight and recognised a need to tailor advice.	5/5
Pan (2015) New Zealand	To explore the knowledge and practices about obesity during pregnancy. Midwives (n=428)	Cross-sectional survey	Challenges: lack of awareness of some risks, frustration with structural barriers to attending appointments, lack of resources for women who do not speak English, difficulties making referrals (e.g., dietician), negative reactions from women and sensitive subject.	5/5
Roberts (2016) UK	To explore experiences of care for those with BMI>30. Midwives and student midwives (n=18)	Low-structured interviews	Challenges: Shock at women's size, sensitive subject, awareness of own size, frustration with lack of awareness of risks in women, feeling overwhelmed, lack of resources, guidelines and experience and negative judgements toward women. Enablers: Feelings of a need to provide compassionate care,	10/10
Rundle (2018) UK	To explore the perspectives on diet for adolescents. Midwives (n=12)	Semi-structured interviews	Challenges: Lack of ability to motivate, frustration with women's fast-food consumption, lack of information for young women. Enablers: Empathy with social and financial barriers, role responsibility.	8/10: Philosophical perspective researcher positionality
Sanders (2020) UK	To investigate experiences of implementing individualised weight charts and MI-based conversations. Midwives (n=6)	Focus group Intervention individualised weight chart to use at home or in clinic training in MI-based conversations in relation to GWG. Underpinned by MI (Miller and Rollnick, 2013). Face to face, 3 hours delivered by MI trainer.	Challenges: Denial from overweight women, lack of time, lack of women engagement, need for clearer GWG guidelines, complexity of weight assessment due to fluid retention. Enablers: Perceived effectiveness and simplicity of the intervention.	8/10: Philosophical perspective and researcher positionality

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Table 2 (*continued*)

First author (Year) Country	Aim and participants	Methods Intervention description (where relevant)	Findings	Quality appraisal score and exceptions
Söderström (2022) Sweden	To explore perceptions about GWG, diet and PA promotion in Arabic and Somali women. Midwives (n=10)	Semi-structured interviews	Challenges: Providing health information for women with low literacy, empathy toward women's barriers, building trust, poor cultural awareness, lack of time, communicating through an interpreter. Enabler: empathy for women's barriers.	9/10: Philosophical perspective
Soltani (2017) UK	To explore the perspectives of nutritional advice for adolescent women. Midwives (n=46)	Cross-sectional survey	Challenges: Lack of time, lack of guidelines. Enabler: Midwife confidence.	5/5
Strömmer (2021) UK	To explore the perspectives dietary advice for teenagers. Midwives (n=20)	Semi-structured interviews	Barriers: A need for shared responsibility across different professional groups, lack of time, a need to tailor information, lack of information and communication skills training, sensitive subject. Enablers: Beliefs that younger mothers are more receptive to advice, weighing as a pathway for discussions about diet.	9/10: Researcher positionality
Stuart (2016) USA	To explore the techniques used to support GWG. Midwives (n=31)	Cross-sectional survey	Techniques included diet journaling, mindful eating and regular weighing. Challenges to this were women's barriers, lack of time, normalisation of caesarean births among women.	5/5
Wennberg (2014) Sweden	Explored strategies with difficult dietary counselling. Midwives (n=17)	Semi-structured telephone interviews	Strategies used: Active listening and questioning, relationship building, goal setting, repeating messages, including a woman's partner, use of medical risks to "shock." Challenges: Sensitive subject, negative judgments, sense of powerlessness.	8/10: Philosophical perspective, researcher positionality
Wennberg (2015) Sweden	To examine role perception with dietary counselling. Midwives (n=21)	Secondary analysis of interviews (Wennberg et al., 2014) combined with 4 additional semi-structured interviews.	Challenges: Helping women to interpret dietary information, competing priorities, frustration with the lack of concern with healthy eating, addressing cultural habits such as sugar consumption, sensitive subject, lack of knowledge about diet and communication skills.	8/10: Researcher positionality and analysis not transparent

Table 3
Assessment according to TIDieR.

Paper	Rationale stated	Materials described	Procedure described	Expertise/ background of person delivering	Mode of delivery reported	Location	When and how much	Tailoring	Modifications	Intervention fidelity (Planned)	Intervention fidelity (Assessed as planned)
Basu (2014)	√	√	√	√	√	√	√	√			√
de Jersey (2018)	√	√	√		√	√	√	√		√	√
de Jersey (2019)	√	√	√	√	√	√	√	√		√	√
Hart (2018)	√	√	√	√	√	√		√	√	√	√
Hazeldine (2018)	√	√	√	√	√	√	√	√	√	√	√
Heslehurst (2021)	√	√	√	√	√	√	√	√		√	
Lawrence (2020)	√	√	√	√	√	√	√	√		√	√
Othman (2020)	√	√	√	√	√	√	√	√		√	√
Sanders (2020)	√	√	√		√	√	√	√		√	√

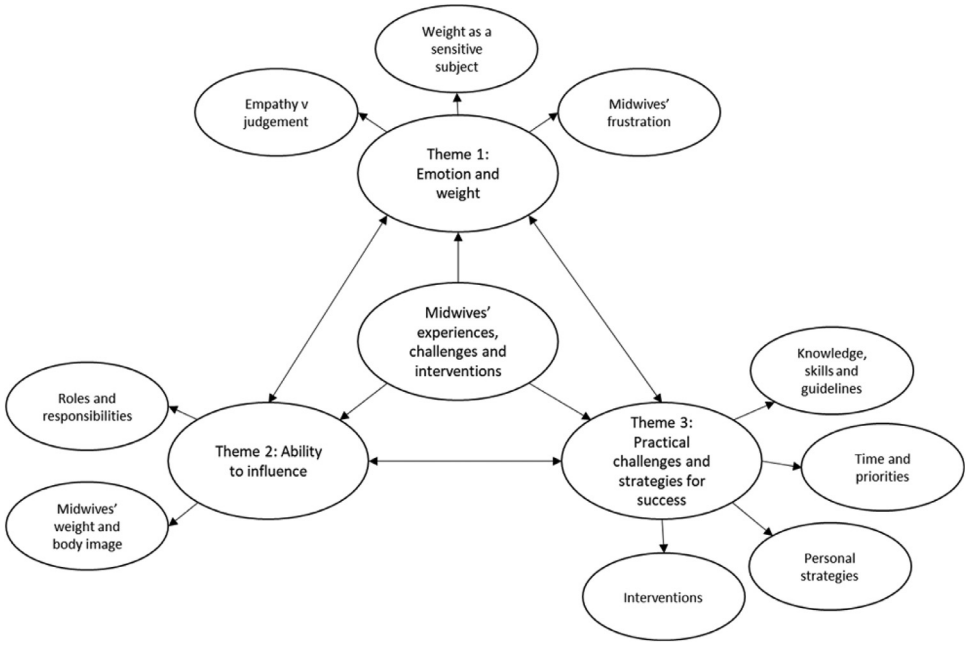

Fig. 3. Illustration of themes and sub-themes

de Jersey et al., 2019; Goldstein et al., 2020; Guthrie et al., 2020; Hasted et al., 2016; Holton et al., 2017; Knight-Agarwal et al., 2014; Othman et al., 2020) and Sweden (n=7) (Christenson et al., 2018; Christenson et al., 2020; Lindqvist et al., 2014; Olander et al., 2019; Söderström et al., 2022; Wennberg et al., 2014; Wennberg et al., 2015).

Methodological quality

The overall methodological quality of qualitative studies was strong. Most exceptions were the absence of underpinning philosophy and researcher positionality/reflexivity. Quantitative studies were generally robust. Papers using quasi-experimental methods did not include control groups.

Findings

Data analysis resulted in three themes and nine subthemes (figure 3). Core themes were i) emotion and weight, ii) ability to influence and iii) practical challenges and strategies for success.

Theme 1: Emotions and weight

This theme comprises subthemes: empathy versus judgement, weight as a sensitive subject and midwives' frustration. Many midwives were aware of and empathetic to the barriers women experience when trying to follow a healthy lifestyle during pregnancy. Midwives understood the multiple challenges including i) the emotional health needs of women (Doughty, 2019), ii) other calls on women's time (Arrish et al., 2017; Asefa et al., 2020; Knight-Agarwal et al., 2014; Lindqvist et al., 2014; Söderström et al., 2022), iii) wider cultural norms (Fieldwick et al., 2014; Knight-Agarwal et al., 2014; Lindqvist et al., 2014; Olander et al., 2019; Stuart et al., 2016), iv) socio-economic barriers (Fieldwick et al., 2014; Guthrie et al., 2020; Hazeldine, 2018; McKerracher et al., 2020; Murray-Davis et al., 2022; Pan et al., 2014; Rundle et al., 2018; Stuart et al., 2016; Wennberg et al., 2015) and v) the obesogenic environment (Doughty, 2019). An example relating to emotional health needs; *"A lot of ladies might have underlying problems or relationship troubles and something that is getting them down that's making them feel they don't want to exercise, or they don't want to go out."* (Doughty, 2019: 245). Wider cultural norms are exemplified by: *"It's hard, because the women have just told me that this cultural* [food] *. . . it's not so healthy . . . it's hard for them to refrain from that; there is a lot about food and so in some cultures. It may be that women find it difficult to change"* (Olander et al., 2019: 84). Others were less empathetic and placed responsibility for weight management firmly with the woman (Doughty, 2019; Hodgkinson et al., 2017; Lucas et al., 2020). For example: *"People* [think they] *can't control* [their weight], *it's happened to them and* [they] *have no control over it. But actually, people make themselves obese whether consciously or subconsciously"*

(Doughty, 2019: 244). Midwives described difficulties in maintaining a non-judgemental approach when encountering feelings of shock regarding a woman's size (Doughty, 2019; Hasted et al., 2016; Roberts, 2016).

The notion of weight gain being a sensitive subject was explicitly reported in nearly half of included papers (n=24) and was implicit in others. It ranked as the second most influential barrier in quantitative data, with 17% of participants reporting that they sometimes avoid discussing weight due to fears of causing distress amongst women (Christenson et al., 2020). Some midwives reported actively managing the discomfort of such conversations, for example: "*We have to accept that we will go through uncomfortable and politically less acceptable conversations with patients to say you are overweight, you are putting your pregnancy at risk. You need to do something about it*" (Knight-Agarwal et al., 2014: 141). Others were more avoidant with one reporting: "*I've found that the issue of being overweight is not addressed at all by midwives. I think it's 'cause it's a sensitive issue. Midwives don't really know how to approach it*" (Roberts, 2016: 179). Midwives feared upsetting or causing offence (Roberts, 2016). They were conscious of societal stigmatisation of obesity (Foster and Hirst, 2014; Holton et al., 2017) and wanted to avoid negativity in relation to a woman's body image (Doughty, 2019; Hasted et al., 2016; Lucas et al., 2020; Murray-Davis et al., 2020; Sanders et al., 2020). Collectively these factors limited the extent to which they engaged in perceived 'difficult' conversations.

Frustration was a frequently cited emotion for a range of reasons such as i) women's lack of awareness of their weight (Atkinson et al., 2017; Furness et al., 2015; Knight-Agarwal et al., 2014; McCann et al., 2018; Roberts, 2016; Sanders et al., 2020), ii) emotional distress (Furness et al., 2015; Hasted et al., 2016; Hazeldine, 2018; Knight-Agarwal et al., 2014; McCann et al., 2018; Pan et al., 2015; Roberts, 2016), iii) a reluctance to question cultural norms (Fieldwick et al., 2014; Pan et al., 2015; Wennberg et al., 2015; Wennberg et al., 2014) and myths surrounding "eating for two" (Fieldwick et al., 2014; Stuart et al., 2016) and iv) a lack of understanding of nutrition (Rundle et al., 2018; Strömmer et al., 2021; Wennberg et al., 2015). This led to a sense of wariness and futility in pursuing weight related discussions as exemplified in the following extracts: "*They don't like it at all to be told they are overweight and we do get complaints coming back that women said "Oh they said I was fat""* (Hazeldine, 2018: 98) and: *"These ones* [immigrants] *are really, really hard. You just have to leave them to eat as usual. They don't eat this and they don't eat that and they eat this and that. Well, what should I do about it then?"* (Wennberg et al., 2014: 111).

Theme 2: Ability to influence

Subthemes were roles and responsibilities and midwives' weight and body image. Despite the emotions encountered, midwives generally retained a sense of responsibility to support women with their weight describing themselves as the ideal source (Arrish et al., 2017; McCann et al., 2018; Rundle et al., 2018). Facilitators to effective communication included i) development of nurturing relationships, ii) tailoring information and iii) adopting a holistic approach. Midwives spoke of the importance of establishing rapport with women to facilitate discussions about weight and lifestyle changes (Arrish et al., 2017; Goldstein et al., 2020; Greig et al., 2021; Guthrie et al., 2020; Heslehurst et al., 2015; Lindqvist et al., 2014; Olander et al., 2019; Roberts, 2016; Wennberg et al., 2014). Two studies reported midwives practicing in a 'continuity of care model' (typified by provision of a consistent midwife (or a small team of health professionals) throughout antenatal care and often postnatally) (Arrish et al., 2017; Guthrie et al., 2020). These midwives experienced enhanced opportunities to develop their relationships and alter women's perspectives about weight management compared with those whose practice was structured in a more traditional model. One midwife exemplifies: *"…as we've built that relationship and gotten trust with the woman that then it would be, like a conversation that you'd have with a friend "how's the eating going". And you're much more receptive to changing a women's perceptions at that point."* (Guthrie et al., 2020: e571). In contrast, the value of weight discussion evoked ambivalence in some (Asefa et al., 2020; Doughty, 2019; Foster and Hirst, 2014; Goldstein et al., 2020; McCann et al., 2018).

A minority of midwives suggested weight management was not within the midwifery remit (Flannery et al., 2019; Hazeldine, 2018). Indeed this ranked as a substantial barrier in quantitative assessments identified by a mean proportion of participants of 13.3% across all studies (Arrish et al., 2016; de Jersey et al., 2019). One midwife in an Irish interview study commented: "*I think there [sic] GP should be one that keeps an eye on it [weight], he is the continuous person that's with them*" (Flannery et al., 2019). Similarly, a community midwife in an English study stated in relation to weight advice: *"I suppose because it's not part of our everyday role it's not something that you've been accustomed to having to do…this isn't something that at the moment we have had to incorporate into our daily routine of our practice and therefore I certainly would have to think how I did it"* (Hazeldine, 2018: 96).

Ability to influence was hampered by both societal and individual norms. Several studies report midwives describing a high BMI as unproblematic (Doughty, 2019; Fieldwick et al., 2014; McCann et al., 2018; McLellan et al., 2019; Murray-Davis et al., 2022). For example, "[a] *BMI of 32 wouldn't bother me that much because most women are in this category"* (McCann et al., 2018: 6). Two authors identified such judgements as symptomatic of the increasing number of women with obesity that midwives have supported over time (Doughty, 2019; Roberts, 2016).

Midwives' own weight and body image was also a confounding factor in weight related conversations (Foster and Hirst, 2014; Guthrie et al., 2020; Hasted et al., 2016; Knight-Agarwal et al., 2014; Lindqvist et al., 2014; McLellan et al., 2019; Murray-Davis et al., 2020; Roberts, 2016). One midwife explained: *"if you look at me it's the pot calling the kettle black isn't it."* (Foster and Hirst, 2014: 259). Another reported: "*I've got a woman at the moment whose BMI is 40 something. . .. and I'm there, I've got a student who is even more substantial than I am and it's the elephant in the room…"* (Knight-Agarwal et al., 2014: 141). These midwives employ a stark use of similes connoting feelings of discomfort and embarrassment associated with their body size and image. In contrast a small number reported capitalising on their increased body weight to cultivate a shared understanding with pregnant women (Foster and Hirst, 2014; Roberts, 2016).

Theme 3: Practical challenges and strategies for success

Subthemes included knowledge, skills and guidelines, time and priotities, personal strategies and interventions. Practical challenges experienced by midwives traversed individual, interpersonal and organisational domains. At an indivudal level some reported deficits in knowledge and skills. For example, there was a need for more knowledge about healthy lifestyle and weight management during pregnancy (Asefa et al., 2020; Hazeldine, 2018; Heslehurst et al., 2015; McCann et al., 2018; Okafor and Goon, 2021; Strömmer et al., 2021; Wennberg et al., 2015). Sixty-six percent of participants in quantitative studies identified deficits in knowledge and/or training as a significant challenge (Arrish et al., 2016; Christenson et al., 2020; de Jersey et al., 2019; Haakstad et al., 2020; Hopkinson et al., 2018; Murray-Davis et al., 2022; Pan et al., 2014). Additionally, midwives expressed a need for support in providing individualised care for women (Arrish et al., 2017; Christenson et al., 2020; Murray-Davis et al., 2022; Söderström et al., 2022). Other midwives were confident in their knowledge but less so in relation to their com-

munication skills to broach the topic (Christenson et al., 2018; Furness et al., 2015; Roberts, 2016): *"It is a challenge to talk about body weight with overweight women. However, it is not the knowledge I'm lacking, but the communication skills"* (Christenson et al., 2020: 7).

National and local guidelines were helpful in supporting initiation of discussions about weight however, these were not available in all countries or localities. Where available, midwives regarded guidelines as a tool that could be referenced to emphasise their non-judgemental approach and depersonalising weight related discussions (Greig et al., 2021; Heslehurst et al., 2015). Other midwives described locally implemented weight monitoring tools as a stimulus for discussions about women's diet (Hasted et al., 2016; Strömmer et al., 2021). A specific obesity care pathway supported easier discussions and positive relationships (Heslehurst et al., 2015). The need for sensitive implementation of guidelines became apparent as midwives reported seemingly thoughtless approaches (Flannery et al., 2019; Lucas et al., 2020). One midwife reported: "*I actually say it straight out to them when I am scanning, look unfortunately you carry the extra adipose tissue I am finding it difficult, there is too much fat around your abdomen which you need to watch.*" (Flannery et al., 2019: 4). Despite guidelines being valued, midwives frequently noted that their consultations needed to surpass the requirements of guidelines in order to account for individual variations in risk (Heslehurst et al., 2015) and ensure effective communication when consulting women about lifestyle (Furness et al., 2015).

A major factor hindering weight management conversations was time and workload as reported by midwives in 24 papers. Five papers specifically highlighted competing priorities (Asefa et al., 2020; Lucas et al., 2020; McLellan et al., 2019; Okafor and Goon, 2021; Wennberg et al., 2015). One interview study reported perceived lack of importance (Goldstein et al., 2020), and this was the fourth largest barrier reported across quantitative studies with a mean response of 10% (de Jersey et al., 2019).

Midwives had developed personal repertoires of skills and approaches to weight management. Some skilfully tailored information to enhance women's motivation. This encompassed several methods including i) accentuating the health benefits for the baby (Heslehurst et al., 2015; Olander et al., 2019; Rundle et al., 2018; Wennberg et al., 2014), ii) appealing to women's desire to be a role model for the baby (Wennberg et al., 2014) and iii) adapting counselling to individual needs (Arrish et al., 2017; Asefa et al., 2020; Beulen et al., 2021; Dayyani et al., 2021; Lucas et al., 2020; McParlin et al., 2017; Pan et al., 2015; Roberts, 2016; Strömmer et al., 2021), concerns (Lindqvist et al., 2014; McLellan et al., 2019) and current lifestyle patterns (Murray-Davis et al., 2020; Pan et al., 2014; Wennberg et al., 2014). Furthermore, some midwives encouraged women to devise their own strategies to manage their weight more effectively (Olander et al., 2019; Pan et al., 2014).

Midwives advocated a holistic approach in which they considered the wider factors that can influence weight. This was evident in their emphasis on wellness instead of weight (Dayyani et al., 2021; Morris et al., 2017); a sentiment echoed in discussion of weight with women of all BMI categories (Holton et al., 2017). It is possible that the latter approach may help to destigmatise the topic of weight. Other midwives included family or partners in consultations to enhance social support for women's lifestyle changes (Olander et al., 2019; Wennberg et al., 2014): *"Yes, at least in the beginning, when they come to the booking appointment and this extra visit, I think that sometimes you can focus on the whole family, including him, and many are very interested in it"* (Olander et al., 2019: 84). Family involvement was a potential approach to overcoming barriers to change (Furness et al., 2015; Hazeldine, 2018; Lindqvist et al., 2014; Stuart et al., 2016).

In addition to involving significant others in the quest for healthy weight management some midwives used wider resources including i) practical information for women (Beulen et al., 2021; Guthrie et al., 2020; Hodgkinson et al., 2017; Okafor and Goon, 2021; Pan et al., 2015; Rundle et al., 2018; Strömmer et al., 2021; Söderström et al., 2022), ii) access to a dietician (Arrish et al., 2017; Christenson et al., 2020; Fieldwick et al., 2014; Hazeldine, 2018; Pan et al., 2015), iii) midwives who specialise in obesity (Doughty, 2019) and iv) group-based support for women living with obesity (Kominiarek et al., 2015). Midwives reported lack of woman focused resources (Beulen et al., 2021) and alluded to a need for more effective partnerships with other professionals such as psychologists (Christenson et al., 2018), obstetricians (Arrish et al., 2017) and colleagues within weight management services; they reported limited feedback on women's progress following referral (Atkinson et al., 2017; Guthrie et al., 2020). This is illustrated below, when referral to other services was possible, outcomes were not always satisfactory: *"We do have access to a psychologist for pregnancy-related problems but if you have a disordered eating pattern the psychologist dismisses it and says it is not her task because the problem was there before the pregnancy."* (Christenson et al., 2018: 5)

Nine midwife-focused interventions are described in included papers. Underpinning theories include Theory of Planned Behaviour (Hart et al., 2018; Hazeldine, 2018) and Social Cognitive Theory (Heslehurst et al., 2021; Lawrence et al., 2020). In addition, some interventions involved Motivational Interviewing (MI) (Basu et al., 2014; Sanders et al., 2020). An intervention to help midwives support behaviour change ("Healthy Conversation Skills") resulted in midwives being more able to address sensitive subjects without causing offence and enhanced perceived ability to address barriers (Lawrence et al., 2020). Similarly, following an MI based intervention midwives reported they knew better how to communicate with women and colleagues (Lindhardt et al., 2015). Another MI based intervention led to improvements in knowledge and confidence in 97% and 83% respectively (Basu et al., 2014). In contrast other midwives described a lack of recognition of and tailoring to their current knowledge in MI training (Sanders et al., 2020). Furthermore, training did not always take account of their current knowledge and skills (Hart et al., 2018; Sanders et al., 2020). Positive outcomes were achieved in the "5As" intervention with knowledge increasing in 87% and confidence in 89% of those attending the forty-minute workshop (de Jersey et al., 2018). In all intervention studies, findings must be taken with caution. Evaluations were conducted soon after the training and give no indication of whether increased knowledge and confidence translate into changes in practice.

Discussion

This mixed methods review aimed to establish midwives' experiences, challenges and identify interventions relating to GWG. 57 papers were included and three overarching themes were generated; i) emotion and weight, ii) ability to influence and iii) practical challenges and strategies for success. Weight was consistently described as a sensitive topic. Challenges included level of expertise and comfort, perceptions of ability to influence and an awareness of incongruence of their own weight and the advice they are delivering. Further barriers included varied knowledge and skills, feelings of frustration generated by working against societal norms, lack of time and resources and competing priorities. Interventions were generally theoretically underpinned and evaluated well with some self-reports of improved knowledge and confidence. However, there was no evidence of impact on practice or GWG.

There was some evidence for conflicting findings across midwives' accounts. For instance, midwives' concerns with offend-

ing women contrasted with the use of a direct approach or assignment of personal responsibility amongst others. It is possible that these findings stem from narratives surrounding individual responsibility regarding weight, which can either lead to felt (Williams and Annandale, 2018) or enacted stigma (Phelan et al., 2015). In addition, the finding that midwives regarded weight as a sensitive topic is consistent with a previous review of women's and health professionals' views of weight management during pregnancy (Johnson et al., 2013). Conversely, other midwives demonstrated empathy and an understanding of the cultural norms and socio-economic factors that influenced women's experiences of weight management.

Whilst some midwives showed enhanced levels of confidence through strategies such as tailoring their advice to women's needs, others expressed a need for further guidance in the communication of weight. This may reflect local variations in guidelines to support healthy GWG weight across NHS Trusts in England (Goddard et al., 2023). Another central theme was the diverse reactions that midwives encountered when advising or supporting women with their weight. For instance, some midwives reported cases in which women showed a lack of awareness of their weight, whilst others conveyed a sense of ease in discussing weight and lifestyle that was fostered by the rapport that they had developed with women. The latter reinforces the value of woman-centred care in facilitating effective communication about weight (Fair et al., 2022; Jones and Jomeen, 2017).

Our review was rigorously conducted following the planned methodology, inclusive, comprehensive and effectively integrates qualitative and quantitative findings. Our search and screening process was thorough and transparent, however as with all searches it is possible that we have not identified all relevant papers. The quality of included papers was generally good however, although reported interventions were well evaluated, follow-up times were short and evidence of change in practice or outcomes was absent.

Our review extends the findings of a previous review investigating communication between healthcare professionals and pregnant women with obesity or who were overweight (Dieterich and Demirci, 2020). Our focus was on midwives as primary care givers in pregnancy and we extended breadth to women in all weight categories. We also considered midwives' experiences and interventions offered to support best practice. Similarities in findings included discomfort and low confidence in weight related conversations. The authors suggest midwife training to address the issue, whilst our review offers a more nuanced understanding about interventions to improve care.

The challenges to midwives in relation to advising on exercise and diet are common in relation to advising on other health behaviours. For example, when giving advice about drinking alcohol, midwives identify challenges such as lack of guidance or knowledge (Ordean et al., 2020; Schölin et al., 2021; Smith et al., 2021). As with diet and exercise advice, they often lack the skills (Oni et al., 2020; Schölin et al., 2021; Smith et al., 2021) and confidence to engage in such conversations and are concerned about the possibility of offending women (Göransson et al., 2004; Schölin and Fitzgerald, 2019; Winstone and Verity, 2015). Some thought consultations about alcohol were not part of their role (Schölin and Fitzgerald, 2019; Smith et al., 2021; Tough et al., 2005). Similar challenges are reported in a review of qualitative studies relating to midwives advising on smoking. Perception of role responsibility, skills and ability to communicate whilst maintaining positive professional relationships with women were potential barriers (Flemming et al., 2016).

Understanding and addressing these challenges is critical given pregnancy is consistently recognised as a life-stage when women may be more attuned to changing their health behaviours (Olander et al., 2016; Olander et al., 2018). However, as illustrated above, expectations of change can be multiple including adjustments to diet, exercise, alcohol consumption and smoking. The majority of interventions include in our review to support midwives were tailored to their needs and challenges (exception de Jersey et al., 2018) but did not necessarily recognise their existing tacit knowledge. Furthermore, it appears that the focus was on enabling midwives to provide a one-way transfer of knowledge from themselves to women with the expectation women will have sufficient motivation and ability to make recommended changes, and that such changes if enacted will impact outcomes (Olander et al., 2018). Only two interventions to support midwives included skills to allow them to tailor input according to the specific needs of women (Lawrence et al., 2020; Othman et al., 2020). Knowledge mobilisation involves moving evidence to where it can be most useful (Ward, 2017), which recognises the fluid, dynamic process of knowledge exchange (Ward et al., 2012). No intervention was co-produced with midwives, women or their families. Evidence suggests the inclusion of end-users results in improved uptake (Greenhalgh et al., 2016).

We recommend that future research is underpinned by knowledge mobilisation methods to promote shared understanding and language between women, midwives and the wider society (Cowdell et al., 2020). Partnership working and co-creation are essential to ensure knowledge about maternal weight gain is effectively shared across communities to catalyse change (Wye et al., 2019). In the interim our review suggests need for holistic, honest conversations between midwife and pregnant woman about GWG.

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The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Ethical approval – not applicable

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.midw.2023.103750.

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