**Title:**

**The makings of a maternal obesity epidemic: A Meta-narrative review**

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**Declarations**

1) **Declaration of Competing Interests:** The authors declare they have no competing interests.

2) **Ethical Approval:** No ethical approval needed.

3)**Funding:** This research did not receive any specific grant for funding agencies in the public, commercial, or not-for-profit sectors.

**Authors contribution**

CF contributed to the conception and design of the study, undertook the Meta-narrative review, including analysis, synthesis and writing the article, drafting, final approval and submission of the article

GT contributed to data analysis and revising it critically for important intellectual content with final approval.

CK contributed to the conception of the design of the study, analysis, and synthesis, revising it critically for important intellectual content with final approval.

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**Abstract**

**Study background**: The prevalence and complications of maternal obesity are well reported; with a hegemonic medicalised view leading to women's pregnant bodies being 'managed'. We aimed to address current knowledge gaps by exploring the literature across research traditions and overtime to better understand the experiences of maternity care for women living with obesity, in relation to choice, consent and control.

**Methods:** A systematic review using meta-narrative methods. Identification of studies included a scoping phase involving experts, hand searching and database browsing and a systematic searching phase. Seven databases (MEDLINE, MIDIRS, CINAHLComplete, Scopus, SocINDEX, PsycINFO, SPORTDiscuss) were searched with no date or geographical restriction. Non- English language studies were excluded. Two authors appraised quality prior to data extraction and synthesis. Data were tabulated, and women's experiences conceptualised in relation to choice, consent and control, first, by research tradition to reveal the unfolding storyline, secondly emergent narratives were synthesised into meta-themes.

**Results**: Twenty-four studies were included, from seven research traditions. Of these, twenty-one were qualitative, two were quantitative, and one study utilised a mixed method design. Studies spanned twenty-six years from 1994 to 2020. Across research traditions, four themes were evident, 'women's beliefs and experiences of weight', 'social determinants', 'being risked-managed' and 'attitudes of caregivers'. Over time, management of maternal obesity has moved from a focus on weight gain and diet as a woman's issue, to weight being pathological resulting in increased medicalisation to a renewed focus on lifestyle through the public health arena. It suggests that lack of choice over care can reduce women's perception of control over their pregnancy and birth experience.

**Conclusion**: Increased medicalisation of maternal obesity, which includes defining and managing weight as pathological can limit women's choice and control over their maternity care. There is a need for national and local policy development which includes women in the process. It is important that women's views are heard, understood and acted upon so that a balance can be achieved, avoiding over medicalisation yet ensuring mortality and morbidity risks are minimised

**Key words**: Maternal obesity, meta-narrative review, policy, control, choice, consent

**Background**

The World Health Organization estimates that since 1975 rates of obesity have tripled worldwide (World Health Organisation, 2017). Almost one in five pregnant women in the United Kingdom (UK) is obese (Denison et al., 2018) with predications indicating that 38% of women in the UK expected to be obese by 2025 (NCD Risk Factor Collaboration, 2016).

In recognition of the rise in maternal obesity, there has been a steady increase in studies which have highlighted a correlation between increasing body mass index (BMI= weight (Kgs)/height (m) $^2$) and poor pregnancy outcomes e.g., gestational diabetes, pre-eclampsia, thromboembolism, operative birth, and stillbirth (Mission et al., 2015). Biomedical research to promote optimum management and care of maternal obesity to improve maternal and fetal outcome has developed alongside this (Kerrigan and Kingdon, 2010) with the publication of findings of a National' obesity' project in the UK (CMACE/RCOG, 2010) and best practice guidelines (CMACE/RCOG, 2010, NICE, 2010) leading to the introduction of management care pathways which have since been implemented throughout the United Kingdom, most recently updated in 2018 (Denison et al, 2018).

These guidelines promote the medical management of maternal obesity based on body mass index (BMI), despite its identified flaws regarding validity of use (Albers et al., 2006; Depres et al., 2001; Keenan and Stapleton, 2010). BMI is a proxy indicator of body fat as it does not take into consideration fat distribution, muscle mass and shape, as well as being problematic when used on different ethnic groups (Low et al., 2009; Mills et al., 2010). It is argued that the little understood correlation between health and body size (McPhail and Mazur, 2019; Orbach, 2006; Tischner and Malson, 2011) is not considered, with maternal obesity being managed 'just in case' (Ahluwalia, 2015). This one size fits all approach limits choice and fails to consider the variations in the health status of women who present in pregnancy with a high BMI.

Following the publication of guideline management of maternal obesity in the UK (CMACE/RCOG, 2010), there has been an increase in studies exploring the perceptions of care of women living with ,

for example, Dinsdale et al (2016), Furber and McGoven (2011), Lavender and Smith (2015).. Fewer studies exist however considering women's actual perceived needs (Heslehurst et al., 2013), with little consideration of how policy and practice affects women's care and the choices they are able to make (Ahluwalia, 2015; Kerrigan, Kingdon and Cheyne, 2015).

The aim of this systematic review is to explore the literature across research traditions to better understand the maternity experiences of women living with obesity and how these experiences impact on choice, consent, and control. Latterly, Relph et al., (2020) has synthesised existing qualitative research to understand perceptions of risk and how this influences choice for women living with obesity, suggesting evidence in this area is emerging. This review aims to go further by undertaking a meta-narrative review.

A meta-narrative review was chosen as it examines historically the evolving literature crossing interdisciplinary boundaries. Women who present in pregnancy living with obesity are often cared for and signposted to professionals across disciplines, so it was imperative that interdisciplinary research was captured in order to understand women's experiences. This is the first meta-narrative review to consider maternal obesity and women's experiences of care across disciplines and research traditions.

**Method**

We conducted a systematic review using the meta-narrative method (Greenhalgh et al., 2004, 2005), in accordance with the RAMASES standards (Wong et al 2013) (see Supplementary File 1 for RAMESES checklist). The review questions asked were, what are the maternity care experiences of women living with obesity and how do these experiences impact on choice, consent, and control? Originally developed by Greenhalgh et al. (2004, 2005), this approach uses a historical and philosophical perspective to understand available literature. Thomas Kuhn's 1962 work considering the 'priority of paradigms' (1996, p. 43) is drawn upon, suggesting that science is generally managed

following predetermined rules that have historically shaped the course of 'normal science' (Kuhn, 1996, p. 10). Researchers from different traditions view these rules according to their discipline.

Meta-narrative review comprises six phases (planning, searches, mapping, appraisal, synthesis, recommendations), which are underpinned by the six guiding principles pragmatism, pluralism, historicity, contestation, reflexivity and peer review of which meta-narrative reviews are based (Greenhalagh and Wong, 2013):

*Pragmatism:* From the studies identified during the search, pragmatism was adopted in order to 'make sense' of the data. Inclusion decisions were based on how the review aims could be addressed through the development of an historical timeline and comprehensive narrative.

*Pluralism*: Multiple perspectives were explored examining different research approaches across differing disciplines and included in the review.

*Historicity*: The meta-narrative review considered how research traditions have developed over time by using a timeline to highlight significant events and work that has shaped the research tradition in relation to maternal obesity.

*Contestation:* Conflicting data that arose from differing research traditions was examined in order to establish how differing assumptions and framing of maternal obesity has impacted on the care and management of these women during the pregnancy continuum.

*Reflexivity and peer review:* As findings emerged it was important to continually reflect and present findings both individually and with the supervising team as well as presenting findings to an external audience. This enabled further reflection and analysis and enhanced the quality of the study

**Searches and mapping**

Searches were conducted in two stages. The first phase involved scoping the literature. This included examining informal sources, and networking with professionals in the field to identify research traditions and subsequent databases aligned to these traditions. Seven databases were identified.

The second phase was the systematic search phase of the following databases - CINAHL, MEDLINE, MIDIRS, PsycINFO, Scopus, SocINDEX, SPORTDiscuss (Fig. 1). The search covered all published literature with no time restrictions to conceptualise published literature across time, in line with the meta-narrative approach. Search terms used included 'maternal obesity', 'weight and pregnancy', 'pregnancy and BMI', '. The original systematic searches were conducted in March 2017, and last updated in November 2022 to ensure inclusion of any relevant recent publications (see supplementary file 2 for search terms and an example of the search strategy).

**Inclusion and exclusion criteria**

Literature that considered women's experiences throughout pregnancy and childbirth who presented either as obese (BMI ≥ 30kg/m²) or who identified as obese (regardless of BMI) was included. Primary qualitative, quantitative, and mixed method research designs were included in accordance with the dictates of meta-narrative reviews (Wong, 2013). Exclusions to the review were Non-English studies, literature that considered neonates, infants, infant feeding and literature that did not discuss women's experiences

**Quality appraisal**

Quality appraisal was undertaken using quality appraisal tools from the research traditions identified in the review (Walsh and Downe, 2006; EPHPP, 2009). Two of the authors undertook this independently with subsequent discussion to identify literature for inclusion.

**Data extraction and synthesis**

In accordance with the principles of meta-narrative review a pragmatic approach was adopted in analysing the data (Wong et al., 2013). The initial unit of synthesis was the research tradition. Academic tradition was identified according to the authors professional and/or expertise. Commonalities and differences between studies included in respective traditions were coded and summarised interpretatively into meta-themes. Analysis was undertaken across the literature with

interpretations from quantitative data in the mixed methods study and quantitative studies coded in the same way as the qualitative data adapting Braun and Clarke (2006) approach to thematic analysis. Findings from the studies were manually mapped, with themes identified. Critique was undertaken following the meta-narrative principles (Wong et al.,2013), pragmatism, pluralism, historicity, contestation, reflexivity, and peer review. Excel spreadsheets were used for data extraction and management. Findings were agreed by consensus within the review team.

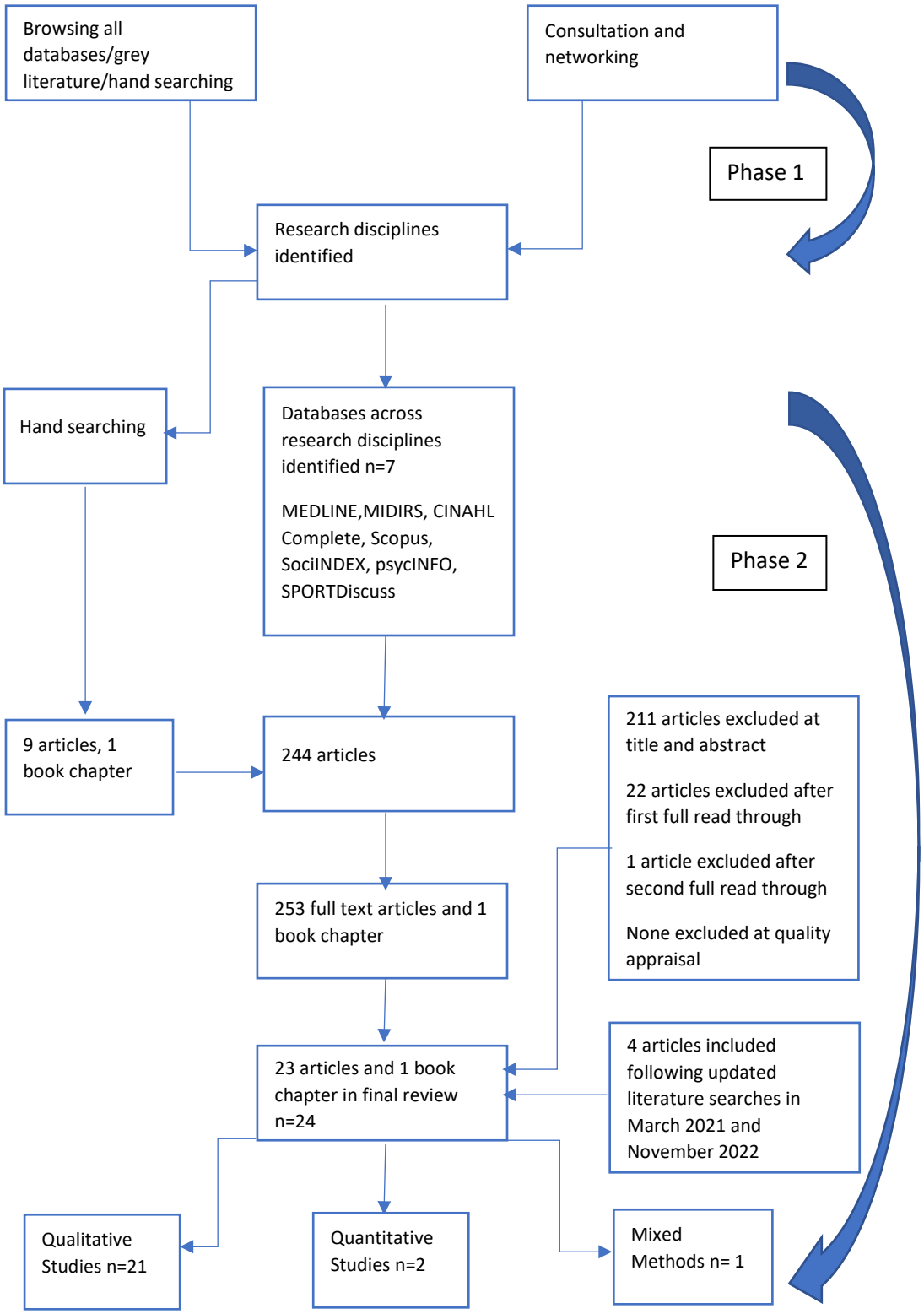
**Reflexivity and peer review**

A collaborative approach was used to continually evaluate subjectivity that may influence the review process. The main author of this review has an extensive midwifery clinical background and is a midwifery educator. She has previously and is currently involved in service development for women and birthing people living with obesity. The two co-authors have more than 20 years' experience, one with an extensive background in Sociology and one Psychology. Both are active experienced researchers. The findings were also presented to an external audience of professionals and service users of whose feedback was used to further reflect and analyse.

**Results**

From a total of 258 identified sources, 24 studies from seven research traditions were included (Fig. 1). The experiences of women living with obesity were conceptualised in the academic disciplines of Midwifery, Nursing, Interdisciplinary Health and Medical Sciences, Women's Studies, Psychology, and Public Health. Of these, 21 were qualitative studies, two were quantitative and one was a mixed methods study. All studies were undertaken in high income countries, America, Australia, Canada, Denmark, England, Norway, Scotland, Sweden, Ireland and the UK. All included studies were published between 1994-2020, with key research traditions and women's experiences conceptualised in Table 1. In line with meta-narrative reporting, the results are now presented in three sections: 1) Historicity; 2) Unfolding storyline by research tradition; and 3) Meta-narratives.

**Fig. 1**: Search and selection flow chart. Adapted from Greenhalgh et al (2004)



**Historicity**

Mapped across time, the literature reflects evolving policy in relation to managing maternal obesity risk across the countries studied with the management of obesity moving from a focus on weight gain and diet as conceptualised by Wiles (1994,1998), through increased medicalisation (Adolfsson et al., 2013; Aktinson et al., 2013; Furness et al., 2011; Furber and Gowen, 2011; Heslehurst et al., 2013; Keely et al., 2011; Lindardt et al., 2013; Mills et al., 2013; Mulherin et al,. 2013) to renewed focus on improving lifestyle through public health (Jette and Rail, 2014). A move to engage women in lifestyle programmes and care pathways determined by BMI, indicates increasing focus on obesity as a public health issue with undertones of increasing medicalisation and weight as pathological (Bombak et al., 2016; Dinsdale et al., 2016; Heslehurst et al., 2015; Knight et al., 2016; Lavender and Smith, 2015).

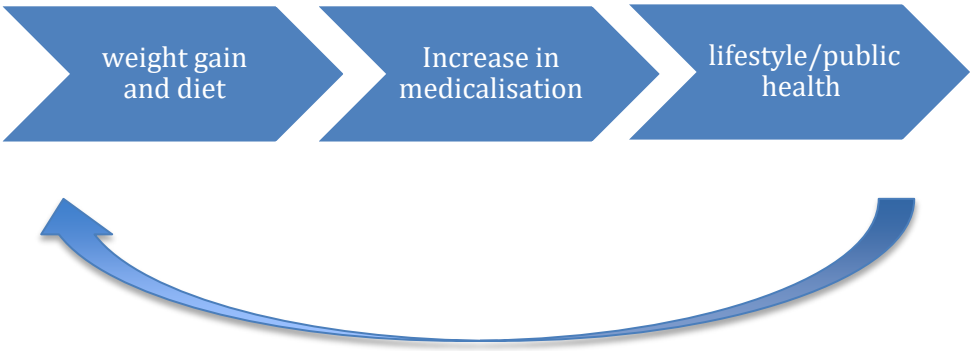



**Fig. 2.** Historical context of obesity management and care conceptualised through women's experiences

**Table 1:**
Summary of results of the Meta-narrative review

| Academic discipline | Research Tradition | Definition and scope | Obese women's experiences conceptionalised in relation to control, consent, and choice | Key Authors |
|---|---|---|---|---|
| Midwifery | Midwifery studies/evidenced-based medicine | Studies of maternity practices and strategies to improve the care of women and babies. | Humiliation, stigmatisation, feeling exposed and scrutinised.<br>Keeping silent, fear and anxiety. Lack of communication, collusion to avoid challenging discussions.<br>Health professionals seen as authoritative, gate keepers of care. Positive and negative encounters with health professionals. Weight seen as problematic; discrimination evident<br>Maternal body seen as a vessel. Mother blaming, labelling, ignored. | Nyman et al. (2010)<br>Furber and McGoven (2011)<br>Keely et al. (2011)<br>Hildingsson and Thomas (2012)<br>Mills et al. (2013)<br>Lavender and Smith (2015)<br>Atkinson and McNamara (2017)<br>Parker (2017) |
| Interdisciplinary (medicine, sociology, health, midwifery, nutrition and dietetics, psychology, nursing, technology, and communication) | Health Studies | Study of health practices and strategies to improve and manage diseases/conditions within the population | Pregnancy was an excuse to overeat. Lack of motivation to lose weight.<br>Lack of social support seen to have a negative impact on diet.<br>Stigmatised, vulnerable, and embarrassed about weight.<br>Reluctance of health professionals to discuss weight. Depersonalised care common<br>Lack of continuity of care that prevented women from discussing weight. Inconsistent advice given.<br>Positive experiences noted in relation to attending a targeted clinic or dietetic service<br>There was a clear difference in the support women received across differing management pathways, with those with a BMI≥40kg/m² receiving more support. These women reported better communication from health professionals and had a better understanding and awareness of the risks associated with maternal obesity. Women with BMI≥30kg/m² and BMI≥35kg/m² were unaware of being on a care pathway, felt ill-informed, thought associated clinical assessments were routine for all pregnant women and were not aware of obesity associated risks. The words, 'obese', 'clinical obese' and 'morbidly obese' were perceived negatively. | Furness et al. (2011)<br>Heslehurst et al. (2013)<br>Heslehurst et al. (2015)<br>Heslehurst et al. (2017)<br>Dejoy et al. (2016)<br>Dinsdale et al. (2016)<br>Knight-Agarwel et al. (2016)<br>Thorbjörnsdottir et al. 2020 |

| | | | | |
|---|---|---|---|---|
| | | | Women who are 'obese' have historical weight issues.<br>Information giving can be confusing, contradictory and a judgmental approach by health professionals is adopted.<br>Expectation that women will 'comply' with care. | |
| Health Sciences and Health and Medical Sciences | Health studies/Evidence -based medicine | Studies to improve health through scientific research | Initial contact with service providers and information given counts. Some women 'offended' by being invited to attend a clinic for raised BMI<br>Opportunities missed with women identifying needs that were not met.<br>Some women did not want support with others preferring group-based weight loss services or dissatisfied with support offered.<br>Health professionals as 'gate keepers'. Evidence of imbalance of power and lack of choice. Impersonal care.<br>Stigmatisation, shame, use of insensitive language, refusing to treat, fetal risk discourse, fear.<br>'Obese' women may not identify as being 'obese' although they felt they did not conform to societal concepts on the female body, feeling a failure because of this. Pregnancy was a time when it was acceptable to be 'big' and this improved self-esteem as these women felt they 'fitted in'.<br>Competence and experience of their midwife was a priority. They generally understood the increased risks of being 'obese' but wanted midwives to treat them as other pregnant women and not keep highlighting the risks. Contact with midwives was a positive experience.<br>Health professionals implied blame or criticism.<br>Women experienced heightened vulnerability.<br>Unaware of being referred for specialist care.<br>Lack of advice and information, inconsistency of information and conflicting advice | Adolfsson et al. (2013)<br>Atkinson et al. (2013)<br>Bombak et al. (2016)<br>Lindhardt et al. (2013)<br>et al (2020) |
| Public Health | Health Promotion | Studies to improve the health and well-being of the population. | Managing behaviour to ensure the health of the baby is evident.<br>Socioeconomic factors have a bearing on weight gain and health related activity. | Jette and Rail (2014) |
| Women's Studies | Feminist Sociology | Study of how society views | Humiliated by health professionals. Being 'fat' more socially accepted when pregnant.<br>Lack of professional support or advice. Conflicting advice. Self-controlling. Pregnant Comments | Wiles (1998)<br>Wiles (1994) |

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|---|---|---|---|---|
| | | women at an interactional and political level. | made by medical staff were deemed to be ‘derogatory’ and ‘insulting’. | |
| Psychology | Behavioural studies | Study of the behaviour of the population. | High BMI negatively impacts on the care women receive. Weight stigmatising attitudes of caregivers apparent. | Mulherin et al. (2013) |

**Narratives by research tradition**

**Narratives from Midwifery**

Midwifery, the profession defined by being with woman during pregnancy and childbirth turned its attention to investigating the experiences of women classified as obese only a decade ago. Seven studies were included from the Midwifery research tradition. Seven were focused on women's experiences of the care given (Atkinson and McNamara, 2017; Furber and McGowen, 2011; Hildingsson and Thomas, 2012; Keely et al., 2011; Lavender and Smith, 2015; Mills et al., 2011; Parker, 2017), with one concerned with women's experiences of the attitudes of caregivers (Nyman et al., 2010). Qualitative research methods were used in seven studies (Atkinson and McNamara, 2017; Furber and McGowen, 2011; Keely et al., 2011; Lavender and Smith, 2015; Mills et al., 2011; Parker, 2017). Hildingsson and Thomas (2012) used quantitative methodology to examine pregnancy and birth outcomes, maternal characteristics, and experiences of the pregnancy continuum of women with a BMI ≥ 30kg/m. Characteristic of the midwifery tradition, which unites medical and nursing traditions this study was more aligned to medicine, in seeking answers to questions to establish the truth about maternal obesity experiences, outcome and how this correlates with maternal characteristics. This is also evident in the study of Keely et al. (2011) who used an interpretive qualitative approach, exploring morbidly obese (BMI≥ 40kg/m²) pregnant women's experiences in relation to their understanding of obesity risk. The women interviewed normalised their obesity, which was subsequently explored using evidence constructing obesity as a condition and a disease to be managed, reflecting a medical research tradition. The other studies were more woman-centred encompassing midwifery's core principle of 'with women'.

**Narratives from the Interdisciplinary Studies, Health, public Health and Medical Sciences**

These studies have been considered collectively as they consist of a variety of health disciplines that were difficult to consider individually due to similarities in their research approach. Subtle differences are conceptualised below.

Six studies aligned to health, public health and health and medical sciences (Adolfsson et al., 2013; Atkinson et al., 2013; Bombak et al., 2016; Jette and Rail, 2014; Lindhardt et al., 2013; Thorbjörnsdottir et al., 2020). Concepts from a public health perspective considered external factors affecting maternal obesity, namely the social determinants of health as having a bearing on weight gain and health related activity (Jette and Rail, 2014). This is reflective of the public health paradigm which considers the socioeconomic context of individuals lives and their reality within that context (Khanal, 2012). Bombak et al. (2016) considered reproductive care and overweight and 'obese' women's experiences of discrimination. The study adopted a sociological approach and via use of interviews actively considered the negative impact of reproductive services on women's experiences. Coming from a health science perspective traditionally concerned with disease this research demonstrates a paradigm shift from the study of pathology to a more holistic approach to research. This was also reflected in the work of Lindhardt et al. (2013) and Thorbjörnsdottir et al. (2020). Coming from a medical and health science paradigm respectively, both considered women's experiences of care and attitude of caregivers as opposed to following the traditional pathological focused approach usually adopted by health and medicine.

Adolfsson et al. (2013) focused on the relationship between obese pregnant women and their midwife and care received. Whereas, Atkinson et al. (2013) examined the experiences of obese pregnant and post-natal women who had declined or disengaged from a weight management service. Both studies identified that women were shocked to be referred for care in relation to their weight and either did not consider themselves obese or had not been informed of referral.

All the interdisciplinary studies (n=7) considered women's experiences of care (Dejoy et al., 2016; Dinsdale et al., 2016; Furness et al., 2011; Heslehurst et al., 2013; Heslehurst et al., 2015; Heslehurst et al., 2017; Knight- Argawel et al., 2016). Three focused on women's experience of following prescribed management plans (or disengagement from) in line with current policy and practice within the UK (Dinsdale et al., 2016; Furness et al., 2011; Heslehurst et al., 2015) and one considered

women's lived experiences when referred to a dietetic clinic (Heslehurst et al., 2017). All the studies were undertaken during a time of increased interest in maternal obesity management and reflect the increasing medicalisation of maternal obesity at that time, following a medical paradigm in their approach concerned with reducing risk.

Of note, Heslehurst et al. (2015) conducted a mixed methods study evaluating the implementation of a maternal obesity care pathway. By using a mixed methods approach both the depth from qualitative data and breath of quantitative audit data (from women's medical records) enabled a thorough interpretation of maternal obesity management. By using objective epistemology in data collection and considering women's experiences using an interpretive approach the synergy created strengthens the recommendations made. It could be argued however that by using a quantitative approach to verify women's qualitative accounts suggests women's experiences are not valid in their own right, needing verified using a traditional quantitative scientific research tradition which aligns to medicine.

**Narratives from Women's Studies**

This tradition provides the earliest storyline and includes two studies (Wiles 1994, 1998). The distinctiveness of this tradition lies in its unification of feminist theory with empirical research centring the everyday lives of women. Women's feelings and beliefs around weight were explored in two studies by the same author (Wiles 1994, 1998). Both studies considered women's experiences during and after pregnancy from a sociological perspective using feminist phenomenology and an interpretive approach based on grounded theory, considering how external forces, which influence behaviour, govern women's weight. These studies used actual weight as an indicator for recruitment with women approached for inclusion who had reached a weight of 90Kgs by the 30th week of pregnancy. These studies found comments made by health professionals were perceived by women as derogatory and insulting. At the same time women perceived being 'fat' as being more socially acceptable when pregnant. These studies suggest contradictory messages about women, fatness

and pregnancy in everyday culture when compared to women's experiences of maternity care.

**Narratives from Psychology**

Mulherin et al. (2013) used a quantitative approach to examine weight stigma in maternity care and considered obesity from a behaviourist perspective. By viewing obese women as being controlled by their environment and considering how environment affects behaviour, the authors' research tradition was consistent with its psychological roots.

Interestingly, most of the studies do not consider what women want or expect from their care. Most of the included studies appear to blur the boundaries in relation to the research tradition normally aligned to their profession, adopting medical research tradition traits in interpreting the data. It could be argued that generally the research reviewed is interested not in the women themselves but their care and management and how this can be improved through considering their experiences.

**Meta-themes**

This section reports four resultant meta-themes from synthesis across the traditions, which were identified using qualitative thematic analysis developed by Braun and Clark (2006) . Themes identified were 'women's beliefs and experiences of weight', 'social determinants of health', 'being risk managed' and 'attitude of caregivers'. These themes capture both women's experiences or care and how their experiences interject with the ability to make informed choices, give informed consent and feel in control.

**Women's beliefs and experiences of weight**

In eleven of the studies women's attitudes to weight during pregnancy was reported to be complex; rooted within societal expectations of the feminine body and motherhood (Adolfsson et al., 2013; Bombak et al., 2016; Dinsdale et al., 2016; Furness et al., 2011; Heslehurst et al., 2013; Jette and Rail, 2014; Knight-Agarwal et al., 2016; Mills et al, 2013; Thorbjörnsdottir et al., 2020; Wiles, 1994, 1998). Most women were aware of their weight prior to pregnancy with some citing historical issues with

weight, including yo-yoing dieting, and eating and their struggle with body image (Adolfsson et al., 2013; Dejoy et al., 2016; Dinsdale et al., 2016; Furness et al., 2011; Heslehurst et al., 2013; Knight-Agarwal et al., 2016; Mills et al., 2013; Parker, 2017). These studies suggest underlying factors influencing size other than poor diet and/or lack of exercise. Expectations of the 'normal' feminine body appeared to affect how some women perceived their care (Adolfsson et al, 2013; Dinsdale et al., 2016; Furness et al., 2011; Nyman et al., 2010; Parker, 2017). Women expected to be judged and were hyper-sensitive to comments about their weight, living with a constant 'awareness of their body' (Nyman et al., 2010, p. 426; Parker, 2017) and perceiving a positive bias towards 'thin' women (Adolfsson et al, 2013, p. 547). An awareness of the impact of obesity on pregnancy and birth, particularly on the baby was apparent and compounded feelings of inadequacy and low self-esteem (Knight-Agarwal et al., 2016; Parker, 2017). Generally, the need to control eating in order to provide the best outcome for the baby was recognised (Heslehurst et al., 2013; Jette and Rail, 2013; knight-Agarwal et al., 2016; Wiles, 1994, 1998) with women feeling responsible for their unborn baby's health and wellbeing. The concept of obesity being attributed to poor mothering was apparent (Atkinson et al., 2013; Bombak et al., 2016; Heslehurst et al., 2013; Jette and Rail, 2014). Atkinson et al (2013, p. 250) found that referral to weight management services by health professionals was seen by some women as questioning their ability to make healthy lifestyle choices, implying that they must be 'bad mothers'. Bombak et al (2016) discussed mother blaming in relation to health professionals focus on fetal risk and how this influenced women's beliefs around weight and the choices they felt able to make. In their study several women of white middle class backgrounds resisted this labelling by projecting distain onto other (indigenous) pregnant women, who they deemed to be of higher risk than themselves, thus increasing their own respectability. By resisting this weight stigma, these women were able to gain some control through demanding better care, however in the process marginalising others. Women also felt responsible for weight gain in pregnancy (Jette and Rail, 2014). This was attributed to society's views on the feminine body as opposed to the health of the baby or woman. This was reiterated throughout much of the literature

(Adolfsson et al., 2013; Dinsdale et al., 2016; Furness et al., 2011;Heslehurst et al., 2013; Jette and Rail, 2014; Mills et al., 2013, Nyman et al., 2010; Parker, 2017) with reference to society's expectations to be 'slim' and the notion of 'fatness' being associated with being 'greedy' and 'lazy' (Heslehurst et al., 2013, p.97; Parker, 2017). In contrast to this however, Wiles (1994) found that for some women pregnancy was the only time society accepted their weight, legitimising their obesity. Nyman et al. (2010) and Adolfsson et al. (2013) also concluded that being pregnant was a time where women with obesity felt their size was accepted.

**Social Determinants of health**

Hildingsson and Thomas (2012) and Mulherin et al. (2013) considered education levels as a factor influencing obesity and perceived care. Hildingsson and Thomas (2012) identified a correlation between increasing BMI and decreasing educational status. In contrast to this Mulherin et al. (2013), ascertained in their study that 40% of participants were educated to degree level with 22% having no further education after secondary schooling. Educational status was also a consideration in the work of Jette and Rail (2014) who studied pregnant women of low income and their experiences of health and weight gain. Although not identified as obese by BMI classification, the majority identified as overweight. Some women (9 out of 15) were educated to degree level or above. Of these, all were immigrants whose low-income status was partially due to building a new life in a new country. The authors suggest a link between low income and the inability to adopt a healthy lifestyle regardless of education level. Financial stress was seen as an important factor in women's dietary choices with the availability of cheap fast food due to cost and ease of access and availability influencing diet (Jette and Rail, 2014). Financial implications appear to influence choice as well as diet being controlled by others e.g., when living with relatives and not being responsible for preparing meals or relying on others financially. Feelings of inadequacy was prevalent, with financial constraints and time negatively influencing how women perceived their mothering skills (Jette and Rail, 2014). In the study by Mills et al. (2013) some women experienced work and childcare issues due to having to travel further to access care because of their high-risk status . Jette and Rail (2013)

highlighted women's religious beliefs as a factor in the choices made in relation to care they were willing to accept as well as dietary choices. Similarly, Mills et al. (2013) highlighted cultural background as influencing weight perception, with one interviewee of Tongan heritage being accepting of her weight, which for her was the cultural norm.

**Being Risk Managed**

Pregnant women with a BMI of 30 or above appear to be medically managed with increased screening and referral for specialist care (Atkinson et al., 2013; Bombak et al., 2016; Dejoy et al,. 2016; Dinsdale et al., 2016; Furber and McGowen, 2011; Keely et al., 2011; Heslehurst et al., 201; 2015, Knight-Agarwel et al., 2016; Lavender and Smith, 2015; Lindhardt et al.,2013; Parker, 2017; Thorbjörnsdottir et al,. 2020). Often women were not aware they had been referred for specialist care, this only becoming apparent on attending an appointment made for them by another health professional without consultation, highlighting lack of choice and informed consent (Atkinson et al., 2013; Bombak et al., 2016; Dinsdale et al., 2016; Heslehurst et al., 2015; Heslehurst et al., 2017; Knight-Agarwel et al., 2016; Lavender and Smith, 2015; Lindhardt et al., 2013). Women cited that they were told by health professionals, they 'had to have' as opposed to being offered a choice, with women complying with care of which they had little understanding (Knight-Agarwel et al., 2016; Lindhardt et al., 2013; Thorbjörnsdottir et al., 2020). Bombak et al. (2016) explored this in relation to risk, identifying an inflation of weight bias with women being managed 'just in case'. Women's perceptions of obesity risk during pregnancy and birth varied between the studies, with some women being very aware of the risks (Keely et al., 2011; Thorbjörnsdottir et al., 2020), and others having either little or no knowledge (Atkinson et al., 2013; Bombak et al., 2016; Dinsdale et al., 2016; Furber and McGowen, 2011; Heslehurst et al., 2013; 2015; Keely, 2011; Knight-Agarwel et al., 2016; Lavender and Smith, 2015; Lindhardt et al., 2013). Dinsdale et al. (2016) found that women with a BMI of 40 or above were much more aware of the risks and had more positive experiences concerning the care given than those with a BMI above 30 and below 40. Almost all women in the latter group were not aware of the management pathway of care they were receiving and not aware

of the risks associated with their weight. Acceptance of medical intervention however, was higher when women understood the risks (Heslehurst et al., 2015), with others unable to resist medical intervention even though they questioned the need for it (Parker, 2017). Mulherin et al. (2013) reported less satisfaction with treatment the higher the BMI, while Hildingsson and Thomas (2012) reported no difference in care satisfaction between all BMI ranges.

Some of the women in the studies by Furber and McGowen (2011) and Mills et al. (2011) reported that care focused on the wellbeing of the fetus failing to acknowledge the mother and her baby holistically. Extra fetal screening increased anxiety and distress as well as feelings of guilt and the perception of mother blaming (Atkinson et al., 2013; Bombak et al., 2016; Furber and McGowen, 2011,). Paradoxically, women across several studies prioritised the health and wellbeing of their baby, accepting being managed, reflecting the dichotomy (Heslehurst et al, 2013; Knight-Agarwel et al., 2016; Jette and Rail, 2016). Bombak et al. (2016) suggest that discussions around pregnancy and birth complications are framed around the fetus with no consideration of the mother-fetus dyad Mills et a.l (2013) suggests that barriers exist in service access for women who were overweight, with hospital policies and practices leading to loss of autonomy due to health professionals focusing on risk as opposed to offering individualised care.

**Attitude of Caregivers**

Women frequently cited being humiliated, feeling stigmatised and judged due to negative interactions with health care providers (Bombak et al., 2016; Dejoy et al., 2016; Furber and McGowan, 2011; Furness et al., 2011; Heslehurst et al., 2013; Knight-Agarwal et al., 2016; Lindhardt et al., 2013; Mulherin et al., 2013; Parker, 2017; Thorbjörnsdottir et al., 2020; Wiles, 1998). The word 'obese' was perceived negatively (Atkinson and McNamara, 2017 and Dinsdale et al, 2016) with Atkinson and McNamara (2017) and Dejoy et al. (2016), suggesting how health professionals communicate needs sensitive consideration. Most women in the studies recognised that they were obese and there was an expectation that this would be addressed at antenatal appointments.

Generally, women wanted caregivers to acknowledge their weight, make helpful suggestions for management and care and involve them in the decision-making process (Adolfsson et al., 2013; Furness et al., 2011; Lindhardt et al., 2013), however this was lacking. Where information was given in a non-judgmental, honest and open way, women responded positively, feeling in control and able to give informed consent, empowered to make choices around their care (Dejoy et al., 2016; Heslehurst et al., 2013: Lavender and Smith, 2015; Mills et al., 2013).

**Discussion**

This systematic review using meta-narrative methods has explored the experiences of women who present in pregnancy with a high BMI. Seven research traditions were identified and four meta-themes. Historically, it appears that research has become increasingly concerned with the medicalisation of maternal obesity as the correlation between obesity and disease has been established, moving from a focus on weight gain and diet concerned with the mothers health to concerns with the health of the fetus. More recently a renewed focus on lifestyle and public health to address obesity is apparent. This highlights how the management and care of maternal obesity has evolved. What was notable however was that across time there appears to be little improvement in women's experiences with increased medicalisation compounding this.

There were similarities across the disciplines in relation to the findings, even though most aligned with the research methodology of their research tradition. The four meta-themes identified, 'women's beliefs and experiences of weight', 'social determinants of health', 'being risk managed' and 'attitudes of caregivers' was evident across all the health disciplines but 'attitudes of caregivers' and 'being risk managed' was reflected in most of the studies.

It is well established that obesity during the pregnancy continuum is associated with increased risk of adverse outcomes for both women and their babies, resulting in best practice guidelines being adopted (CEMACE/RCOG, 2010; Denison et al., 2018; National Institute for Health and Clinical Care

Excellence (NICE), 2010). Women living with obesity are cared for in the UK by obstetricians, using a risk management approach based on a medical model of care, which limits women's choices for pregnancy and birth. It is argued that the technocratic approach to maternity care (Davis- Floyd, 1992, 1994) which is concerned with outcomes in relation to mortality and morbidity rates only, has generated a culture which is fetus-centric (Parker, 2014). Risk is often attributed to fetal risk, apportioning blame on the 'mother' making them feel guilty for being 'fat'. Mother blaming appears to undermine women's self-esteem and heightens their vulnerability making them more likely to comply with treatment (Lupton, 2013; Parker, 2014).

The studies reviewed highlight that pregnant women (with a BMI ≥30kg/m$^2$) are managed by obstetricians, using a risk management approach based on a medical model of care, which may limit women's choices for pregnancy and birth. Communication around risk is negatively framed inflating its perception (Vireday, 2011; Hull et al., 2015). This is supported by NICE guidance (2012) that suggests using absolute risk as opposed to relative risk e.g., rather than saying risk of stillbirth is more than doubled for women living with obesity, say those with a BMI over 30 have a risk of 1:100 of stillbirth (RCOG, 2011), as opposed to 1:225 of all women in the UK (Office of National Statistics, 2017). As indicated in the findings, this inflation of risk may cause undue worry for women who may consent to interventions without knowing their actual risk, therefore impacting on choice, and inhibiting informed consent. In addition to this, this review also identified how risk is often attributed to fetal risk, apportioning blame on the mother and thereby increasing guilt.

Standardising care for women living with obesity, which involves increased surveillance and procedures, indicates that complications are likely for both the woman and the baby, as opposed to assessing whether intervention is needed using a holistic approach based on the woman's health and well-being (Ahluwalia, 2015). Treating all women the same reduces choice and may assume compliance leading to loss of autonomy and an expectation to comply. This is in contrast to government policy, which promotes the notion of choice in childbirth for all women (Department of

Health/Partnerships for Children, Families and Maternity: Maternity Matters, 2007; NHS England: Maternity Review, 2016) yet arguably removes choice through regulating health provision in order to improve safety (NHSLA, 2013; Ahluwalia, 2015). Added to this is the association of obesity being undesirable and vilified in western society (Lupton, 2013; Tischer, 2013). These mixed messages around obesity and care provision, compounded with society's assumptions may influence how care is delivered, received, and perceived and is evident in the literature reviewed and across disciplines.

Negative interactions with health professionals appears to impact on how women view the care given leading to a loss of control and autonomy. Failure to involve women in discussions and decisions around care limits choice, and consent cannot be fully gained (DoHSC, 2016; National Maternity Review, 2016). This is reflected in other areas of maternity care provision, particularly choice of place of birth and type of birth, with safety and risk being widely debated for many (Coxon et al., 2014; Coxon et al., 2017; Murphy, 2016). True choice for childbearing women is arguably non-existent (Jomeen, 2012) with control exerted by medical professionals in the interests of safety.

**Strengths and limitations of the meta-narrative review**

A key strength of this review was the adoption of a meta-narrative approach enabling women's experiences to be conceptualised across research traditions . RAMESES standards for meta-narrative review was adhered to throughout ensuring methodology reliability. By using a meta-narrative approach, research across both qualitative and quantitative paradigms and across disciplines could be included and no restrictions applied. The literature was published between 1994 and 2020 which enabled a historical timeline to be mapped showing the cyclical nature of the analysed literature. Literature was captured using a variety of approaches including systematic searching, hand searching and consulting experts in the field. Networking enabled research traditions to be identified which informed which databases aligned to these traditions, strengthening the review process. The review was limited however, due to the inclusion of research published in the English language only, also all the studies were undertaken in high income countries giving a limited analysis

of maternal obesity globally. It is also recognised that although every attempt was made to capture all available studies that met the review criteria some studies may have been missed. This meta-narrative review adds to the existing knowledge around maternal obesity in relation to the pregnancy continuum and provides an insight into obese women's experiences in relation to choice, consent and control.

**Implications for practice and research**

From the research reviewed the medical research paradigm appears to be dominant, with women's experiences directly affected by this. There is a need for national and local policy development to consider how women's experiences are directly affected by medicalisation and how women can be supported to ensure their voices are heard and risk is minimised. Consideration of how pregnancy and birth experience can be optimised is also crucial. A balance needs to be achieved, avoiding over medicalisation yet ensuring mortality and morbidity risks are minimised. Education and training is needed to equip health professionals with the skills to be able to communicate obesity risks appropriately using a sensitive, non-judgemental approach. More research using qualitative research methods Is also needed to further understand the lived experiences of women presenting in pregnancy with a high BMI

**Conclusion**

This systematic review using a meta-narrative approach has provided a cross-disciplinary point of departure for understanding women's experiences of management and care when they present in pregnancy with a high BMI. In undertaking this review, a deeper understanding of the impact on obesity management and care throughout the pregnancy continuum for women has been gained.

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