Weight Expectations: Experiences and Needs of Overweight And Obese Pregnant Women and their Health Care Providers

By Jennifer Bernier, Yvonne Hanson and Tanya Barber

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Le Centre d'excellence de l'Atlantique pour la santé des femmes
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A joint project between the Atlantic Centre of Excellence for Women's Health and the Prairie Women's Health Centre of Excellence.

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EXECUTIVE SUMMARY

In recent years, Canada and many other countries have witnessed a rise in rates of overweight and obesity, motivating researchers, health care providers and policy makers to focus more attention on the relationships between overweight and obesity and health. This focus has included examining the impact of overweight and obesity on maternal and newborn health, resulting in a breadth of knowledge about potential negative health outcomes for both mothers and babies. There is a gap, however, in the literature relating to the psychological, emotional, and social implications of overweight and obesity in pregnancy, as well as the self-described experiences of women with overweight or obesity and those of their health care providers.

In order to address this gap, the Atlantic Centre of Excellence for Women's Health and the Prairie Women's Health Centre of Excellence interviewed both women who were overweight or obese during pregnancy and health care providers about their experiences. The objective of this qualitative study was to increase understanding of women's experiences with maternity care, including the psychological, emotional, and social implications of overweight and obesity in pregnancy. In addition, it was important to gain knowledge about practitioners' experiences with maternity care for overweight and obese women to better understand what is required for providing optimal care to this group of women. Thirty three individuals were interviewed in Nova Scotia and Saskatchewan, including 18 women who had experienced overweight and obesity during pregnancy and 15 health care providers who worked with pregnant women with overweight and obesity, including family physicians, obstetricians and gynaecologists, midwives, nurses, and registered dieticians. The semi-structured interviews consisted of conversations around all stages of pregnancy and the models of practice used to provide maternity care from both the perspectives of the women and practitioners. The findings from this study offer insights into women's experiences of overweight and obesity while receiving maternity care, the challenges and successes for practitioners in providing optimal care for this population, and recommendations on how maternity care for this group of women may be improved.

Key findings from this study include:

(1) Psychological, Emotional and Social Aspects of Obesity and Overweight during Pregnancy
In our conversations with the women involved in this study, we found that the psychological and emotional aspects of their experiences varied. Some women reported having positive experiences, others negative, while still others described their experiences as both positive and negative. The majority of the women interviewed, however, did explain that at least some portion of their care experience had been negative.

The most common causes of psychological and emotional distress experienced by the women were feelings of guilt and self-blame. The women felt responsible for their weight and diet and the potential health risks associated with overweight and obesity – both for themselves and their children. The women also feared being judged or lectured about their weight and so reported lying about or hiding

information from their health care providers. Almost all the women, even those who felt their overall experience with maternity care had been positive, also described facing some form of stigma or discrimination due to their weight or size. This most commonly occurred in the form of unwelcome comments. Women also explained that poor body image during pregnancy contributed to their negative experiences.

The social aspects of overweight and obesity during pregnancy included significant life events (parents' separation, growing up in foster homes where food was controlled); changes in activity levels (from participating in organized sports when young to a more sedentary life in college, university, or workforce and due to lack of time, feeling exhausted, or having to balance school or work and home life); gendered experiences (watching mothers struggle with weight and dieting, and feeling mothers' ideals of body image projected onto them); reproductive health (weight gain due to birth control medications, previous pregnancies, barriers to being active once mothering); and socioeconomic pressures (limited access to healthy foods and exercise).

(2) Pre-Pregnancy and Conception

We found that the majority of women who planned their pregnancies did have conversations with their health care providers about weight loss and health prior to conception, but that it was often the women who initiated these conversations. There were women who did not plan their pregnancies, so in these cases pre-conception conversations were not possible.

The suggestion of a potential link between overweight and obesity and infertility, as cited in current research, was also discussed by both women and health care providers. Women also described experiencing or witnessing weight bias in various stages of receiving infertility treatments and so some women feared asking for assistance with their fertility issues.

(3) Pregnancy

This study revealed that weight gain during pregnancy was the most commonly discussed topic between women and practitioners, but these conversations were complex. We found that some women wanted to discuss weight gain with their health care providers, others did not want to discuss it despite knowing its importance, and some women avoided the topic completely. The majority of the women we spoke with felt that recommended total weight gain during pregnancy was unrealistic and unattainable. Some health care providers also shared this opinion. Further, the women described feelings of emotional distress when facing regular weighing at appointments. A number of practitioners also questioned this practice and the negative impact it may have on the women's health and well-being.

The data showed that while conversations on diet and exercise took place between the women and their health care providers, these conversations focused more on diet than exercise. Women argued that these conversations and clinical care practices lacked the practical application of how to implement recommendations into their daily lives and did not offer any new information. Cost was also cited as a barrier to eating well and physical activity programs.

In terms of physical health risks, we found that while practitioners openly described the risks associated with overweight and obesity in pregnancy, screening women for these risks and managing care to address risks, they were not discussing the increased risks associated with overweight, obesity and pregnancy with their patients. Further, the majority of women we interviewed said that health care providers did not speak with them directly about physical health risks. Thus, many women did not realize they were high risk patients, or did not relate this status to their weight – with some feeling it was more to do with their age. This disconnect meant that women were left ill-informed and unaware of the potential physical health risks associated with overweight and obesity in pregnancy.

(3) Labour and Delivery

The majority of women reported having discussions with their health care providers about their mode of delivery options. Half the women reported having vaginal births and the other half caesarean delivery. Place of birth was not a pressing issue for most women, largely because there were no other options but to have a hospital birth. In places where more options were available, health care providers stated that they preferred women to deliver at hospitals due to the potential health risks during labour and delivery.

We found that health care providers held diverging opinions on the clinical care guidelines and practices surrounding the potential risks of medical interventions during labour and delivery for this group of women. For instance, some practitioners supported the guidelines stating that it was best not to induce women with overweight and obesity due to the potential complications that could occur. Others reported that they were more likely to induce overweight and obese women for fear of women having larger babies and complications associated with birthing larger babies. Discussions around other medical interventions (epidurals and fetal heart monitoring) and possible complications took place for both women and practitioners.

(4) Post-pregnancy

The data revealed that while health care providers focused on the potential post-partum physical health risks (infection, prolonged hospital stays, pressure sores, blood clots, and high blood pressure) for women with overweight and obesity- the women interviewed were more focussed on the emotional aspects of the post-partum stage. This included adjusting to motherhood, dealing with post-partum depression, and worrying about losing weight after pregnancy.

Common challenges to breastfeeding were discussed by both women and heath care providers, including delayed milk production and difficulties with latching. We found that practitioners offered support and creative strategies for the challenges facing this group of women. It was also apparent that monitoring or tracking how long women breastfed or if they were receiving enough support was difficult since many practitioners, particularly obstetricians and gynaecologists as well as midwives, did not attend to women's care past six weeks post-partum.

Weight loss post-pregnancy was a significant concern for the majority of women interviewed. While some women were motivated to lose their pregnancy weight and had conversations with and support

from their practitioners on how to successfully achieve this weight loss, others felt sleep deprivation, exhaustion, and need of childcare acted as barriers to engaging in weight loss activities or planning. Women described feeling emotional distress when they could not lose their pregnancy weight and continued to gain weight through subsequent pregnancies.

(5) Quality of Care

Health care providers reported that the lack of equipment (scales, beds, blood pressure cuffs, ultrasound machines, wheel chairs, ramps, and seating) designed for larger patients was a barrier to their ability to provide quality care to women with overweight and obesity. They also felt this lack could lead to injury. A lack of formal and specific training in providing maternity care to women with overweight and obesity was also identified as a barrier. Most practitioners explained they attended workshops and information sessions, but mainly had to learn "on the job."

While negative attitudes from practitioners could cause undesirable outcomes and challenge women's care experiences, we found that the majority of health care providers held positive attitudes toward providing care to overweight and obese women- stating that caring for this population was becoming more of a norm.

Approaches to maternity care used by practitioners were identified as both barriers and aids to good quality care. Participants said that the quality of maternity care was compromised when practitioners did not discuss weight-related information, avoided questions, or gave anecdotes rather than facts. The women felt that this often occurred due to lack of time. However, health care providers also described feeling uncomfortable discussing weight-related issues as well as fearing the loss of patients if women found these discussions offensive. Health care providers who came across as being insensitive in their approach to weight-related conversations and clinical care practices also created challenges to receiving optimal quality care. For example, hurtful comments were often made, practitioners did not listen to women's needs and experiences, and practitioners frequently made wrongful assumptions about women's lifestyles. This had a negative impact on how women felt about themselves and their pregnancies.

Two approaches that ensured quality maternal health care, as described by participants, included: (1) an informative and engaging approach-where practitioners used gentle and collaborative methods to engage women, established supportive and non-judgemental environment, actively learned about women, their histories, and their specific circumstances and (2) a direct and professional approach-where women felt reassured that their health care providers would discuss concerns directly and informatively and would not withhold information.

Women and health care providers both favoured the use of multidisciplinary teams as a way to ensure optimal quality of care and the ability to address barriers.

In light of these findings we have made the following **recommendations**:

1. Some approaches to discussing weight-related issues and maternity care practices were more effective than others. To increase the level of quality maternity care overweight and obese women receive, we recommend that health care providers adopt at least one of the two valued approaches: (1) an informative and engaging approach where practitioners use gentle and collaborative methods to engage women, establish a supportive and non-judgmental environment, actively learn about women, their histories, and their specific circumstances and/or (2) a direct and professional approach where women feel reassured that their health care providers will discuss concerns directly and informatively and will not withhold information.

2. Broaching the topic of weight was often difficult and uncomfortable for both women with overweight or obesity and their health care providers. We recommend that practitioners state upfront that it is their policy to discuss weight-related and engage in particular practices, such as monitoring weight, with all patients.

3. Many of the women who shared feelings of dissatisfaction about their maternity care felt that they had been made to do certain things that made them uncomfortable, such as being weighed in a public space and having their weight disclosed aloud. We recommend that practitioners provide women with options and allow them to make choices in their care and pregnancy plans, as well as have input in decisions made throughout all stages of pregnancy.

4. Placing a large focus on BMI and total recommended weight gain, as well as routinely weighing women, was emotionally distressing for many participants. We recommend that health care providers focus their practices and discussions on elements for a "healthy pregnancy" rather than concentrating on "the numbers." By changing the focus to health and well-being in pregnancy, women with overweight or obesity may feel less guilt and self-blame, have fewer fears of being judged or lectured about their weight, and may feel less stigmatized and discriminated against because of their weight.

5. Social factors contribute to women's struggle with overweight and obesity and play a large role in their pregnancy and maternal health care experiences. We recommend that health care providers take the social context of women's lives into consideration. By addressing social factors that may create health inequities for women, including challenges for achieving and maintaining healthy weights, practitioners can offer more appropriate strategies to increase the psychological, emotional and physical health and well-being of women with overweight or obesity during pregnancy.

6. Due to the complexity of overweight and obesity in pregnancy, which may require additional health supports and medical intervention, and the favourable attitude women had towards interprofessional maternity care teams, it is recommended that an interprofessional, collaborative approach be utilized where professionals including family physicians, obstetricians and gynaecologists, midwives,

anaesthesiologists, nurses, dieticians and community agencies would work together with women to provide the best care, services and support possible prior to, during and after pregnancy.

7. Given that many health care providers may not have had much education or training with respect to working with overweight and obese pregnant women, we recommend that practitioners create or seek out opportunities to increase their knowledge about overweight and obesity throughout all stages of pregnancy.

8. A lack of appropriate equipment for larger sized bodies prevents the provision of optimal maternity care for overweight and obese women. We recommend that hospitals and community clinics assess whether their equipment and resources are adequate and in sufficient quantity to meet the needs of larger sized patients and identify needed equipment and resources.

RÉSUMÉ

Depuis quelques années, on constate au Canada et dans de nombreux autres pays une augmentation des taux d'embonpoint et d'obésité, ce qui a incité les chercheurs, les fournisseurs de soins de santé et les décideurs à porter une attention accrue aux relations qui existent entre l'embonpoint, l'obésité et la santé. Ils ont donc examiné, entre autres, l'impact de l'embonpoint et de l'obésité sur la santé de la mère et du nouveau-né, et ainsi pu obtenir une mine de renseignements sur les effets négatifs potentiels du surpoids et de l'obésité sur la santé des mères et des enfants. Toutefois, il existe dans la littérature des lacunes en ce qui a trait aux implications psychologiques, émotionnelles et sociales de l'embonpoint et de l'obésité durant la grossesse, ainsi qu'aux expériences autodéclarées des femmes faisant de l'embonpoint ou obèses et celles de leurs fournisseurs de soins de santé.

Pour remédier à ces lacunes, le Centre d'excellence de l'Atlantique pour la santé des femmes et le Centre d'excellence pour la santé des femmes – région des Prairies ont effectué des entrevues afin d'en savoir davantage sur les expériences vécues par des femmes qui avaient présenté un surpoids ou été en situation d'obésité au cours de leur grossesse ainsi que sur celles de leurs fournisseurs de soins de santé. L'objectif de cette étude qualitative était d'acquérir une meilleure compréhension des expériences vécues par les femmes dans le cadre des soins de maternité, notamment en ce qui a trait aux implications psychologiques, émotionnelles et sociales de l'embonpoint et de l'obésité durant la grossesse. De plus, il importait d'enrichir nos connaissances à propos des expériences des professionnels de la santé œuvrant dans le domaine des soins de maternité auprès de femmes faisant de l'embonpoint ou obèses afin de mieux comprendre ce qu'il faudrait faire pour offrir des soins de qualité optimale à ce groupe de femmes. Trente-trois personnes ont été interviewées en Nouvelle-Écosse et en Saskatchewan, dont dix-huit femmes qui avaient présenté un surpoids ou été en situation d'obésité au cours de leur grossesse et quinze fournisseurs de soins de santé œuvrant auprès de femmes enceintes faisant de l'embonpoint ou obèses; ces quinze personnes englobaient des médecins de famille, des obstétriciens et des gynécologues, des sages-femmes, des infirmières et des diététistes. Les entrevues semi-structurées se sont déroulées en mode conversation et ont porté sur toutes les étapes de la grossesse ainsi que sur les modèles de pratiques employés pour fournir des soins de maternité. Elles ont permis de recueillir tant le point de vue des femmes que celui des fournisseurs de soins de santé. Les résultats de cette étude fournissent de l'information et des éclaircissements sur les expériences vécues par les femmes faisant de l'embonpoint ou obèses qui ont reçu des soins de maternité ainsi que sur les difficultés et les réussites du personnel médical dans la prestation de soins de qualité optimale à cette population. La recherche culmine sur une série de recommandations indiquant diverses façons dont les soins destinés à ce groupe de femmes pourraient être améliorés.

Les **principaux constats** qui ressortent de cette étude sont les suivants :

1) Les aspects psychologiques, émotionnels et sociaux de l'obésité et de l'embonpoint durant la grossesse

Dans le cadre de nos conversations avec les femmes participant à l'étude, nous avons pu constater que les aspects psychologiques et émotionnels de leurs expériences variaient. Certaines femmes ont rapporté avoir vécu des expériences positives et d'autres des expériences négatives, et d'autres encore ont décrit leurs expériences comme étant à la fois positives et négatives. Toutefois, une majorité des femmes interviewées ont indiqué qu'au moins une partie de leurs expériences en matière de soins s'était avérée négative.

Les causes les plus courantes de la détresse psychologique et émotionnelle éprouvée par les femmes étaient un sentiment de culpabilité et une tendance à se blâmer elles-mêmes. Les femmes se sentaient responsables de leur poids, de leur alimentation et des risques potentiels pour la santé associés à l'embonpoint et à l'obésité, tant pour elles-mêmes que pour leurs enfants. Les femmes craignaient aussi de se faire juger ou réprimander à cause de leur poids et ont rapporté avoir, pour cette raison, menti ou caché de l'information à leur fournisseur de soins de santé. Presque toutes les femmes, même celles qui étaient d'avis que leur expérience globale en matière de soins de maternité avait été positive, ont rapporté avoir fait face à une forme ou autre de stigmatisation ou de discrimination en raison de leur poids ou de leur tour de taille. Ces préjugés s'exprimaient le plus souvent sous la forme de commentaires malvenus. De nombreuses femmes ont aussi expliqué que leur piètre image corporelle au cours de la grossesse avait contribué à rendre leurs expériences négatives.

Les aspects sociaux associés à l'embonpoint et à l'obésité en cours de grossesse englobaient les événements marquants de la vie (séparation des parents, enfance passée en famille d'accueil où la distribution de la nourriture était surveillée), les changements touchant le degré d'activité physique (de la participation à des sports organisés dans l'enfance à une vie plus sédentaire au collège, à l'université ou au travail en raison d'un manque de temps, d'un sentiment d'épuisement ou des exigences liées à la conciliation entre les études ou le travail et la vie familiale), les expériences propres au sexe féminin (avoir vu leur mère lutter contre l'embonpoint et s'astreindre à des régimes amaigrissants, et sentir que leur mère avait projeté sur elles ses idéaux en matière d'image corporelle), la santé génésique (prise de poids lié à l'utilisation de contraceptifs, aux grossesses antérieures et à la réduction de l'activité physique en raison des tâches liées à la maternité) et les pressions socioéconomiques (accès limité aux aliments sains et à l'exercice).

2) La période précédant la grossesse et la conception

Nous avons constaté que la majorité des femmes qui avaient planifié leur grossesse avaient eu des conversations avec leur fournisseur de soins de santé à propos de la perte de poids et de la santé avant la conception, mais que c'était souvent la femme qui abordait le sujet en premier. Dans le cas des femmes qui n'avaient pas planifié leur grossesse, les conversations antérieures à la conception n'ont pas pu avoir lieu.

L'existence d'un lien possible entre l'embonpoint et l'obésité et l'infertilité, suggérée dans certaines recherches récentes, a aussi été discutée tant par les femmes que par les fournisseurs de soins de santé. Les femmes ont aussi décrit avoir fait l'objet de préjugés liés à leur poids à diverses étapes de leur traitement contre l'infertilité ou avoir été témoins de tels préjugés. Cela a fait craindre à certaines femmes de demander de l'aide pour leurs problèmes d'infertilité.

3) La grossesse

L'étude a révélé que la prise de poids en cours de grossesse était le sujet le plus souvent discuté entre les femmes et leurs fournisseurs de soins de santé, mais que ces conversations étaient complexes. Nous avons découvert que certaines femmes souhaitaient discuter du gain de poids avec leur professionnel de la santé, que d'autres ne voulaient pas en parler même si elles étaient conscientes de l'importance de cette question, et que d'autres encore évitaient complètement le sujet. La majorité des femmes à qui nous avons parlé considérait que la prise de poids recommandée durant la grossesse était irréaliste et inatteignable. Certains fournisseurs de soins de santé étaient également de cet avis. De plus, les femmes ont fait état de sentiments de détresse émotionnelle causés par les pesées régulièrement effectuées à l'occasion de leurs rendez-vous médicaux. Les fournisseurs de soins mettaient aussi en doute la pertinence de cette pratique en raison de son impact négatif potentiel sur la santé et le bien-être des femmes.

Les données indiquent que si des conversations sur le régime alimentaire et l'exercice ont eu lieu entre les femmes et leur fournisseur de soins de santé, ces conversations portaient davantage sur le régime alimentaire que sur l'exercice. De nombreuses femmes considéraient que ces conversations ainsi que les pratiques en matière de soins cliniques ne se traduisaient pas par des applications concrètes leur permettant de mettre ces recommandations en pratique dans leur vie quotidienne et ne leur apportaient aucune information nouvelle. Les coûts ont aussi été mentionnés comme des obstacles à la bonne alimentation et à l'activité physique.

Pour ce qui est des risques pour la santé physique, nous avons constaté que si les fournisseurs de soins de santé décrivaient ouvertement les risques associés à l'embonpoint et à l'obésité en cours de grossesse, en plus de dépister ces risques chez les femmes et de prendre en charge les soins visant à réduire ces risques, la majorité des femmes a rapporté que les professionnels de la santé ne leur avaient jamais parlé directement des risques pour la santé physique. Par conséquent, de nombreuses femmes n'étaient pas conscientes qu'elles faisaient partie des patientes à haut risque, ou n'ont pas fait le lien entre ce statut et leur poids, certaines croyant que le risque était davantage lié à leur âge. En raison de cette absence de clarté, les femmes étaient mal informées et n'étaient pas au courant des risques potentiels pour leur santé physique associés à l'embonpoint et à l'obésité en cours de grossesse.

4) Le travail et l'accouchement

Une majorité de femmes ont dit avoir eu des discussions avec leur fournisseur de soins de santé à propos des diverses méthodes d'accouchement pour lesquelles elles pouvaient opter. La moitié des femmes ont rapporté avoir mis leur enfant au monde par accouchement vaginal et l'autre moitié par

césarienne. L'endroit où avait lieu la naissance n'était pas un facteur important pour la plupart des femmes. Une seule femme a énergiquement pris la défense de l'accouchement à la maison. Les fournisseurs de soins de santé ont affirmé qu'ils préféraient que les femmes accouchent à l'hôpital en raison des risques potentiels pour la santé au cours du travail et de l'accouchement.

Nous avons constaté que les fournisseurs de soins de santé avaient des opinions divergentes sur les lignes directrices et les pratiques en matière de soins cliniques en ce qui a trait aux risques potentiels liés aux interventions médicales effectuées au cours du travail et de l'accouchement chez ce groupe de femmes. Ainsi, certains professionnels soutenaient les lignes directrices indiquant qu'il valait mieux ne pas déclencher le travail chez les femmes faisant de l'embonpoint ou obèses en raison des complications qui risquent de se produire. D'autres ont rapporté être plus enclins à provoquer le travail chez ces femmes de crainte qu'elles aient des bébés plus gros et pour éviter les complications associées à l'accouchement de bébés plus gros. Des discussions portant sur d'autres interventions médicales (épidurales et contrôle du rythme cardiaque fœtal) et sur les complications possibles ont été soulevées par les femmes et les fournisseurs de soins de santé.

5) L'après-grossesse

Les données révèlent que si les fournisseurs de soins de santé se préoccupaient surtout des risques potentiels pour la santé physique après l'accouchement (infections, séjours prolongés à l'hôpital, escarres de décubitus, caillots et haute pression) chez les femmes faisant de l'embonpoint ou obèses, les femmes interviewées s'intéressaient davantage aux aspects émotionnels de la période postnatale. Cela englobait des aspects comme l'ajustement à la maternité, la dépression post-partum et comment y faire face, et les soucis liés à la capacité de perdre le poids pris au cours de la grossesse.

Les difficultés courantes liées à l'allaitement ont été abordées autant par les femmes que par les fournisseurs de soins de santé, notamment le retard dans la lactation et la prise du sein adéquate par le bébé. Nous avons constaté que les professionnels offraient un soutien et des stratégies créatives pour aider ce groupe de femmes à surmonter les difficultés rencontrées. Il était également apparent que le contrôle ou le suivi de la durée pendant laquelle les femmes allaitaient ou recevaient un soutien suffisant en la matière était difficile, car de nombreux professionnels de la santé, en particulier les obstétriciens, les gynécologues et les sages-femmes, cessaient de procurer des soins aux femmes au-delà de six semaines après la naissance.

La perte de poids après la naissance était une préoccupation importante pour la majorité des femmes interviewées. Si certaines femmes se sentaient motivées pour perdre le poids accumulé durant leur grossesse et ont eu des conversations à ce sujet avec leur professionnel de la santé et obtenu l'aide de celui-ci pour réussir à perdre ce poids, d'autres ont rapporté que le manque de sommeil, l'épuisement et la nécessité d'obtenir des soins pour leur enfant avaient constitué un obstacle à l'entreprise ou à la planification d'activités axées sur la perte de poids. Les femmes ont dit avoir éprouvé un sentiment de détresse émotionnelle si elles n'arrivaient pas à perdre le poids qu'elles avaient pris durant la grossesse et si elles continuaient de prendre du poids au cours des grossesses suivantes.

6) La qualité des soins

Les fournisseurs de soins de santé ont rapporté que l'insuffisance d'équipement (pèse-personnes, lits, brassards de tensiomètre, machines à ultrasons, fauteuils roulants, rampes et sièges) conçu pour des patientes de forte taille les empêchait de fournir des soins de qualité aux femmes faisant de l'embonpoint ou obèses. Ils croyaient aussi que cette lacune risquait d'entraîner des blessures. L'absence de formation structurée et adaptée en matière de prestation de soins de maternité aux femmes faisant de l'embonpoint ou obèses a aussi été mentionnée comme un obstacle. La plupart des soignants ont indiqué qu'ils participaient à des ateliers et à des séances d'information, mais qu'ils devaient surtout apprendre « sur le tas ».

Si certaines attitudes négatives de la part des fournisseurs de soins de santé ont pu entraîner des conséquences indésirables et nuire à l'expérience des femmes en matière de soins, nous avons constaté que la majorité des professionnels de la santé avaient une attitude positive face à la prestation de soins aux femmes faisant de l'embonpoint ou obèses. Ceux-ci ont en effet affirmé que la prestation de soins à cette population s'inscrivait de plus en plus dans la norme.

Les approches en matière de soins de maternité adoptées par les professionnels de la santé ont été qualifiées de facteurs pouvant tantôt nuire et tantôt aider à la prestation de soins de qualité. Les participantes ont affirmé que la qualité des soins de maternité se voyait compromise lorsque les professionnels de la santé omettaient de transmettre de l'information portant sur le poids, évitaient de répondre aux questions ou présentaient des anecdotes à la place des faits. Les femmes ont dit avoir l'impression que cela se produisait fréquemment en raison d'un manque de temps. Toutefois, les fournisseurs de soins de santé ont également raconté s'être sentis mal à l'aise de discuter de questions liées au poids et craindre de perdre des patientes si celles-ci se sentaient offusquées par ces discussions. Les fournisseurs de soins de santé qui donnaient l'impression d'avoir une approche insensible relativement aux conversations portant sur le poids et aux pratiques en matière de soins cliniques ont aussi créé des obstacles à la prestation de soins de qualité. Par exemple, des commentaires blessants étaient souvent émis, les soignants n'étaient pas à l'écoute des besoins et des expériences des femmes ou faisaient des suppositions erronées sur le mode de vie des femmes. Ces comportements ont eu un impact négatif sur la façon dont les femmes se sentaient face à elles-mêmes et à leur grossesse.

Les participantes ont décrit deux approches qui contribuent à la prestation de soins de maternité de qualité : 1) une approche informative et empreinte d'amabilité fondée sur l'emploi, par les professionnels de la santé, de méthodes en douceur et axées sur la collaboration dans le but d'établir un rapport avec les femmes, la création d'un environnement où les femmes se sentent soutenues et non jugées et une prise de connaissance active du dossier de chacune des femmes, de leurs antécédents et de leur situation particulière; 2) une approche directe et empreinte de professionnalisme où les femmes se sentent rassurées que leur professionnel de la santé est prêt à discuter de leurs préoccupations directement et avec le souci de les informer le mieux possible, sans leur cacher quoi que ce soit.

Tant les femmes que les fournisseurs de soins de santé favorisaient l'utilisation d'équipes multidisciplinaires, moyen par excellence, à leur avis, d'assurer la qualité des soins et de favoriser l'élimination des obstacles.

À la lumière de ces constats, nous avons formulé les **recommandations** suivantes :

1. Certaines approches relatives à la discussion de questions touchant le poids et les pratiques en matière de soins de maternité se sont révélées plus efficaces que d'autres. Pour accroître la qualité des soins de maternité que reçoivent les femmes faisant de l'embonpoint et obèses, nous recommandons que les fournisseurs de soins de santé adoptent au moins une des deux approches privilégiées suivantes : 1) une approche informative et empreinte d'amabilité fondée sur l'emploi, par les professionnels de la santé, de méthodes en douceur et axées sur la collaboration dans le but d'établir un rapport avec les femmes, la création d'un environnement où les femmes se sentent soutenues et non jugées et une prise de connaissance active du dossier de chacune des femmes, de leur antécédents et de leur situation particulière; 2) une approche directe et empreinte de professionnalisme où les femmes se sentent rassurées que leur professionnel de la santé est prêt à discuter de leurs préoccupations directement et avec le souci de les informer le mieux possible, sans leur cacher quoi que ce soit.

2. Aborder la question du poids est souvent difficile, et ce sujet est fréquemment source de malaise tant pour les femmes faisant de l'embonpoint ou obèses que pour leur fournisseur de soins de santé. Nous recommandons que les professionnels de la santé annoncent dès le départ à leurs patientes que la discussion de questions liées au poids – comme la prise de poids, la nutrition et l'exercice de même que les risques pour la santé – fait partie de leurs politiques, et adoptent certaines pratiques telles que le contrôle du poids avec l'ensemble de leurs patientes de manière à éviter de stigmatiser les femmes faisant de l'embonpoint ou obèses.

3. Un grand nombre des femmes qui ont fait état d'un sentiment d'insatisfaction à propos des soins de maternité qu'elles avaient reçus ont eu l'impression d'avoir été forcées de faire certaines choses qui les rendaient mal à l'aise, comme se faire peser dans un espace public et voir leur poids divulgué à voix haute. Nous recommandons que les professionnels de la santé offrent aux femmes différentes possibilités et leur permettent de faire des choix en ce qui a trait à leurs plans en matière de soins et de grossesse, et qu'ils donnent leur opinion et fassent des suggestions sur les décisions prises à toutes les étapes de la grossesse.

4. L'insistance sur l'IMC et sur la prise de poids totale recommandée, de même que l'adoption d'une pratique consistant à contrôler le poids des femmes sur une base régulière ont entraîné une détresse émotionnelle chez de nombreuses participantes. Nous recommandons que les fournisseurs de soins de santé se concentrent, dans le cadre de leur pratique et de leurs discussions, sur les éléments liés à une « grossesse saine » au lieu de privilégier les « chiffres ». Lorsque l'accent était plutôt mis sur la santé et le bien-être en cours de grossesse, les femmes faisant de l'embonpoint ou obèses se

sentaient moins coupables et avaient moins tendance à se blâmer, craignaient moins d'être jugées et réprimandées à propos de leur poids et se sentaient moins stigmatisées et discriminées en raison de leur poids.

5. Des facteurs sociaux entrent en ligne de compte dans le combat que mènent les femmes contre l'embonpoint et l'obésité, et jouent un rôle important dans les expériences qu'elles vivent dans le cadre des soins de maternité et en cours de grossesse. Nous recommandons que les fournisseurs de soins de santé prennent en considération le contexte social où se déroule la vie des femmes. En tenant compte des facteurs sociaux susceptibles de créer des inégalités pour les femmes en matière de santé, notamment les obstacles à l'atteinte et au maintien d'un poids santé, les soignants pourront offrir des stratégies plus appropriées qui permettront d'améliorer la santé psychologique, émotionnelle et physique ainsi que le bien-être des femmes faisant de l'embonpoint ou obèses au cours de leur grossesse.

6. En raison de la complexité des aspects liés à l'embonpoint et à l'obésité en cours de grossesse, qui peut entraîner la nécessité d'un soutien et d'interventions médicales additionnels, et de l'attitude favorable manifestée par les femmes face aux équipes interprofessionnelles de soins de maternité, il est recommandé qu'une approche interprofessionnelle axée sur la collaboration soit adoptée par les soignants. Dans le cadre de cette approche, les médecins de famille, les obstétriciens et les gynécologues, les sages-femmes, les anesthésistes, les infirmières, les diététistes et les agences communautaires travailleraient de concert avec les femmes afin de leur offrir les meilleurs soins et services et le meilleur soutien avant, pendant et après la grossesse.

7. Étant donné qu'un grand nombre de fournisseurs de soins de santé n'ont pas reçu d'éducation ou de formation particulièrement poussée en ce qui a trait au travail auprès de femmes enceintes faisant de l'embonpoint ou obèses, nous recommandons que les écoles de médecine et les établissements de soins cliniques offrent aux soignants un plus grand nombre de programmes et de possibilités d'éducation et de formation portant plus particulièrement sur l'embonpoint et l'obésité à toutes les étapes de la grossesse.

8. Le manque d'équipement approprié pour les plus gros gabarits a été un important obstacle à la prestation de soins de maternité de qualité optimale aux femmes faisant de l'embonpoint ou obèses. Nous recommandons que les établissements de soins cliniques tels que les hôpitaux ou les cliniques communautaires passent en revue leur équipement et évaluent l'environnement où se pratiquent leurs soins cliniques afin de déterminer quels équipements répondraient le mieux aux besoins des patientes de plus forte taille et en quoi consistent l'équipement et les ressources qu'ils devraient se procurer.

INTRODUCTION

Rates of overweight and obesity have been increasing steadily across Canada and in many countries around the world. In recent years, researchers, health care providers, and policy makers have begun to focus more attention on the relationship between overweight and obesity and health. Between 2011 and 2012, the Atlantic Centre of Excellence for Women's Health and Prairie Women's Health Centre of Excellence undertook a joint project to gain a greater understanding of the implications of maternal overweight and obesity, the experiences of pregnant women who are overweight or obese, and the provision of maternity care for overweight or obese women.

In the first phase of the project we conducted a literature review, which uncovered an abundance of information about the physical health outcomes of maternal overweight and obesity, but very little about the psychological, emotional, and social implications. Additionally, while we have seen a recent emergence of clinical guidelines addressing maternal overweight and obesity, little information has been provided to assist practitioners in better supporting and caring for this group of women. We also found little literature on health care providers' experiences of providing maternal health care to women with overweight or obesity. To address these gaps in the literature, we embarked on the second phase of the project. Initially, we conducted qualitative interviews with women in Nova Scotia who had experienced overweight and obesity during pregnancy to learn more about the psychological, emotional, and social implications of maternal overweight and obesity. The following year, we expanded the study to include women in Saskatchewan. In addition, we interviewed practitioners in both provinces to learn from their experiences of providing care and support to pregnant women with overweight or obesity.

We found that the physical health implications of maternal overweight and obesity are only one facet of women's experiences. Psychological, emotional, and social aspects played a large role in women's experiences of pregnancy and maternity care and need to be included in our understanding of the relationship between overweight and obesity and health. Based on participants' experiences, we saw firsthand how sensitive and complex an issue maternal overweight and obesity can be for both the women themselves and their health care providers. Some women had positive experiences, some negative, while others expressed both contentment and dissatisfaction about their pregnancies and/or maternity care. Practitioners, with few resources and limited education or training in the area, are doing their best to provide optimal care and support to women with overweight or obesity and many found it challenging to engage in weight-related conversations and practices with overweight and obese women.

This report presents the findings from both phases of the study. The first section reviews the literature related to overweight, obesity and pregnancy. In the second section, we provide a description of our qualitative methods and project participants. The third is a presentation of the research findings related to women's experiences of maternal overweight and obesity. In the fourth section we present the findings from our interviews with women and practitioners regarding their experiences of receiving or providing maternity care. The fifth section describes aspects that promote and increase quality maternity health care for overweight and obese women. The final two sections offer a discussion followed by recommendations based on the research findings and analysis.

LITERATURE REVIEW[1]

Given the rise in rates of overweight and obesity in Canada and in many countries around the world in recent years, researchers, health care providers and policy makers have begun to focus more attention on the relationship between overweight and obesity and health. Of particular interest has been the impact of overweight and obesity on maternal and newborn health. Biomedical research has equipped us with a breadth of knowledge about negative physical health outcomes of overweight and obesity in pregnancy for both mothers and babies. By comparison, we know little about the psychological and emotional implications of overweight and obesity in pregnancy and about how the social context of women's lives affects their experiences of overweight and obesity throughout pregnancy. Additionally, few studies have investigated maternal health care experiences from the standpoint of women with overweight or obesity or their health care providers. The following review of the literature discusses what is known about the physical, psychological, emotional and social dimensions of maternal overweight and obesity, as well as maternal health care providers' experiences.

Measuring Overweight and Obesity: The Body Mass Index

The most commonly used measure of weight is the Body Mass Index (BMI). BMI is calculated from the height and weight of an individual where the weight in kilograms or pounds is divided by the square of height in meters or inches. For example, an individual who is 83.6 kg and 1.7 m will have a BMI of 28.8. Normal or healthy weights fall within the range of 20 to 25 on the BMI scale while overweight is categorized as a BMI between 25 and 30 and obesity is defined as a BMI of 30 or greater (Catenacci, Hill & Wyatt, 2009; Razak et al., 2007). Overweight and obesity among pregnant women are defined as women who are 110% to 120% of their ideal weight or greater than 91 kg (200lbs) or who have a BMI higher than 30 kg/m^2 (SOGC, 2010).

While BMI is widely used, there is a general recognition that it is not a reliable measure for healthy and unhealthy weights. Studies have highlighted the limitations of BMI across diverse populations, including racial and ethnic groups, youth who have not reached their full height, adults who are naturally very lean or muscular, the elderly and pregnant women (Health Canada, 2003). Despite its drawbacks, BMI is still the most commonly used measure in research on overweight and obesity, including with pregnant women. However, research using BMI should be viewed with caution.

Physical Health Implications of Maternal Overweight and Obesity

The negative effects of maternal overweight and obesity on the physical health of women and their babies, as well as the longer term health concerns for children and adolescents is well documented. In the following section, we outline the harmful effects of maternal overweight and obesity that are commonly reported in the literature by stage of pregnancy, as well as specifically for the fetus and neonate as well as older child and adolescent.

[1] This literature review was first published as Bernier, J.R., & Hanson, Y. (2012). *Overweight and Obesity in Pregnancy: A Review of Evidence*. Halifax, NS: Atlantic Centre of Excellence for Women's Health.

Pre-Pregnancy and Conception

Increased attention about overweight and obesity in general has extended into reproductive health (Arendas, Qiu & Gruslin, 2008; Linné, 2004; Sarwer et al., 2006). Compared to other stages of pregnancy, however, very little has been written about issues related to conception. There is some evidence to suggest that overweight and obesity are associated with reduced fertility (van der steeg, et al., 2007) and lower success rates for assisted reproduction (Jones, Moragianni, & Ryley, 2011).

Pregnancy

The literature indicates that pregnancies in women with obesity are more frequently complicated than pregnancies with women of "normal" weight, and therefore obesity poses health risks for mothers and babies. Many studies found that pregnancy outcomes deteriorate in a linear manner as BMI increases from "normal" to obese (Cnattingius et al., 1998; Richens & Fiennes, 2009; Wax, 2009). The list of complications during pregnancy for overweight and obese women is substantial, including heightened risk of gestational diabetes (Torloni et al., 2009), hypertensive disorders, blood clots, infections, and preterm delivery (Arendas, Qiu & Gruslin, 2008; Linné, 2004; Siega-Riz & Laraia, 2006; Sarwer et al., 2006; Yu, Teoh, & Robinson, 2006). Many of these conditions create further risks and complications. For example, diabetes during pregnancy increases the likelihood of pre-eclampsia, pre-term birth, caesarean section, and postoperative infections. In the case of hypertension, pregnant women with high BMIs are also more likely to experience more severe forms of hypertensive complications (Robinson et al., 2005). Excess weight and limited mobility are also considered to be major factors in developing blood clots (CMACE/RCOG, 2010). Women who are overweight or obese pre-pregnancy are also at greater risk of having large birth weight babies or babies with metabolic abnormalities (SOGC, 2010). Further, there is some indication that women who are overweight or obese may be at risk for multiple pregnancies not related to fertility treatments (Arendas, Qiu & Gruslin, 2008). Women who are obese are also at increased risk of spontaneous abortion and recurrent miscarriages in early pregnancy (more than three successively within the first trimester) (Lashen, Fear & Sturdee, 2004). A recent study found that odds of fetal and infant death are two to three times greater for women who are obese prior to pregnancy than women within the recommended BMI (Tennant, Rankin & Bell, 2011). Many pregnancy-related complications require that women undergo an increased level of maternal and fetal monitoring and given their weight there is the potential for poor ultrasound visualization of the baby and consequent difficulties in fetal surveillance and screening for anomalies (CMACE/RCOG, 2010).

Labour and Delivery

There is evidence to suggest that overweight and obesity also affects women's experiences of labour and delivery. Research clearly indicates that women who are obese are more likely to need assistance during delivery, such as the use of forceps during vaginal delivery and caesarean section (Arendas, Qiu & Gruslin, 2008; Poobalan et al., 2008). Numerous sources have documented elevated rates of caesarean section among obese pregnant women (Allison, Sarwer& Pare, 2007; Arendas, Qiu & Gruslin, 2008; Dresner, Brocklesby, & Bamber, 2006; Fitzsimons & Modder, 2010; Harper, 2010; Kerrigan & Kingdon, 2006; Poobalan et al., 2008; Ramachenderan, Bradford & Mclean, 2008; SOGC,

2008; Yogev & Catalano, 2009). According to Pooblan and colleagues (2008), caesarean delivery risk is increased by 50% in overweight women and is more than double for obese women when compared to women within the recommended BMI. Positive outcomes following caesarean delivery are also compromised for overweight and obese women. Women with high BMIs are more likely to endure increased blood loss, operation times, endometritis, vertical skin incisions, and postoperative wound infection (Perlow & Morgan, 1994; Wall et al., 2003). For example, in one study that examined the charts of 611 women who had undergone caesarean delivery, obesity emerged as an independent risk factor for infection, even when the caesarean was elective (not the result of an emergency) and prophylactic antibiotics were given (Myles, Gooch & Santolaya, 2002).

A number of sources indicate that women with a BMI greater than 35 are at an elevated risk of anaesthesia-related complications (Catalano & Ehrenberg, 2006; Fitzsimons & Modder, 2010), including airway management, difficulty with insertion of regional nerve blocks and incidence of failed intubation (Kerrigan & Kingdon, 2006). Accumulation of anesthetic agents in adipose tissue also puts obese pregnant women at increased risk of delayed recovery from general anethesia and postoperative hypoxemia (Perreira, 2009). Several studies have also indicated that women with BMIs equal to or greater than 30 have significantly more perinatal morbidity causing adverse outcomes for both maternal and fetal/newborn health (Catalano & Ehrenberg, 2006; Ramachenderan, Bedford & McLean, 2008).

Post-Pregnancy

Following labour and delivery, overweight and obese women experience more physical health complications than women who are not overweight or obese. A report on maternal and child health in the UK, for instance, noted that obese women are at greater risk of death from hemorrhage, blood clots and infection in the post-partum period (Lewis, 2007). Some studies have shown that breastfeeding by pregnant women with obesity immediately following birth can enhance uterine contractions and reduce the risk of post-partum hemorrhage (Jevitt, 2009). Additionally, delayed milk production, which is more common in obese women, can be improved with breastfeeding early-on post-partum (Dartford & Gravesham, 2009). Further, breastfeeding has been found to facilitate post-pregnancy weight loss for overweight and obese women, as well as non-overweight/obese women (NICE, 2010).

Other post-pregnancy issues that have been linked with overweight and obesity include prolonged hospitalization, incontinence, and endometriosis, as well as open wounds, and urinary tract infections (Arendas, Qiu & Gruslin, 2008; Morin, 1998; Sarwer et al., 2006; Smith, Husley & Goodnight, 2008). Health risks facing mothers, especially those that precede or last beyond pregnancy, have received scant attention. For example, women with gestational diabetes are at increased risk for developing Type II diabetes post-partum (Buchanan & Kjos, 1999), but studies have shown that health care practitioners often do not follow-up with maternal screening after delivery (Clark et al., 2003; Smirnakis et al., 2005).

Fetus and Infant

Maternal overweight and obesity are also associated with a variety of health risks for the fetus and infant (Arendas, Qiu & Gruslin, 2008; Sarwer et al., 2006; Linné, 2004; Smith et al., 2005). Complications include stillbirth, fetal distress, macrosomia, neonatal death, and congenital anomalies (Arendas, Qiu & Gruslin, 2008). Large birth size, macrosomia, is associated with fetal distress and injury as well as increased risk of caesarean section or medically assisted vaginal delivery, which have their own risks (Arendas, Qiu & Gruslin, 2008). While women with gestational diabetes often give birth to large babies, it appears that maternal overweight and obesity is associated with high birth weight even in the absence of gestational diabetes (King, 2006; Sarwer et al., 2006). Maternal overweight and obesity – both before and during pregnancy – are further linked with neural tube defects (Nuthalapaty & Rouse, 2004) and congenital anomalies, including cardiac defects, skeletal malformations and neurological conditions, such as spina bifida (Watkins et al., 2003; Stothard et al., 2009).

Child and Adolescent

The literature identifies a number of longer term health concerns for children whose mothers were overweight or obese during pregnancy. For example, children of mothers with high BMIs, have a tendency to be overweight or obese in childhood (American Congress of Obstetricians and Gynecologists (ACOG), 2009; Amir & Donath, 2007; CMACE/RCOG, 2010; Oddy et al., 2006; Catalano et al., 2009; Gillman et al., 2003; Hampton, 2004). In addition, a recent study found higher rates of respiratory illness among children born to overweight or obese women (Håberg et al., 2009). Research has also demonstrated that infants born to diabetic women, whose condition may be associated with overweight or obesity, also have a higher likelihood of developing Type II diabetes later in life (Smith, Hulsey, & Goodnight, 2008; Di Lillo et al., 2008; Yogev & Visser, 2009). Some research has linked maternal overweight and obesity with decreased rates of breastfeeding, which is also associated with higher rates of obesity among children and youth (Amir & Donath, 2007).

Research from all over the world has established the physical health implications of overweight and obesity in pregnancy for mothers and their babies, as well as longer term outcomes for children and adolescents. Without a doubt, the biomedical model has resulted in enormous health advances, including the reduction of maternal and newborn mortality. However, it is not sufficient to appreciate fully the relationship between weight and wellness in pregnancy. Significantly more attention needs to be paid to the emotional, psychological and social aspects of health among pregnant women living with overweight or obesity.

Women's Experiences of Maternal Overweight and Obesity

Understanding women's experiences of overweight or obesity during pregnancy is key to improving their heath and the health care services they receive (Smith & Lavender, 2011). Yet few studies have been conducted on the needs and experiences of pregnant women with high BMIs compared to research focused on the physical health implications of overweight and obesity during pregnancy. The following section describes what is known about the psychological and emotional well-being of pregnant women who are overweight or obese, as well as some of the social factors that may influence health outcomes and women's overall experiences of care during pregnancy.

Psychological and Emotional Aspects of Overweight, Obesity and Pregnancy

Little research has been conducted on the psychological and emotional aspects of women's experiences of overweight and obesity during pregnancy. Yet, there is a substantial body of research for overweight and obese individuals in the general population demonstrating that people with high BMIs experience considerable psychological and emotional distress, including increased stigmatization, depressive and anxiety disorders, poorer body image and lower self-esteem than non-overweight/obese individuals (Furber & McGowan, 2010). Given these findings, we could expect that overweight and obese pregnant women also experience greater psychological and emotional discomfort during pregnancy in comparison to women who are not overweight or obese.

The few studies that have been conducted with pregnant women with high BMIs have shown, that compared to women who are within the recommended BMI, they experience elevated rates of emotional and psychological distress throughout their entire pregnancy, including greater depressive symptoms post-partum and various forms of stereotyping, stigma and discrimination (Amador et al, 2008; LaCoursiere et al., 2006; LaCoursiere, Hutton, & Varner, 2007; Krause, Østbye, & Swamy, 2009). Research has also shown that during pregnancy, overweight and obese women's experiences with the health system are often negative and result in emotional and psychological distress (Smith & Lavender, 2011). The medicalization of the pregnancy experience has left many women with high BMIs feeling upset about the level of advice and guidance they received from health care providers (Smith & Lavender, 2011). Many women describe the interactions they have with health professionals to be impersonal and report feelings of discomfort as a direct consequence of their midwife's or physician's treatment or comments about their weight (Merrill & Grassley, 2008; Nyman, Prebensen & Flensner, 2008; Thomas et al., 2008). Pregnant women who are overweight or obese have also described feelings of guilt, worry and embarrassment during health care visits (Nyman, Prebensen & Flensner, 2008; Smith & Lavender, 2011). Additionally, they reported feeling anxious during medical examinations and were fearful that gowns and equipment would not be large enough for their body sizes (Nyman, Prebensen & Flensner, 2008). Having to reveal their weight to health professionals and even to their own partners was said to be embarrassing and shaming for many pregnant women who are overweight or obese. Women also felt guilty for ostensibly putting both their own life and that of their unborn child's in danger because of their weight.

At the same time, studies have found that pregnancy can reduce distressing feelings about weight for women with a BMI greater than 25 (Fox & Yamaguchi, 1997; Nyman, Prebensen & Flensner, 2008; Smith & Lavender, 2011; Weir et al., 2010; Wiles, 1998). According to a review of available literature by Smith and Lavender (2011), many women who were overweight or obese viewed changes to their bodies favourably during pregnancy and felt physically attractive while pregnant. Some women even reported feeling less stigmatized by strangers during this time of their life, suggesting one of the main reasons for this is that larger body sizes are more socially acceptable for pregnant women (Fox & Yamaguchi, 1997; Nyman, Prebensen & Flensner, 2008; Weir et al., 2010; Wiles, 1998). Research has also demonstrated that the positive attention women who are overweight or obese receive during pregnancy increases feelings of self-worth (Smith & Lavender, 2011).

Social Aspects of Overweight, Obesity and Pregnancy

A narrow focus on the biomedical model of health has not only resulted in a lack of information on the psychological and emotional implications of overweight and pregnancy, but it has also led to a shortfall in understanding the ways in which the social context of women's lives shape their experiences of overweight and obesity while pregnant as well as maternal and newborn health outcomes. For example, ethnicity and socioeconomic status need to be factored into explanations of and responses to overweight and obesity in pregnancy. Emergent studies that have taken various social determinants of health into consideration have found significant relationships between race/ethnicity (Bryant et al., 2010; Sparks, 2009), poverty (Schrauwers & Dekker, 2009) and poor maternal and neonate health outcomes. In Canada, we know that First Nations populations experience many inequities, such as poverty, poor housing conditions, histories of colonization and violence and so on, associated with poorer health outcomes, such as increased rates of overweight and obesity and chronic disease. A recent Canadian study investigating pregnancy outcomes of First Nations women in Quebec revealed that almost 80% of this population was overweight or obese prior to pregnancy and the authors suggested that First Nations women may be at greater risk of experiencing negative maternal health implications than non-First Nations women due to excessive weights (Brennand, Dannenbaum, & Willows, 2005). More research is needed, however, to gain a better understanding of the relationships between the social determinants of health, overweight and obesity, and poor maternal health outcomes. For example, we know very little about the implications of maternal overweight and obesity among immigrant and African Canadian women – who may experience very different social contexts. A study from Sweden that examined increased adverse pregnancy outcomes among overweight and obese women found that factors such as lower educational attainment and daily smoking may play a significant role in negative outcomes among women with high BMIs (Cnattingius et al., 1998), pointing to the importance of examining the relationship between overweight, obesity and pregnancy in the context of women's lives. Many gaps in smoking, drugs, sexually transmitted diseases, and nutritional status prior to pregnancy exist and more research is needed to determine how various factors may influence women's experiences – positively or negatively – of weight during pregnancy and adverse health outcomes. For example, further exploration into the social determinants of health, such as housing, education, food security

and more, will help identify which groups of overweight and obese women may be at increased risks of experiencing poor physical, psychological and/or emotional health outcomes.

Providing Care and Support to Pregnant Women who are Overweight or Obese

In addition to gaining a greater appreciation of women's experiences, it is also important to learn about health practitioners' experiences of providing maternity care to overweight and obese women, as well as the standards of care that have been established to assist them. Practitioners are aware of the association between overweight and obesity and poor maternal and child health outcomes, including implications for health service delivery, such as the level of care and support required from health care providers (Heslehurst et al., 2007). While health care providers know these issues exist, little information has been available to assist them to care for and support overweight and obese women during pregnancy. This is beginning to change, however. As a testament to the need for such guidance, a number of professional associations have recently published clinical guidelines related to the care and support of overweight and obese women in pregnancy. The following section describes existing clinical guidelines on overweight and obesity in pregnancy and heath care providers' accounts of maternity care with this particular group of women.

In February of 2010, the Society for Obstetricians and Gynecologists of Canada (SOGC) released their clinical guidelines on obesity in pregnancy. The following month, the Centre for Maternal and Child Enquiries (CMACE) and Royal College of Obstetricians and Gynecologists (RCOG), both from the UK, released their joint guidelines on the management of pregnant women with obesity. During the same month, the Association of Ontario Midwives (AOM) approved their own set of guidelines on the management of women with a high or low BMI. In July of the same year, the National Institute for Health and Clinical Excellence (NICE), another organization from the UK, unveiled their detailed guidelines on weight management in pregnancy and after childbirth. In the following section, we summarize the recommendations outlined in these guidelines according to stage of pregnancy, as well as present complementary information found in the popular literature.

Pre-Pregnancy and Conception

Optimal care of women with overweight and obese conditions is essential to ensuring as positive pregnancy outcomes as possible. According to the literature on clinical guidelines, optimal maternal care starts before a woman becomes pregnant. It has been recommended that during family planning consultations, weight and weight loss, nutrition and food choices, as well as exercise and lifestyle advice be given (CMACE/RCOG, 2010; NICE, 2010; SOGC, 2010). In pre-pregnancy, it has also been suggested that primary care providers advise and support women to lower their BMIs (CMACE/RCOG, 2010; SOGC, 2010). For example, the SOGC (2010) recommends that women be encouraged to enter pregnancy with a BMI less than 30 and ideally lower than 25. Encouraging weight loss prior to conception is important, as dieting is not recommended for women during pregnancy (NICE, 2010; SOGC, 2010). However, it is equally important that the conversations around weight loss prior to pregnancy be approached in a sensitive manner by health care providers.

Recommendations made in the guidelines we reviewed also advise health practitioners to discuss the increased risks of childbearing for women with overweight or obesity (CMACE/RCOG, 2010; NICE, 2010; SOGC, 2010) and encourage them to have appropriate screening (SOGC, 2010). In addition, given that pregnant women with overweight or obese conditions are at an increased risk for infant neural tube defects (Nuthalapaty & Rouse, 2004), CMACE/RCOG (2010) and others (see Rasmussen et al., 2006) recommend that they be encouraged by health care professionals to take 5 mg of folic acid for at least one month prior to conception and throughout the first trimester of pregnancy. However, there is contradictory evidence that shows that the protective effects of using folic acid before conception and during early pregnancy does not benefit obese women (Weber et al., 1996).

Pregnancy

CMACE/RCOG (2010) advocate that the care of pregnant women with overweight or obesity be integrated into all prenatal clinics and based on clear policies and guidelines. The documents we reviewed set out a number of clinical guidelines to assist health practitioners providing care to pregnant women with high BMIs. One of the most common recommendations noted in the guidelines was the importance of weighing women during the first prenatal visit (AOM, 2010; CMACE/RCOG, 2010; NICE, 2010). Both CMACE/RCOG and NICE guidelines advise against self-reported measures of height and weight, instead suggesting that health care providers take weight and height measurements of obese parturient women themselves. However, as one study showed, obtaining height and weight measurements for obese women may not be possible outside of health services locations, such as in women's homes, because of a lack of appropriate portable equipment to weigh women with high BMIs (Heslehurst, 2007). In addition, recommendations on how often to weigh overweight or obese pregnant women vary. Some guidelines suggest that women be weighed at every appointment and others, such as NICE (2010), believe it is only necessary to regularly weigh women in cases where clinical management can be influenced or nutrition is a concern.

Both CMACE/RCOG (2010) and NICE (2010) are careful to note the importance of being sensitive to any concerns pregnant women may have about their weight. With this sensitivity in mind, all four sets of clinical guidelines we reviewed recommended that issues around weight and weight loss, nutrition and food choices, as well as exercise, smoking cessation and the implication of drug use and alcohol consumption in pregnancy be discussed with women at the initial prenatal visit (AOM, 2010; CMACE/RCOG, 2010; NICE, 2010; SOGC, 2010).

Another topic noted to be important in discussions with overweight or obese parturient women was expectations around weight gain during pregnancy. The SOGC (2010) suggests that women set pregnancy weight gain goals based on their pre-pregnancy BMI. Both the SOGC and NICE, as well as much of the literature (Fitzsimons & Modder, 2010; Hampton, 2004; Jevitt, 2009; Massiah & Kumar, 2008; Ramachenderan, Bradford, & Mclean, 2008; Smith, Hulsey, & Goodnight, 2008; Soltani, 2009), refer to the United States Institute of Medicine's (IOM) revised 2009 guidelines for weight gain as the benchmark for protocol (see Table 1 on next page). Health Canada also cites IOM 2009 guidelines suggesting that women aim to achieve weight gain in the lower end of each recommended range for

BMI category (Health Canada, 2009; Jevitt, 2009). The SOGC (2010) recommends the optimal weight gain for obese pregnant women is 7 kilograms/15 pounds. Of note, authors of IOM guidelines state "the reality [is] that good outcomes are achieved within a range of weight gains, and the many additional factors that may need to be considered for an individual woman," including psychological, behavioural, family, socio-cultural, geographical and environmental aspects of women's lives (Rasmussen, & Yaktine, 2009, p.2).

Table 1: Recommended rate of weight gain and total weight gain for singleton pregnancies according to pre-pregnancy BMI

Pre-Pregnancy BMI category	Mean Rate of Weight Gain in 2nd & 3rd Trimester		Recommended Range of Total Weight Gain	
	Kg/week	lb/week	Kg	lb
BMI <18.5 Underweight	0.5	1.0	12.5 - 18	28 - 40
BMI 18.5-24.9 Healthy Weight	0.4	1.0	11.5 - 16	25 - 35
BMI 25.0-29.9 Overweight	0.3	0.6	7 – 11.5	15 - 25
BM I≥ 30 Obese	0.2	0.5	5 – 9	11 - 20

Adapted from the Institute of Medicine (2009)

Controlling weight gain to 7 kilograms or less, including weight loss and no weight gain, has shown to be associated with reduced rates of macrosomia (Bhogul & Jayawardane, 2008/9; Nyman, Prebensen & Flensner, 2008; Wax, 2009). There is little data about the effects of weight loss on fetal growth (Jevitt, 2009). Other investigations and authors suggest rates of preeclampsia, caesarean delivery and other adverse outcomes are reduced when weight gain is limited to 7 kilograms (CMACE/RCOG, 2010; Fitzsimons & Modder, 2010; SOGC, 2010).

To better support overweight or obese women during pregnancy, it has also been suggested that a strategy that maximizes nutritious intake while limiting caloric intake be developed in the first prenatal visit (Jevitt, 2009) and that all pregnant women with a BMI of 30 or more be referred to a dietician for further information and support (AOM, 2010). It has also been recommended that during the first prenatal visit, health professionals inform patients about the risks of childbearing for women with high BMIs (AOM, 2010; CMACE/RCOG, 2010; NICE, 2010; SOGC, 2010).

In addition to weight, the AOM (2010) recommends that midwives obtain and document a baseline blood pressure for women with a BMI of 30 or more during the initial prenatal visit. Obese parturient women should also be assessed for the risk of thromboembolism, or blood clots, at their first appointment and continued to be tested throughout the duration of their pregnancy (CMACE/RCOG, 2010). In addition, according to CMACE/RCOG (2010), women with a BMI of 40 or more should schedule a consultation with an obstetric anaesthetist to develop a management plan. Similarly, it is

recommended in the AOM (2010) guidelines that midwives offer anesthesiology consultations to all women with high BMIs who are planning an epidural or who simply wish to have more information about the potential complications associated with anesthesia.

The AOM (2010) recommends that midwives discuss the increased risks of gestational diabetes with women who have high BMIs. Other guidelines emphasize the importance of encouraging and providing advice on exercise and physical activity to reduce the risk of gestational diabetes mellitus and other complications during the initial prenatal visit. The benefits and risks of gestational diabetes screening should also be discussed with obese parturient women (AOM, 2010). The decision of when - or whether- to test for gestational diabetes, however, is widely contested in the literature. Some guidelines suggest all women with BMIs of 30 more have glucose screening at the first prenatal visit or as early as possible in their pregnancy (Darling, 2006; Jevitt, 2009), while others suggest glucose tests take place between 24 to 28 weeks (Fitzsimons & Modder, 2010; Vogel et al., 2000).

Guidelines have also been developed around fetal growth monitoring during pregnancy, including external monitoring, such as abdominal palpation, and internal monitoring through ultrasounds. In clinical practice, abdominal palpation for fetal growth assessment may be difficult to perform on women with obesity due to excess adipose tissue in the abdominal area (SOGC, 2010). Additionally, it has been noted that methods for measuring and monitoring fetal developments such as ultrasound, arterial doppler and cardiotocography (CTG) are difficult to realize with obese women and do not always provide successful results. For example, poor or inaccurate ultrasound images have led to increased intervention and caesarean sections when macrosomia is mistakenly diagnosed (SOGC, 2010). The SOGC notes that in women with a BMI above the 97.5 percentile, only 63% of fetal structures are well visualized. For example, it may be difficult or impossible to see the fetal heart, spine, kidneys, diaphragm, and umbilical cord on ultrasound with overweight or obese women (Hendler et al., 2005). The SOGC (2010) recommends that a better option for women who are overweight or obese, is to wait to arrange the ultrasound assessment until 20 to 22 weeks. Another remedial suggestion has been the use of non-invasive abdominal fetal electrocardiogram (ECG) (Bhogul & Jayawardane, 2008/9).

Labour and Delivery

Given the increased risks associated with labour and delivery for pregnant women who are overweight or obese, a number of guidelines have been established to assist health practitioners caring for these women. It is recommended that normal vaginal delivery be encouraged with all pregnant women – regardless of weight (Dietz et al., 2005; SOGC, 2010). CMACE/RCOG (2010) guidelines also note that pregnant women with high BMIs who have already had a previous caesarean delivery be included in all planning for vaginal birth despite the fact that obese women are less likely to be successful in delivering vaginally after having a caesarean section (SOGC, 2010).

Studies have found both shorter and longer labour durations associated with overweight or obesity (Arendas, Qiu & Gruslin, 2008). A number of sources reiterate the cause for concern in inducing pregnant women with obesity (Arendas, Qiu & Gruslin, 2008; SOGC, 2008). Obesity alone is not an indication to induce labour and normal birth should be encouraged by health care professionals (CMACE/RCOG, 2010). CMACE/RCOG asserts that an induction of labour carries the risk of failed induction and emergency caesarean section, which can be a high risk procedure in women with obesity. Induction of labour should therefore be reserved for situations where there is a specific obstetric or medical indication, with recourse to senior obstetric and anaesthetic help in the event that abdominal delivery becomes necessary.

Complications that may arise during the monitoring of labour are also important to consider with overweight and obese pregnant women. There is increasing evidence showing that pregnant women who are obese are more likely than non-obese women to have altered or impaired uterine contractions (Zhang et al., 2007; Monynihan et al., 2006), which may lead to abnormal labour or caesarean section. Monitoring contractions and caring for women with obesity during labour and delivery can pose some challenges for health professionals, such as difficulties assisting women to change position and during abdominal palpations to feel the baby's positioning. The SOGC (2010) notes that intrauterine monitoring, such as pressure catheters and newer technologies like electrohysterography, which uses abdominal electrodes to provide information about uterine contractions, may be advantageous when providing care for obese pregnant women.

Pregnant women who are overweight or obese are also more likely than non-overweight/obese women to experience difficulties with intubation (Saravanakumar, Rao & Cooper, 2006), epidurals (Hood & Dewan, 1993), and general anesthesia (SOGC, 2010).Given that regional anaesthesia often requires significantly more time and staff resources with women who are obese and the increased risk of epidural failure, the SOGC (2010) suggests that health practitioners consider giving obese women epidurals early in their labour. Additionally, given the challenges associated with anesthetic and increased likelihood of caesarean section among women with high BMIs, a number of guidelines suggest that midwives and physicians refer women for anaesthetic assessments prenatally (ACOG, 2009; Health Canada, 2010; Massiah & Kumar, 2008). For example, the SOGC (2010) recommends that prenatal consultations with anesthesiologists be considered to review options and to devise a plan in case local anesthetic needs to be used.

The guidelines also speak to place of birth as an important consideration. Most literature sources in obstetrical, nursing and some midwifery journals caution against home as the venue for birthing for overweight and obese women, citing safety to both the woman (involving risks of post-partum hemorrhage, shoulder dystocia and surgical birthing needs) and her care team who might be involved in lifting during emergency transports to the hospital. Both NICE (2010) and CMACE/RCOG (2010) recommend that women with a BMI of 35 or more be advised against having a home birth and to give birth in an obstetric unit to reduce the increased risk of maternal and fetal adverse outcomes and to minimize transport difficulties. They further recommend individual risk assessment regarding planned

place of birth for women with a BMI of 30 to 34 (SOGC, 2008). Where the decision to have a homebirth is made, main floor usage is suggested to avoid stairs and falling or injury. A water birth may be considered, as some argue that water is the best place for overweight parturient women to give birth (Harper, 2010). Overweight and obese women can move in the water, control their bodies, respond better to the movements of the baby and feel much better physically after the birth because of the buoyancy effect on their muscles and cardiovascular system (Harper, 2010). In Switzerland, where water birth is a popular way to give birth, only women whose BMI is greater than 40 are excluded from water births (presumably then, women with BMIs between 25 and 39 are given water birth as an option) (Geissbuehler, Stein & Eberhard, 2004). Like other birth-planning discussions, water birth should be decided on a case-by-case basis, taking into consideration the overall woman's health (Harper, 2010). Regardless of where the birth takes place, the AOM (2010) believes that, as long as all possibilities have been discussed, midwives should support a woman's choice of birthplace.

Post-Pregnancy

In addition to providing recommendations prior to and during pregnancy, the clinical guidelines we reviewed offer post-partum guidance to health practitioners. It is recommended that lactation advice and encouragement to breastfeed, including good positioning, latching, and milk supply, be offered to all women regardless of their weight (AOM, 2010; NICE, 2010). CMACE/RCOG (2010) suggests that women with a pre-pregnancy BMI of 30 or more receive "appropriate specialist advice and support antenatally and postnatally regarding the benefits, initiation and maintenance of breastfeeding" (p.13).

Regardless of the mode of delivery – either vaginally or by caesarean – women who are overweight or obese are more likely than non-overweight/obese women to experience blood clots (CMACE/RCOG, 2010). Thus, women with a BMI of 30 or higher should be encouraged to move around as soon as possible after birth (CMACE/RCOG, 2010). CMACE/RCOG (2010) also recommends that women with a BMI of 40 or more be offered small doses of anticoagulant drugs after the birth of their baby to decrease blood clots, while AOM (2010) suggests that midwives discuss such treatment options with women who have a BMI of 30 or above. For overweight or obese women who have been diagnosed with gestational diabetes mellitus during pregnancy, a test of glucose tolerance is suggested for 6 weeks post-partum (CMACE/RCOG, 2010). Continuous check-ups for Type II diabetes and screenings for metabolic risk factors should be encouraged (Fitzsimons & Modder, 2009). All pregnant women should be seen to identify risks of post-partum depression or anxiety and given support to work them through difficulties.

NICE (2010) also sets out guidelines around postnatal checkups. They recommend that health professionals, such as physicians and midwives, use the 6 to 8 week checkups as an opportunity to ask women whether or not they would like further advice or support – either now or at a later date – around their weight. Discussion topics may include how to lose weight safely, realistic expectations around weight loss, as well as the benefits of healthy diet and regular exercise. NICE also recognizes the context of women's lives in supporting healthy lifestyles and reminds health care providers to

acknowledge women's roles within the family and discuss how family members might be able to support women in achieving their goals. They recommend that advice be tailored to the specific circumstances of women, including the demands of taking care of a baby and any other children in the home, sleep deprivation, and any known health problems. There are also specific recommendations in the NICE guidelines that target community-based services, suggesting that local leisure and community services offer physical activities and programming specifically designed for women with babies and children. NICE advises that such opportunities be affordable, scheduled at times that are convenient for women with young children, offer childcare and additional support for women who are breastfeeding. Examples of activities and programs included organized walks, cycling, dancing or swimming.

Equipment and Staff Support in Providing Care

A group of health care practitioners interviewed about the affect of obesity on maternity services highlighted a lack of appropriate equipment as a major barrier to providing adequate care for overweight and obese pregnant women (Heslehurst, 2007). Recognizing that proper equipment is vital to the care of pregnant women with high BMIs, the CMACE/RCOG and SOGC (2010) recommend that all maternity units have proper equipment and medical emergency services. This includes surgical theatre tables, appropriate gown sizes, transportation accommodations, large blood pressure cuffs, sit-on weigh scales, large chairs (without arms) and wheelchairs, ward and delivery beds, lifting and lateral transfer equipment, circulation space, birthing stools, etc. Doorways need to be wide enough to transfer through safely while working with up to 250 kg. If equipment is stowed away, staff requires knowledge of and access to it. The SOGC (2010) also points out the importance of ensuring that proper equipment and surgical instruments, such as intubation tubes, be made available in hospital operating rooms to accommodate obese women during caesarean section. In addition, CMACE/RCOG (2010) put forward in their guidelines that a documented assessment occur in the third trimester for women with obesity in order to develop appropriate plans for equipment and personnel in the case of manual handling. This includes the assurance that theatre tables and other equipment are sufficiently sized as well as management of obstetric emergencies is discussed.

Proper education and training for health practitioners on weight and pregnancy has also been viewed as an important aspect of providing optimal maternity care. Accordingly, CMACE/RCOG (2010) recommends that health professionals involved in manual handling of pregnant women with high BMIs receive specialized training (Fitzsimons & Modder, 2009). They also suggest staff receive instruction on how to use specialized equipment that might be needed when working with overweight or obese pregnant women prior to, during or after pregnancy.

Final Considerations

Establishing standards of care through clinical guidelines is an important first step in assisting health care practitioners who support and care for overweight and obese women during pregnancy, but much more work in supporting health professionals is needed. These guidelines are relatively new and there does not appear to be a consensus of "promising practices" frameworks for many groups of

health care practitioners who play key roles in women's maternity care, including nurse practitioners, nurses, and dieticians. There does not appear to be a national set of midwifery guidelines adopted in Canada or other parts of the world. While many roles and responsibilities are shared across the professions, others are not, such as the kinds of care provided by obstetricians and gynaecologists compared to the support and information offered by dieticians. These differences stress the need for tailored guidelines specific to professional bodies and the type of maternity care they provide.

The shortage of clinical practice guidelines related to the provision of maternal overweight and obesity creates inconsistencies across the health field and may exacerbate feelings of uncertainty among providers, especially as some professional bodies have guidelines and others do not. Furthermore, even though these guidelines exist, that does not necessarily mean that practitioners are aware of them or are integrating them into practice. We also do not know the extent to which diverse health care settings are instituting the clinical care guidelines and ensuring that recommendations are followed by staff (and by which staff). For example, it was recommended that all hospitals have appropriate equipment to properly care for overweight and obese pregnant women, but how many hospitals and other care settings actually have the recommended equipment? An even more basic question that needs to be investigated is how many hospitals have conducted audits to know what equipment they have and what is needed. Furthermore, the cost of obtaining additional equipment is often a barrier and hospitals need to budget accordingly or find additional funding.

Another shortcoming is that the guidelines reinforce the biomedical model of health care by focusing largely on physical health outcomes. Psychological and social factors are for the most part ignored. The only recognition of the social context of women's lives was by NICE, but even then they only discussed gender roles within the family in relation to making healthy lifestyle changes. The lack of consideration for the everyday lives of women has caused many to overlook important factors that influence pregnancy. Several of the clinical guidelines encouraged women to lose weight before conception. However, many women do not plan their pregnancies. Unintended pregnancies are more common among women who are young, unmarried, racialized, and of lower socio-economic status (Finer & Henshaw, 2006). These women are also disproportionately affected by obesity (Siega-Riz & Laraia, 2006; Catenacci, Hill & Watt, 2009). Therefore, expectations for losing weight before pregnancy are not realistic for many women. There is also no discussion on the relationship between social factors, overweight and obesity, and maternal health outcomes, leaving us with very little information about adverse health outcomes among pregnant women from diverse racial and ethnic, socio-economic, and educational backgrounds. Further, in terms of psychological distress, CMACE/RCOG and NICE noted the importance of being sensitive to any concerns women may have around their weight when discussing related issues, but there are no suggestions offered on how practitioners can raise the topic with sensitivity. There is also very little else in the way of acknowledging psychological implication of overweight, obesity and pregnancy, nor on promoting psychological well-being.

In addition, there is very little research describing health care practitioners' overall experiences of providing maternity care for overweight or obese women, particularly in relation to recommendations made in the guidelines. A study by Heslehurst and colleagues (2001) identified a number of challenges

associated with engaging pregnant women in discussions around weight– which all guidelines suggest providers do. Practitioners found it difficult to broach the topic of weight with women, deliver a balance of information, they were often uncomfortable, experienced feelings of blame for victimizing mothers, and said that patients were often embarrassed when the providers brought up weight. Clearly, more research is needed to uncover practitioners' experiences in implementing the recommendations put forth in the various guidelines, to see how well they can actually be put into practice.

Given the guidelines have only been in circulation for a couple of years, we do not have sufficient evidence to know whether or not they have or will lead to changes in health outcomes and increased safety for overweight or obese women and their babies. For example, the SOGC recommends that newer intrauterine monitoring technologies like electrohysterography be used with obese pregnant women, but we do not necessarily know the results of using such devices.

RESEARCH METHODS AND PROJECT PARTICIPANTS

Research Methods

The goal of this qualitative study was to gain a greater understanding of overweight and obese women's firsthand experiences of pregnancy and maternity health care, as well as health care providers' experiences of providing maternity care to women with overweight or obesity. The study took place in Nova Scotia and Saskatchewan between January 2011 and March 2012. We interviewed 33 individuals, including 18 women who had experienced overweight or obesity during pregnancy and 15 health care providers who provide care and support for pregnant women with overweight and obesity.

Prior to conducting the study, ethical approval was received from Dalhousie University, the University of Saskatchewan and health regions' research ethics boards in Nova Scotia and in Saskatchewan. Individuals were eligible to participate if they were 18 years of age or older and were English-speaking. The women who participated had to meet the additional criteria of either currently being pregnant or having been pregnant within the past 2.5 years. As well, the women were to self-identify as being overweight or obese. Health professionals were required to have familiarity with providing maternity care and support to women who were overweight or obese.

The women who participated in this study were recruited through posters placed in waiting and examination rooms in hospital perinatal centres, family and obstetrics practice offices as well as on information boards in community health and family resource centres and maternity retail outlets. Information posters were also posted in nursing and physician staff rooms on obstetrics and prenatal floors to recruit health care providers who care for and support pregnant women. Recruitment for both women and health care providers was further supported by the use of email listservs and professional association mailings. Additionally, a Facebook group for new mothers was utilized to recruit women in one of the provinces. Snowball sampling was then used with participants to recruit others who were interested in taking part in the study.

Individual interviews were conducted either over the telephone or in person with participants in a variety of settings, including research offices, participants' homes, health care facilities and community agencies. The interviews lasted between 20-60 minutes and were tape recorded with the consent of participants. The researchers also took notes during the interviews. The interview questions were open-ended and semi-structured. The questions were designed based on the information that emerged from the literature review, asking about various aspects of maternity care for pregnant women who are overweight or obese. These included women's overall experiences of pregnancy when overweight or obese and their experiences of care, as well as health care providers' experiences of caring for and supporting pregnant women with overweight or obesity.

The interview transcripts were transcribed verbatim. The transcripts were read independently by the research team in Nova Scotia and Saskatchewan and a coding framework was developed

collaboratively based on emerging patterns and themes. NVivo 7™ was used to organize the transcripts and data, as well as for coding and thematic analysis. Initially, four transcripts were individually coded by multiple researchers and the codings were compared among the research team to assess inter-rater reliability and validity. Once the coding was determined to be similar among the researchers, the remaining transcripts were coded.

Description of Participants

The sample consisted of a total of 33 participants. Twenty-two participants were from Nova Scotia and the remaining 11 from Saskatchewan. Of the 33 participants, 15 were health care providers, including family physicians, obstetricians and gynaecologists, midwives, nurses and registered dieticians. All of the practitioners we interviewed had been working in their field for a number of years and frequently provided care and support for pregnant women with overweight and obesity. Five of the health care providers were practicing in Saskatchewan while 10 were from Nova Scotia.

In addition to health care providers, we interviewed 18 women who self-identified as being overweight or obese during pregnancy. Six of the women were interviewed in Saskatchewan and 12 in Nova Scotia. The women who participated ranged in age from 22 to 42 with the majority being under the age of 35. Most women indicated their ethnic background as 'White' or 'Caucasian' (14). The remainder of participants indicated ethnic identifiers such as Aboriginal (1), Canadian (1), and European descent (2). Nearly all of the women were married (15). Two were in a common-law relationship and one woman was single. At the time of the interview, two women were pregnant with their first child and another participant was pregnant with her fourth child. Of the women who were not currently pregnant, seven had one child, six had two children and one woman had three. The age of the youngest child ranged from 5 weeks to 7 years. The participants' level of education was mainly indicated as university level (14), followed by college level (3) and high school (1). In terms of household income, the majority of participants fell within the $50,000 and above range (14). Two participants indicated their household income as $30,000-$40,000 and two others as $20,000-$30,000.

Most of the women in this study explained that weight has been a long standing issue and that they considered themselves overweight or obese prior to their pregnancy. When asked about their weight histories, more than half of the participants said that they had always "*struggled*" with weight, experienced fluctuations in weight gain and loss, or that it was a long-term "*battle*." For some of the participants their struggle with weight began in their early childhood, as young as seven years old, or in adolescence between the ages of 12 to 18. There were a few women who stated that their battle with weight began in their mid to late 20s or during university. In describing themselves, the women used words such as "*chubby*" or "*big boned*."

RESEARCH FINDINGS:

Part 1

Part 1: Women's Experiences of Overweight and Obesity and Pregnancy

Given the lack of available research on the psychological, emotional and social implications of maternal overweight and obesity, we were interested in speaking to women and learning more about these critical dimensions of their health and well-being. As we present below, our study findings demonstrated that psychological, emotional and social aspects played a large role in shaping women's overall pregnancy and maternity health experiences. In the following section, we describe both the negative and positive psychological and emotional experiences expressed by the women we interviewed, as well as outline some of the social aspects of overweight and obesity that influenced women's pregnancies and overall experiences of maternity care.

Psychological and Emotional Aspects of Overweight, Obesity and Pregnancy

Recent studies have shown that pregnant women with high BMIs experience elevated rates of psychological and emotional distress compared to non-overweight/obese women (Amador et al, 2008; LaCoursiere et al., 2006; LaCoursiere, Hutton, & Varner, 2007; Krause, Østbye, & Swamy, 2009). However, other research has found that pregnancy can reduce distressing feelings about weight for women with high BMIs (Fox & Yamaguchi, 1997; Nyman, Prebensen & Flensner, 2008; Smith & Lavender, 2011; Weir et al., 2010; Wiles, 1998). Our findings show that the psychological and emotional aspects of women's experiences did vary. Some women reported positive experiences, some negative, while others expressed both positive and negative feelings towards their pregnancies and/or maternity care.

Negative Experiences

Of the 18 women we interviewed, only four described their pregnancy and/or maternity care experiences as being predominantly negative. However, 11 of the women who framed their pregnancies and general maternity care as being either neutral or positive also described some unpleasant experiences or feelings during their pregnancies. Predominant negative emotions that resulted in psychological and emotional discomfort were guilt, self-blame, and fear of being judged or lectured about weight. Additionally, women reported feeling emotional and psychological discomfort related to the stigma and discrimination they experienced from unwelcome comments made by others. Poor body image was also identified as a source of distress for participants. All of these aspects are described in greater detail below.

(a) Guilt and Self-Blame

Guilt and self-blame were by far the most common sources of psychological and emotional distress described by participants. As one woman said, *"I think it was my own guilt more than anything that really affected me throughout the pregnancies... Just that I know it is not a healthy situation to be in*." Many participants felt guilty about and held themselves accountable for their inability to control their weight before, during and/or after pregnancy. Women also felt culpable for not eating well during pregnancy – even if they were only occasionally treating themselves to fast food or less nutritional options. For example, one participant shared:

"I felt guilty because I thought okay, you ate a certain way to get to be overweight. And it's not good for you and now there's something growing inside of you that is getting everything you eat. And it's sort of every time I would eat... And I tried very hard during both pregnancies to try and eat healthier than what I did before them. But every time I would eat something that isn't considered a healthy food, I would feel really guilty and think like why am I doing this? I kind of felt like okay, is this going to hurt my baby? And then I'd kind of sit back and think like, no, you know what, having Dairy Queen or Burger King or something once a week is not going to hurt the baby. But I would sort of... I did feel guilty about eating those foods."

Women also felt badly due to their awareness – either through self-education or by being told by their health care providers – of the potential risks and complications associated with maternal overweight and obesity. This included implications for their own physical health implications and that of their infants through all stages of pregnancy, as well as the long-term effect their maternal weight could have on their children. A number of the women we spoke to reported having complications, while others did not. Women who did not have complications felt a sense of relief, yet still carried a tremendous amount of guilt regarding the potential problems that could have transpired. For example, one woman explained:

"With my daughter who is my oldest, I was so sick for the first four or five months that I really didn't gain any weight. And then sort of when it got to the point where it finally started to turn and I started to eat, I found like I couldn't control it. I ate and I ate and I ate. … And I didn't have any complications ever. Like I didn't have to deal with gestational diabetes or high blood pressure or any of those things, which I think was good, because I think if I was faced with those, I would have had even more guilt and things like that. So that was a relief."

Feelings of guilt and self-blame were also projected onto the women through comments made by health care providers. For example, one woman said:

"…Oh it was everyone [saying], 'Oh, that's going to be a big baby.' or 'Oh you're gaining a bunch of weight.' It was so annoying….It made me feel like I was hurting my baby, that I was gaining too much weight. That I was setting him up for a lifelong risk of obesity, which I didn't want for him."

Guilt and self-blame took away from the joy and excitement normally associated with pregnancy, contributing to even greater psychological and emotional discomfort for some of the women:

"I mean when you're overweight, no matter how much you are overweight, you care and it matters. And at this time, you just don't feel like you could do anything about it. And the last thing you want when you have this super wonderful, joyful thing, you know, like pregnancy is supposed to be wonderful and happy and exciting. And when you have someone commenting on your weight then that takes away from that experience. It takes away from feeling excited.

Because then you start to wonder, you know, am I hurting the baby? Is my weight causing problems?"

Women also linked their experiences of self-blame and guilt to other distressing emotions, such as depression, anxiety, defeat and diminished self-confidence.

(b) Fear of Judgement and Being Lectured

In addition to feelings of self-blame and guilt, the women who participated in this study frequently experienced psychological and emotional distress due to their fear of being judged or lectured by others about their weight. In order to avoid criticism some women hid information, such as changes in family planning, or lied about information, such as the amount of weight gained between appointments. For instance, one woman explained how she kept information hidden from her doctor because she was concerned about his reaction to her, as an overweight woman, trying to get pregnant:

> Woman: *So when I went in, it was almost like sneaking in. Like, you know, I know I'm not supposed to be overweight and get pregnant, but I did...*
> Interviewer: *So would it be fair to say that you hid some information from your health care provider because you feared judgement?*
> Woman: *I did, yes. Yes, he didn't know any of the fertility information I was seeking out. Nor did he know the tracking I was doing. Nor did he know I came off my birth control pills. So yes, I dare say there was a lot of hidden stuff*.

Another woman said that her maternity care experience made her feel:

> *"Really sad. Every time I left there, I'd almost be in tears because I just felt so crappy like just about myself. And I didn't think I was doing that bad. I thought, oh, I only gained this much this time. And there was like once that I actually lied to her and told her I only gained like a pound when I gained three because I was like so scared that she was going to, you know, make another comment about it. But I just didn't want to hear it...*"

For some women, the fear of having their weight brought up and/or having hurtful comments made about their weight caused them to avoid or switch their primary health care providers altogether. Other women found that their initial fears were not realized and that their health care providers were supportive throughout their pregnancy. As one woman said, *"I don't know why, but I thought I was going to be lectured on what to eat and what not to eat, and to do this and to do that. And it was really a relief when I went in and there was sort of absolutely no judgement from her and there were no comments."*

(c) Stigma and Discrimination

The few studies that have previously been conducted with women with overweight or obesity have documented that overweight and obese women experience stigma and discrimination based on their

size (Amador et al, 2008; LaCoursiere et al., 2006; LaCoursiere, Hutton, & Varner, 2007; Krause, Østbye, & Swamy, 2009). The women who participated in this study also described experiences of stigma and discrimination, both overtly through comments and more subtly through people's actions, such as staring. For some women, these experiences affected their self-esteem and hindered them from fully enjoying their pregnancies.

Almost all of the women we interviewed, whether they described their overall experiences of pregnancy and maternity care as positive or negative, had experienced stigma or discrimination at least once during their pregnancy, largely from hurtful comments. Not all women were affected, but others found remarks made by coworkers, strangers or individuals within the health care system very hurtful. Comments about their weight made by family were especially distressing for the women who participated in this study. We found that female family members, particularly mothers and grandmothers, were much more likely to make hurtful comments about participants' weight than male relatives. This is perhaps a reflection of the fact that women and girls traditionally struggle with perceptions of body image and other weight-related issues more than men and boys (Emslie, Hunt, & Macintyre, 2001; Sweeting and West, 2002). Whether made prior to, during, or after pregnancy, comments made by female family members were particularly upsetting and affected how women viewed themselves during pregnancy. To avoid judgement and unpleasant comments, many women avoided family settings or conversations with family members. For example, after being on the receiving end of a number of hurtful comments, one woman recalled:

> *"I actually didn't talk to my family because I was so embarrassed that I was so big. It was awful*."

Another participant said:

> *"She [her mother] didn't really say anything directly. With my daughter, I kind of... Like they were very different pregnancies. With my daughter, I kind of gained weight all over. And with my son, it was all in my stomach. I didn't gain an ounce anywhere else. It was all out front. And she would sort of make comments about, you know, 'You must be having to buy new clothes now,' and things like 'Don't gain too much weight because it's really hard to get it off,' and kind of things like that. And then that was really probably it with my daughter. I've kind of learned that I don't bring it up with my mother and I don't like to talk about it. So when she starts to talk about that, I either change the subject or find a place to go. So I guess in that way it has probably affected my relationship with her. And sort of with my son, she made a few comments at the beginning like, 'You must be eating better this time because, you know, your hips haven't gotten bigger,' and things like that. So she's made comments, and I don't like them but I've kind of gotten used to them, I guess."*

For some women comments from coworkers were a constant source of distress, particularly because the women were with these individuals daily. As two of the women shared:

"The administrative personnel where I work... actually commented quite a bit about my weight during pregnancy, which made it very uncomfortable to see those individuals."

"I work in the health care field... There is a nurse that works in the same facility that I know is very opinionated about weight and so when I was pregnant the first time with the twins she had kind of said snidely, 'By the time those babies are born, you won't even be able to walk, I don't know what you are doing?'"

The stigma and discrimination women experienced from strangers also weighed heavily on them. For example, when asked if there were times in her life when she had felt judged by people during her pregnancy because of her weight, one woman said, "*I think always it's there.*" Women reported feeling stigmatized by the actions, and sometimes inactions, of strangers. As two of the participants said:

"*Well, and just because too, like when you're overweight, you know, a lot of people are uncertain, especially in the beginning, if you're pregnant or not. And so you have people giving you those looks, and you're just like, 'Yup, I'm pregnant. This isn't, you know, my protruding belly.' So there's definitely some awareness around that too. Because there's, you know, people who are really obviously pregnant and then people [who are not].*"

"I actually shut myself off from the world. I just stopped going out because I was sick of people commenting."

Many of the women who participated in this study also endured distressing comments from their health care providers. While we discuss this in greater detail in later segments of the report, we do want to mention it here, given the profound emotional effect these comments had on participants. We found that some women with overweight and obesity felt a degree of emotional discomfort while others suffered extreme levels of distress from direct interactions with primary health care providers, including nurses, family physicians, obstetricians and gynaecologists, and midwives, which supports previous research (see Merrill & Grassley, 2008; Nyman, Prebensen & Flensner, 2008; Thomas et al., 2008). However, in contrast to previous studies that have noted stigma and discrimination at the hands of other personnel working in the health care system, such as administrative staff, we found that for the most part, the women in our study did not have such experiences from non-clinical staff.

(d) Poor Body Image

A number of the women who participated in this study stated that they had poor body image during pregnancy. Many felt that their weight prevented them from reaching societal ideals of beauty during pregnancy as presented in the media, further perpetuating negative emotions. For example, two participants said:

"I wanted to feel... You know, you have this image of being pregnant. It's like, you know, on TV, you're supposed to feel beautiful and lovely and just glowing. I certainly didn't feel what I thought I was going to feel about my body when I was pregnant, if that makes any sense. Even though people said I was glowing, I certainly didn't feel particularly attractive during the pregnancy at all."

"... You see those pictures, beautiful pictures of pregnant women who are naked and covered up just so... And they have this beautiful stomach with no stretch marks and nice legs, and they always just look so beautiful. And I always just wanted those pictures done when I got pregnant. And so I was going through this process of really trying to get healthy, not just for looks but also for the health of our children that will come. And so when I found out I was pregnant, I was excited and disappointed that I wouldn't have that cute baby bump that would be really obvious that I was pregnant. …I guess the biggest thing about weight and pregnancy was I missed the aesthetics of looking cute and pregnant. I know that sounds horribly selfish and shallow but it's just I think that's probably the biggest thing that has affected my mood or my feelings during the pregnancy."

For some women, the way they felt about their bodies during pregnancy ultimately affected their relationships, particularly with their partners:

"It's probably had an effect on the relationship between my husband and I, because when I don't feel good about myself, I'm sort of less inclined to do things with him and sort of less inclined to be cuddled and touched. Because it's kind of like... It's that whole head game of, well, why do you want to touch me and why do you want to be close to me?"

"But with relationships, I would say with my husband, how it affected me... Like looking at myself in the mirror and thinking why on earth would you want to have sex with me? You know, like just feeling that way… I don't remember feeling that way like right after my first son was born about our relationship or sex or like how I looked. I don't remember feeling like that. But I know that like in the last month, I've felt like that and thought, oh, why would he even... Like looking at myself, I would think I just don't look like the person that he married."

While each participant's experience of pregnancy was unique, there were also common elements, both positive and negative. As we have shown above, many women experienced instances of overt discrimination. Others dealt with a great deal of guilt, shame and embarrassment due to their weight. The resiliency these women showed was remarkable. Despite having encountered negativity, it did not seem to taint women's overall experience of pregnancy – except in the cases of a few women who experienced very extreme instances of repeated bias and discrimination regarding their weight. As the following section shows, the women we interviewed also talked enthusiastically about the positive aspects that their pregnancies brought them, which we explore further in the following section.

Positive Experiences

Our review of the literature found that while the majority of research has concentrated on negative outcomes of maternal overweight and obesity, some studies have highlighted favourable aspects of pregnancy for women with high BMIs (see for example Smith & Lavender, 2011). Research has shown that pregnancy can reduce unpleasant feelings about weight for some overweight and obese women (Fox & Yamaguchi, 1997; Nyman, Prebensen & Flensner, 2008; Smith & Lavender, 2011; Weir et al., 2010; Wiles, 1998).The current study supports this research. Many of the women we interviewed did not depict their experiences of pregnancy and maternal health care in a negative light. While some did not express any strong feelings one way or the other, nine women felt very favourable about their pregnancies and the care they received, and a number of other women had favourable things to say about different aspects of their pregnancies and care.

According to a number of participants, pregnancy was a time to celebrate and feel good about their bodies. For some, it was the first time they had looked at their bodies in a favourable light and at least felt satisfied, if not positive, about their bodies. Similar to the findings from a review of studies on the emotional outcomes of overweight, obesity and pregnancy by Smith and Lavender (2011), many of the women who participated in this study said they felt physically attractive during pregnancy. Feelings of guilt and shame around weight and eating dissipated, stress decreased and women found pregnancy to be an enjoyable time in their lives:

> *"It's interesting, I actually ran into a high school friend yesterday and we were talking about weight. And she's always been a little heavy. Not overweight. But she said, you know, 'Isn't this a great time?' And I said, 'yes.' And she said, 'It's the one time I never worried about my weight.' And I said, 'it's the one time I have a firm stomach.' You know, we kind of laughed about it but there are those truths that it's the one time you don't feel guilty about gaining weight because it's for a [good] reason."*

Other women did not necessarily feel attractive during pregnancy, but said it helped their confidence and self-perception to have people say flattering things to them. For example, one participant said:

> *"I think the most helpful thing like just in my personal life was people telling me constantly how beautiful I looked, because I didn't feel beautiful. I felt giant. I felt gross. Especially early on when you don't look like you're pregnant, but you're gaining weight because you are pregnant. So that was really, really helpful."*

Women we interviewed shared that the support they received from people in their lives contributed to their overall contentment with their pregnancy experiences. In particular, participants said that their partners provided the greatest amount of support during their pregnancies. As one woman said, "*My husband was really wonderful*." Similarly, another participant said, "*My husband didn't seem to say anything. He would always say that, you know, I was beautiful. Because I would say, 'Oh, I look fat, I look fat.*'" Female friends were also commonly cited as being significant sources of emotional support

for participants. Women were comforted by their friends' own experiences of pregnancy. Participants said that many of their friends had gained more than the recommended total amount of weight during their pregnancies and told them not to worry about their own weight gain. For example, one woman said that "*other people would say, 'Oh, I gained this much,' or, 'I gained 50 pounds.' And so I didn't feel too bad about it.*" These shared stories of pregnancy experiences, words of encouragement and compliments given by friends helped overweight and obese women develop a healthy body image and increased self-esteem during pregnancy:

> *"My friends have been positive for me and they've told me that I have lost weight and I'm looking healthier and it feels good to hear that. I do feel good about myself and my self-esteem is a lot higher..."*

The attention women received from strangers during pregnancy also helped them feel good about themselves. For example, after being asked if weight during pregnancy had affected her relationships with others, one participant said:

> *"Only positive. It seemed like the bigger I got the more they were excited and also people were more polite, even strangers. Even when I was in the grocery line they were like, 'Go ahead you're pregnant.' Nothing negative."*

As we describe in greater detail in the next section, a number of the women we interviewed also stated that they had favourable maternity care experiences, including interactions with individuals within the health care system. Some women with overweight or obesity were comforted with their providers' approach(es) to maternity care, including their communication style and clinical practices. In particular, women responded favourably to health care providers who were informative, engaging, direct and professional. Positive experiences with primary providers, including nurses, family physicians, obstetricians and gynaecologists, and midwives increased the sense of psychological and emotional health and well-being during pregnancy. Additionally, an understanding of the social context of women's lives was identified by participants as contributing to favourable experiences of pregnancy and maternity care, which we describe in greater detail below.

Social Aspects of Overweight, Obesity and Pregnancy

Our review of the literature demonstrated little understanding about the social context of women's lives in relation to their experiences of overweight and obesity during pregnancy. Contextual issues varied among the women who participated in this study. A number of factors were identified as contributing to women's overweight and obesity and influencing their overall experiences of pregnancy, maternity care and physical, psychological and emotional outcomes. In this section, we highlight some of the social aspects of overweight, obesity and pregnancy that emerged from the women's stories.

Some of the women who participated in this study linked their relationship with food and overweight or obesity with significant life events, such as histories of trauma. For example, when asked about her experience with weight throughout her life, one participant said, "*I guess I started to have a weight problem probably when I was 12, 13 years old. It was when my parents split up. And I suspect probably the stress of that and not really knowing how to deal with it sort of started it.*" Another woman answered:

> *"Well, it's kind of a long story but basically up until I was 13, 14, I didn't have any weight issues at all. In fact, I was probably underweight. But I grew up with some traumatic experiences around food... I grew up in foster homes. So I had one specific foster home that was very like crazy about food. Like, we didn't get to eat very much. So then when I was older, I moved out of that foster home. And when I suddenly had control over food again, I was like ahhh. So food became this like control thing for me when I was a teenager. And I was in an unhealthy relationship which just kind of like added to that when I was in my late teens. So probably from like 14 until I was about 22, like emotionally weight was like a big thing*."

Other participants noted that changes in activity levels throughout their lives contributed to their overweight and obesity. Many of the women said they had been active and involved in organized sports as children and youth, but became more sedentary in college and university because they had less spare time to engage in physical activities. For example, one participant said, "*I never really had a problem with weight until after high school and then I just stopped doing all the activities and slowly put on weigh*t." Similarly, when women entered the workforce, they said they became even more inactive because of the nature of their occupations, which resulted in additional weight gain. As two of the participants said:

> *"Some of it would be changes in activity. Going from say high school to university, and then university when you're walking a lot, and when you become an employed person when you're sitting a lot. So that change in lifestyle from more active to sedentary perhaps would be one [reason]."*

> *"I would say I was probably about a healthier body weight until about eight years ago. I was very active as a teenager and a young adult. And then once work started taking over, getting more involved with work, I got less active and I put on 20 pounds. And then I probably ended up putting on about 35 extra pounds that I wasn't quite sure where it had come from..."*

The mental exhaustion women experienced balancing work and home life also made it challenging for them to address their weight and lead a healthier lifestyle.

The gendered experiences of women also played a key part in their experiences and histories with overweight and obesity. Women talked about growing up watching their mothers grapple with weight issues and engage in unhealthy eating and dieting patterns. Their mothers' desires to be thin were

then projected onto them as young girls and adolescents. For example, one woman said, "*As a teenager my mom was very worried about her weight even though she wasn't overweight. So as a teenager I kind of caught that from her and worried about my weight as well*." Some women said their mothers controlled food intake when they were young children, including making them diet. This caused some of the women to have unhealthy relationships with food early on in their lives – ultimately leading to their struggles with overweight and obesity:

> "*My mom was told when I was two that I was going to be a very short person, and the doctor said, 'You are going to have to watch every bite of food that goes into her mouth and really teach her the difference between good food and bad food.' And I think my mom got a little scared by what the doctor said and sort of went so far in the other direction that she turned cookies or chips into not just not healthy foods but into like, 'You stay away from them. You don't touch them.' And she so carefully regulated what we were and weren't allowed to eat that it was sort of like... when I was 12 or 13 and there was all that stress and it was sort of like she couldn't exactly control what I was eating anymore because you are more independent and you are at school and you've got a little bit of spending money, that I sort of went so far off to the other end and to the other extreme. And I guess it sort of started there*."

> "*When I was 12 my mother tried putting me on a diet for the first time just to monitor what I was eating and it always seemed that when my mom lost weight that was when she became more critical about how much I weighed*."

A number of participants attributed the origin of their weight gain to reproductive health issues, including the use and side effects of birth control pills. Others gained weight during earlier pregnancies and struggled to lose the weight post-partum. One participant shared, "*Since I've had my children, I put on weight with each pregnancy and I can't get that off*." Motherhood also placed increased stress on women and created additional barriers for losing weight, as the new or extra responsibilities of having children meant less time for attending to exercise and diet. As one woman said, "*I gained way too much weight the first time I was pregnant and I never lost any of it... I used to run marathons and to be really active and then I had kids and then I just stopped*." Finding suitable childcare also presented obstacles for women who wanted to lose weight. For example, one participant explained, "*I wanted to do something about it [my weight] with the last baby, but I didn't really have any babysitters I guess. Every time I did try to join a program, they didn't provide babysitters so it was a struggle*."

Socio-economic pressures affected some women's ability to have access to healthy foods or a healthier lifestyle. For example, one woman shared, *"The rent - I am on assistance right now and I would like to move but I can't right now. The food here is not good. I go to [name of place] or [name of place] and places like that and I don't like going there that's why I want to find work. I don't want to live like that for the rest of my life."* The inability to afford healthy foods contributed to women's experiences of overweight and obesity both prior to and during pregnancy.

The social context of women's lives was acknowledged by some of the health care providers interviewed as being barriers to healthy lifestyles for overweight or obese women prior to, during or after pregnancy. For example, one practitioner said:

> *"It can be difficult because sometimes we're talking about healthy foods and exercise and physical activity and they may have a lot of barriers. They might not be able to afford the food that we're discussing or maybe not enough food or they don't have time to prepare. You know, the quick things are easier for them because they don't have a lot of time. Sometimes they are not the person who is doing the cooking in their home. So it's difficulty with, you know, support from family. If they may be a young mother that's still living with her parents, and her parents have poor eating habits, and she's not in charge of buying the groceries."*

Recognizing the social context and barriers of women's lives is important to understand women's personal circumstances and provide sensitive maternity health care. While some of the health care providers we interviewed acknowledged the importance of addressing the social context of overweight and obese pregnant women's lives, we will see in the following sections that the provision of sensitive maternity care that takes into account social aspects, as well as psychological and emotional experiences, is not consistently being achieved.

RESEARCH FINDINGS:

Part 2

Part 2: Experiences of Maternity Care from the Perspectives of Overweight and Obese Women and Health Care Providers

Given the lack of available literature on the maternity health care experiences of both overweight and obese women and their caregivers, we were interested in speaking to both women and practitioners about their experiences of receiving or providing care and support. This section encompasses both the conversations that transpired between health care providers and women around overweight and obesity during all stages of pregnancy, and the women's and health care providers' experiences with various communication and practice styles. As in previous sections, this discussion is organized by (1) pre-pregnancy and conception, (2) pregnancy, (3) labour and delivery, and (4) post-pregnancy.

Pre-Pregnancy and Conception

The majority of the pre-pregnancy and conception literature, including the clinical care guidelines, has focused on the promotion of nutrition and weight loss consultations during this stage of pregnancy, as well as the disclosure of physical health implications associated with overweight and obesity. In addition, there has been some indication that overweight and obesity is linked to reduced rates of fertility (van der steeg, et al., 2007) and lower success rates for assisted reproduction (Jones, Moragianni, & Ryley, 2011). In the following section, we discuss women's experiences of pre-pregnancy and conception, as well as women's and health care providers' experiences of maternity health care during this stage of pregnancy.

Nutrition, Weight Loss and Physical Health Implications

Three of the four clinical care guidelines (CMACE/RCOG, NICE, and SOGC) we reviewed suggested that practitioners provide overweight and obese women with weight loss advice, including nutrition and physical activity information prior to pregnancy to promote as healthy a pregnancy as possible. They also propose that practitioners discuss the physical health risks associated with overweight and obesity with their patients. In our conversations with women and health care providers, poor health outcomes did not come up as part of pre-pregnancy consultations. However, almost all of the women we spoke to who had planned their pregnancies said that they had conversations with their practitioners about losing weight prior to pregnancy. Many initiated the conversations themselves:

> *"Before I really started trying to lose weight I had gone to him [family doctor] and said, 'My husband and I would really like to have children in the future. And I'm going to try and lose some weight and get healthier. Is there anything else I need to think about?' And he just sort of reassured me that no, and getting as healthy as you can before you get pregnant is great, and let me know what I can do sort of thing. He was very, very supportive and he didn't make me feel bad for being overweight already or anything like that."*

Other participants said that their health care providers brought up the topic of nutrition and weight loss when they approached them about their desire to get pregnant. Similarly, almost all of the health care providers we spoke with said that it was customary for them to discuss the benefits of weight loss

with their patients prior to pregnancy and to encourage women with overweight or obesity to achieve a lower weight before getting pregnant:

> *"I think that it's a good practice to suggest to people that they should lose weight or that they maybe should keep an eye on their weight before pregnancy just because of the risks that are involved."*

There were a number of women who felt that weight loss prior to conception played a pivotal role in their ability to get pregnant. For example, one woman said, *"Like we were trying to get pregnant, but I wanted to lose weight anyway to be healthier, so I don't know, it just kind of helped."* For at least one of the participants, pregnancy occurred sooner than they had planned or expected, which she also attributed –at least in part – to her reduction in weight.

Many women do not plan their pregnancies and/or seek family planning consultations with their health care providers. Therefore, it is not always possible for pre-pregnancy weight loss advice to be given. Indeed, this is what we found in our study. While the majority of women indicated that had planned to get pregnant, others told us that their pregnancies were not planned and did not have any consultations with a practitioner about pregnancy prior to their first prenatal visit.

Fertility

Research suggests that overweight and obese women in particular are more likely to experience reduced fertility than non-overweight/obese women (van der steeg et al., 2007). Additionally, the odds of fetal and infant death, including miscarriages, are two to three times greater for women who are obese prior to pregnancy compared to women within the recommended BMI (Tennant, Rankin & Bell, 2011). While a number of women we spoke with were able to get and stay pregnant, others struggled with infertility issues and/or miscarriages. Four of the 18 women in this study discussed their difficulties with fertility during their interview and their experiences with infertility specialists and treatments. In addition, two participants told us they had experienced at least one miscarriage and another woman had a miscarriage scare, but did not end up losing the baby. There may have been more women who struggled with fertility and/or loss of pregnancy, but chose not to speak about it with us. All of the women who discussed their experiences with infertility and miscarriage were eventually able to have at least one successful pregnancy.

It has been suggested that an elevated BMI may be linked to decreased fertility (van der steeg et al., 2007). The health care providers we spoke to believed there was a strong connection between overweight and obesity and difficulties conceiving or other complications that may occur and cause infertility. For example, practitioners said that polycystic ovarian syndrome, which is a health condition where the ovaries make more androgens than normal affecting the development and release of eggs during ovulation, was common among overweight and obese patients:

"We would see women who were trying to get pregnant mostly related to polycystic ovarian syndrome... that's the main focus of fertility problems for a lot of women, particularly obese women."

Two women in this study made reference specifically to having polycystic ovarian syndrome.

We do not know the extent to which overweight or obesity played a role, if at all, in participants' difficulties conceiving and/or staying pregnant. For some women, the relationship between weight and infertility was very clear, not only having their own struggles, but also bearing witness to their friends' struggles. As one woman explained, *"I'm also under the impression that being very overweight also affects fertility. I'm having a couple of friends who are extremely overweight and can't get pregnant.*" Many of the women attributed their fertility issues – at least in part – to their body size. Two of the women were told by their specialists that their weight was a factor and were encouraged to lose weight to increase their chances of conception:

"It [overweight] was the only thing they [her health care providers] could figure out might be contributing to the unexplained infertility because everything checked out on my husband and I everywhere else. So it was sort of the only modifiable factor that they could figure out might help with conceiving."

"We were referred to a specialist. So he [her husband] went to the specialist and he ruled out everything but weight and said that basically it was my husband's weight that was a problem. And then he mentioned at the same time that it would be mine as well. And that it would be in our best interest to lose weight. I guess that's where it started to come in, where I started to work out. Because we were both trying to lose weight for him so that we could [conceive]... Yes, I guess it was for trying to have a baby, now that I think back to it… So we didn't end up having to do anything because we ended up losing weight and it worked."

Because weight loss prior to conception is often seen as the optimal scenario for overweight or obesity women who suffer from reduced fertility, it is not surprising that some providers encouraged women struggling with infertility to lose weight (van der steeg, et al., 2007). As one practitioner also illustrated weight-loss was also advocated prior to pregnancy to minimize potential complications during pregnancy:

"I will see them when they are having trouble getting pregnant and in that situation I do and occasionally I try to suggest that they are going to be better off by losing weight both potentially to achieve a pregnancy. Do I put them on a rigorous regime? Rarely. I might say to them you need to go to nutritional counselling, you need to go to dietary counselling through your family doctor perhaps before I will treat you for the infertility and also come back and see me in six months. I am not very rigid on that but I do do it for women that are clearly and significantly at risk of medical complications if they get pregnant. Some of them may already

have high blood pressure or they may already have diabetes that's not well-controlled and in that situation I might say, 'I am not going to help you get pregnant until they have it corrected or at least stabilized.'"

The women we interviewed also told us that they had tried to lose weight while receiving fertility counselling and support in order to increase their chances of a successful pregnancy.

Going through the ups and downs of having unsuccessful pregnancies, engaging in infertility treatments, and then having a successful pregnancy took an emotional toll on women. As one woman shared:

"I don't know if physically I have a different relationship with my body, but certainly psychologically because I don't know if it is the fertility treatments but to have lost our twins I felt as though...I have tried to talk to my husband about how I felt. Like anything in life we find that if something is bad we need to blame something, so when I lost the [twins], due to an incompetent cervix, the only blame that I could put on anyone was myself. I had a weakness. So when this time I was able to carry and have [daughter], I know that even though I have a weakness, I can do it. With the help of medical technology I can be a whole person and give birth to a miracle. I don't know if it is a physical thing but a psychological thing."

Fertility experiences may be emotionally and physically heightened for overweight and obese women compared to non-overweight/obese women due to the weight bias larger women often experience in the health care system, as evidenced by recent debates and media attention around policies that would limit or deny fertility treatments for women with elevated BMIs. We asked practitioners to specifically comment on whether or not fertility treatment options should be limited based on a woman's BMI. While some providers recognized that women with obesity have significantly higher odds of developing serious health complications for both themselves and their babies in pregnancy and thus worried about the health risks and implications of providing treatment, others raised doubts about the ostensible increased level of risks that existed for overweight and obese women who were trying to conceive. As such, while some believed that fertility treatments should possibly be limited only to women under a certain (though not specified) weight, others felt strongly that the health care system should not discriminate based on weight. As one practitioner noted:

"I think the potential difference is in what fertility treatments are going to be used. So if you are going to try something simple there is perhaps less ability to separate out patients or deny them therapy, whereas if you get into more complicated therapy like IVF [in-vitro fertilization], then the cost and the resources that are being used might make it more appropriate that they must meet a certain standard…. A summary of a paper that came out a week or two ago that showed that actual infertility was not really affected by weight until you got to morbidly obese or truly high BMIs over 40. The actual success rate for fertility treatments was pretty much the

same between BMIs between 25 and 40 and maybe a slight decline between 35 and 40…So if you are talking about BMI of 30 I think you're going to be talking about a lot of women that may say, 'Why are you discriminating against me?' and you better have a good reason. It's sort of like a lot of medical things where once you start to say 'yes' to one patient and 'no' to another patient it's ethically and morally very difficult."

One woman told us that she did not seek out fertility treatment or speak to a specialist while she was trying to get pregnant and having difficulties conceiving because she was afraid that she would be refused treatment based on her size. So, for many women who struggle with overweight and obesity, the fear of being treated differently and not having access to the same types of fertility treatments as non-overweight/obese women is a very real concern. Luckily, she was able to get pregnant on her own, but her story is important in helping us understand the challenges overweight and obese women face in the pre-pregnancy and conception stage:

"When I wasn't having much luck the second time with even my own body working properly, I was not interested in pursuing like other methods because it did cross my mind that they would probably not do a whole lot until I lost weight, because I've heard people have been told that in the past. Like when you go for treatments as far as fertility to get drugs and are on in vitro and all that stuff, they may or may not choose to do it because you are overweight. So I didn't want to deal with that at all. So I just didn't talk to my doctor about wanting a child until I got a positive pregnancy test and I was like 'woo-hoo.'"

Pregnancy

The clinical guidelines reviewed suggest that topics such as recommended total weight gain, diet and exercise, and increased risks of childbearing for women with overweight or obesity should be addressed by health care providers in the early stages of their patients' pregnancies. In light of these recommendations, we were interested in learning about whether or not these topics were being discussed and if related practices were being carried out in the clinical setting. In our conversations with participants, we found that these topics were being covered by practitioners to varying degrees. While almost all of the health care providers said that they spoke to their patients about overweight, obesity and pregnancy, the majority of women who participated in this study said that health care providers did not address their weight – at least not directly. If weight was discussed, the women said that the conversations were brief and typically occurred only once – usually during the first visit. Further, one-third of the women said that they, rather than their health care providers, brought up the subject of weight. Practices related to weight gain and monitoring weight, diet and exercise, and physical health risks also varied and are discussed in greater detail below.

Weight Gain

The most common issue discussed, whether we asked the women or health care providers, was recommended weight gain based on pre-pregnancy BMI. We found that some women were very open to talking about issues related to weight and weight gain with their health care providers and had

positive experiences. Others had no desire to talk about weight and/or weight gain despite knowing that it was an important discussion to have with their health care providers. For example one woman said, "*It's just not a conversation I want to have. It might be a need to have, but I don't really want to have it."* Lastly, a number of the women we spoke to were uncomfortable discussing their weight and expectations around weight gain during pregnancy and some tried to divert conversation away from the topic:

> *"It [weight and weight gain] didn't even come up. I didn't bring it up. I was sort of scared to bring it up and she [practitioner] didn't bring it up."*

> *"So when I did get pregnant, I was sitting in this office and he [family physician] said something about weight gain. And I kind of cut him off and I said, 'I know, I don't have to gain as much as normal weight people,' and he said, 'Okay.' And he didn't push it any further than that. So I really didn't let him get his spiel in. I kind of cut him off because I didn't really want to have that conversation."*

Health care providers' opinions about how much weight was acceptable for overweight and obese women to gain over the course of their pregnancy differed widely. Some adhered to the total recommended weight gain as set out by the United States Institute of Medicine and adopted by Health Canada (i.e., 15-25 pounds for overweight women and 11-20 pounds for women with a BMI $\geq$ 30). Others were under the impression that women with overweight or obesity should gain very little to no weight during pregnancy. As one practitioner said, *"I sort of push on the fact that they shouldn't gain as much weight... if any at all.*" Additionally, some comments made by health care providers suggested that they were in favour of overweight and obese women losing weight during pregnancy. As one practitioner said, *"I've had some really good success stories with ladies who haven't gained in pregnancy because their BMI is 37, for example, they've lost weight.*" Others were more relaxed about the amount of weight they expected overweight and obese women to gain throughout their pregnancies:

> *"So what I try to do is to say the same thing to everybody at the beginning of the pregnancy just that most people gain 10 pounds by 20 weeks and a total of 25 or 30 pounds... somebody with a lower BMI will benefit from gaining but those with a higher BMI they will probably benefit from not gaining as much and the focus needs to be on a healthy diet."*

For most of the women who participated in this study, the total amount of weight they were expected to gain throughout their pregnancies, as conveyed by their health care providers, typically fell in the range of 10-15 pounds. Many of the women felt that these expectations were unrealistic and unattainable – often resulting in distressing emotions and a sense of defeat from early on in their pregnancies:

"The nurse that I saw kind of went over, you know, because this is where you are on the BMI, this is how much weight you are supposed to gain. Which for me was 15 pounds in the pregnancy ... I was upset when I came home for sure because I just was like, 'I'm doomed.' I'm doomed to be fat in this pregnancy because inevitably I don't know how I could just gain only 15 pounds."

"I initiated the conversation and I said something along the lines of, 'What is the recommended weight?' Every time she would put the weight in she would be like, 'Oh, that's a lot of weight.' But she never really elaborated on it so I asked her and she said at that point I had already gained... At that point she said I was pretty close that I only had another five pounds to gain and I still had another 4 ½ months of pregnancy. So it wasn't going to be attainable for me."

In addition to varied expectations among practitioners around weight gain, they also had differing views of the purpose of monitoring women's weight and how weight should be overseen throughout pregnancy. Some health care providers followed recommendations set forth in the clinical guidelines, which stipulate that women be weighed at the first and all subsequent appointments:

"I think it's important to weigh. And I know there's a rational for not weighing but we see some incredible weight gains, and I think we have to be aware of those and the patient needs to be aware."

"I think that's reinforcing denial [to not weigh women]. Like sometimes you...Would I not check their blood pressure too if their pressure was up? Like that seems to be in the same ballpark. I know it's a sensitive area but if that's what separates you from being healthy, you should address it."

Others did not follow the clinical guidelines because they wanted to make practices *"more individualized"* and allow women to have agency in this process – giving them the choice of whether or not they wanted to be weighed:

"I feel that it should be choice... With pregnant women, would you weigh them all the time because you know they're going to gain weight? It's expected."

"I always discuss with women about what the significance of weight gain actually is, the clinical significance of it is for their baby, for themselves. And yes, in terms of weight gain, it isn't actually about the baby gaining weight or not so much. Today it's more of a control of women's weight gain I suppose. And give them the option of do they want to be weighed or not."

In addition to providing women with the option of being weighed or not, many practitioners also offered women a choice of how they wanted to be weighed throughout their pregnancy – either by a

practitioner or on their own. While most of the guidelines (RCOG, NICE, CMACE) recommend that health care providers take weight and height measurements themselves and discourage relying on self-reporting, some providers we spoke with were comfortable with this style of monitoring:

> *"They'll [patients] do the weight themselves. I'm not standing over them. You have to put some trust and respect. We had a lady with a BMI of 52, and she would not get on the scale here. She weighed herself at home. She did actually lose weight, a significant amount of weight. Her BMI went down to 46. And she had a healthy eight pound baby."*

Both women and health care providers reflected on the practice of weighing-in. The women interviewed described their experiences with this practice to be anywhere from positive to neutral to negative. Others simply viewed it as a necessary health practice. For example, one woman explained that she found her weigh-ins to be an interesting way to monitor her own weight and her body's development throughout pregnancy:

> Interviewer: *And how do you feel about getting weighed every time? Is that something you're okay with? Did it bother you?*
> Practitioner*: As I said, during my pregnancy, you know, weight doesn't bother me during my pregnancy. I guess that in itself is an interesting thing. It's kind of intriguing to see if it's up or down.*

Another woman described the embarrassing side of having to weigh herself in the open and then tell the health care provider her weight – a sentiment that many other participants shared:

> Woman: *[laughing] Oh, it's true. You know what, my husband was laughing about this but when I went into the prenatal clinic the first time, they have you weigh yourself right there. And then she says, "How much is that?" And I like walked into the office to whisper it to her...*
> Interviewer: *So they're asking you right out in the open.*
> Woman: *Yes. But I mean it's silly because, you know, my husband was laughing about it, like not making fun of me laughing but it always reminds me because they always say women lie about their weight and men lie about their height.*

Other participants found this process to be both uncomfortable and upsetting:

> *"I thought it was really weird to begin with because she didn't actually weigh me herself... I had to weigh myself when I got there and then tell her what I weighed. So I thought that was kind of strange. So I would tell her like my weight. And it was like every time she'd say, "Well, what was it today?" And then I'd tell her. I'd just be like dreading saying it."*

We found that for some women who participated in this study, the practice of regular weigh-ins created feelings of panic and defeat, and became something to avoid:

"I weighed myself a lot and I dreaded going to the doctor to go on the scale. The scale lady, who was a doctor's assistant, would often comment on the weight. She would say 'Oh that's a big jump this time' or I would say, 'If it's a big number I don't want to know' and she would say, 'Well you have lots of big numbers to go.' I dreaded going to the scale."
"And I just... like it was a panic. And every week going in to have the lady weigh you, I was just like, 'Please, no, I don't want to do this anymore.'"

"They always weighed me in kilograms at the doctor, and I never translated it into pounds because I didn't want to know. Inevitably I am going to fail just because I'm not thin so I'll just avoid knowing."

These feelings of distress did not go unnoticed by health care providers. Some practitioners feared that weekly weigh-ins tested the trust between caregiver and patient. For example one health care provider said, *"When you continually do that [weigh women] and you continually say to them you're gaining too much weight, are you going to create a wall that they eventually are not going to listen?"* Another practitioner also felt that focusing too heavily on weight hindered the trust between patient and caregiver and distorted the health care focus:

Practitioner: *The less weight they gain in pregnancy, based on a healthy diet of course, the better the odds are for their birth outcome. For many women however, focusing on diet and size in pregnancy doesn't help and probably harms.*
Interviewer: *In what way?*
Practitioner: *Emotionally causing them to have less confidence in their care provider, putting the focus on body issues, which often they already have and taking it off birth and as a healthy, capable competent person.*

From the perspective of the women interviewed, it was important to receive information about weight gain from caregivers with whom they had trusting relationships. As discussed above, there were practitioners who also recognized this need for trust. Some health care providers understood the diverse emotional and physiological circumstances underlying weight gain during pregnancy and acknowledged that these causes were not always under the woman's control:

"Like we had one couple in, they were a younger couple in probably their early 20s. And there was a lot of guilt associated with it. The male partner was very negative about the fact that she wasn't following her diet and that she was gaining more weight than was recommended. And I think we've seen a lot of that too, where sometimes women can't control what happens with their hormones and they're going to need insulin."

"There is a prevalent position in [province] that women with a high BMI should be directed to gain very little if any weight during pregnancy. An example being I had a client who had initially started with other caregivers, then came for care here. It had been recommended that she see a nutritionist or a dietician or both. And the recommendation at the bottom of the

page after a nutritional assessment was to gain up to one pound per week. That's it. And I thought to myself, you know, there's still this cultural notion that we can actually control these things – that you can decide."

Sensitivity around conversations and practices related to weight gain and monitoring is, as specified by the guidelines, an important aspect of the provision of optimal maternity care for women with overweight and obesity. This sensitivity, built through a relationship of trust between patient and practitioner, is important when discussing all aspects of a healthy pregnancy, including, as we will see in the next section, diet and physical activity.

Diet and Exercise

According to the interviews with both overweight and obese women and health care providers, there were conversations about diet and exercise – although the extent of these conversations and practices varied. Some women said that not one health care provider had broached these topics with them and others stated that nutrition and physical activity were discussed only briefly during their initial prenatal visit. But some women did report that at least one of their health care providers had discussed these issues with them at length. Most, if not all, maternity health care providers we spoke with said that they addressed nutrition and exercise with all their patients, including women with overweight and obesity:

"*All women in our care, regardless of their weight, receive counselling and guidance around healthy eating, exercise and self-care during pregnancy and post-partum. We also pay attention to food accessibility, both in terms of access to food, and access to good quality food.*"

We found that conversations were more likely to focus on diet and nutrition than exercise, particularly around the types and amount of food women should be consuming during pregnancy. Many of the women said they were encouraged to follow the *Canada Food Guide* – a food plan designed by Health Canada to help individuals make healthy food choices and ensure they receive sufficient nutrients. However, the women said that conversations specific to the *Food Guide* were not particularly helpful, as they already knew a lot of the information. As one woman said, "*They never told me anything I didn't already know. Not that you're looking for something magic, but there's no new information regarding the Canada Food Guide.*" Similar to the women's experiences, many of the health care providers we interviewed told us that the nutrition information they provided was based on the *Food Guide*.

While a number of women felt their maternity health care providers supported them with dietary and nutritional information – or left them alone as they preferred – some participants reported negative experiences. According to some women, their health care providers did not take the time to ask them

about their current diets and assumed incorrectly that they were not eating well given their weight. For example, one participant described:

> *"… It was almost like she had a pre-programmed speech. And she just sort of went through this big lecture without actually listening to what I was saying. So for example, she told me not to drink soda pop, which I actually don't drink anyway. Not to eat fast food, which I actually again don't eat anyway… So it was just very unpleasant. It didn't really make me want to go back, just to know that the person wasn't listening to anything I said, had sort of classed me into some sort of category in their own mind, which I don't really think I fit into. So that was really frustrating."*

Women also reported that while health care providers wanted them to eat less or differently or to exercise more, they did not necessarily provide them with strategies to achieve these goals. So while overweight and obese women may have received information about nutrition and the importance of engaging in physical activity during pregnancy, many did not know how to put it into practice. For example, in regard to food consumption and weight gain, one woman said, "*The doctor was telling me to slow down, but I didn't know how to slow down.*" Many said it would have been helpful for health care providers to complement dietary and exercise information with tools for integrating healthy lifestyle choices into their own lives.

Among the providers interviewed, two were clinical dieticians. These two providers shared their thoughts on the positive side of working with overweight and obese women, which included the women's increased motivation to improve their health while pregnant. In fact these dieticians were two of seven practitioners who noted that women seemed more motivated during pregnancy to monitor their nutritional intake and be physically active:

> *"One of the things that I find, it seems like women when they're pregnant, they're a little more interested in nutrition in the first place. And maybe they're trying to take little bit better care of themselves. ...It's encouraging to see women like that because they can be so engaged at that time. They really want to do what's right, and they're really keen to learn and to come to all their appointments and really to follow a diet as best they can. And for some people, it's the first time that they really start following like a walking or swimming or some kind of light exercise routine."*

The clinical dieticians also discussed how to support women around these sensitive subjects of diet and exercise. These practitioners discussed the need for increased understanding of the women and their situations, as well as increased access to nutritional services through referrals from obstetricians and gynaecologists, midwives, and family physicians:

> *"Because a lot of people will say, 'Oh, people are overweight, it's their problem, they should eat less, move more.' It's so far beyond that. But I think that a lot of people need to have more education around it. So that was the attempt to get to that through that committee. And I*

don't know, any time I get information that I can send out to the committee or to others or post it anywhere I can, I'll try and do that to try and bring awareness to people who are obese and what it's like living as an obese person, because it's not easy."

"We don't get a lot of referrals for overweight or obese women that are not diabetic. Like even within our nutrition outside of the diabetic clinic, within just our out-patient nutrition service, there's very few referrals from our OBGYNs *or midwives or family physicians to counsel women on weight in pregnancy. So it makes me wonder if they are weighing them every time, it's like they're taking this information but they're not... I wonder what they're doing with it. Like if they're finding that someone is gaining weight too quickly, maybe they're doing some counselling in the office but they're not sending it to the dieticians to support. So, maybe that would be more helpful if they were taking those numbers and doing something with them."*

What is interesting about this last comment is that most of the other health care providers we interviewed mentioned that their maternity care practices included referring overweight and obese patients to dieticians and nutritionists. Cost, however, was brought up as a possible deterrent for women to actually see a dietician – as it may not be covered by provincial health insurance. A second deterrent, as we noted above, was that women said that they simply did not find the services useful. Overweight and obese pregnant women had conveyed this message to a number of the practitioners we interviewed as well:

"Well, there is a clinic that works with the morbidly obese. Which I have to say when they first started it, I used it a fair bit. And I think I've probably fallen off on referring people because the feedback that I got was, I don't know, it wasn't terribly positive. They seemed to view it as a waste of time, which I would have thought that a chance to meet with a dietician and an obstetrician, a whole team, would have been useful."

It was evident from the findings that nutrition and exercise information need to be relevant to the lived experiences of pregnant women with overweight or obesity. Further, dietary and physical activity advice needs to be coupled with strategies to help women make modifications to their current routines. Again, it is essential that practitioners reserved judgment and provide information and strategies in a sensitive manner. However, we saw that whether presented with sensitivity or not, weight gain, nutrition and exercise were the most common topics discussed between practitioners and women with overweight and obesity during pregnancy – even more so than the physical health implications associated with elevated BMIs, which we examine in greater detail below.

Physical Health Risks and Challenges

Although there is a wealth of information about the physical health risks of overweight and obesity during pregnancy, we found that maternal and child health risks related to overweight and obesity were noticeably absent from the conversations that pregnant women had with their health care providers. The majority of women had expected risk factors and possible complications to be covered

by their practitioners and were somewhat puzzled that the topic had not been raised. Indeed, of the 18 women we interviewed, 11 said that not one of their health care providers had discussed physical health risks with them at any time during their pregnancies. As one woman said, "*No, it's not something they talk about.*" Without these conversations taking place, it was easy for the link between weight and risk to go undetected by the women themselves. For instance, one woman felt her age, rather than her weight, was the reason she was assigned to a high risk clinic. She said, "*I was assigned to a maternal fetal medicine specialist for a high risk clinic because I had some endocrine thyroid issues and because I'm old basically. I mean I really don't consider myself a high risk pregnancy."*

Three other women said that they had to raise the topic with their providers themselves. One of the women asked about general health risks related to gaining too much weight during her pregnancy. Another inquired about the health implications of obesity and diabetes and the third participant asked her health care provider about risks in general, as well as specifically relating to heart rate and C-sections.

The remaining four women said that at least one of their health care providers had conversations with them about the potential physical health risks associated with overweight and obesity. For example, one woman said that an anesthesiologist had brought up weight risks related to C-sections. Another participant spoke to her family doctor about the relationship between weight and difficulties conceiving, as well as an increased chance of early loss of pregnancy. Only two women said that their primary caregivers had in-depth conversations with them and were open and honest about the risks associated with overweight and obesity during pregnancy. For the most part, however, when these conversations did occur, they were either brief or little detail was provided:

> Woman: *I asked her [physician] what the risks were with being overweight or gaining too much weight and she said there was more chance of a C-section.*
> Interviewer: *Is that all she said to you about that?*
> Woman: *Yeah, that was it basically, just more complications. It may lead to C-Section*.
>
> *"The only time it [weight] came into play was the second time with my daughter, which was two years ago. The anaesthesiologist came up to make sure I could do the C-section, because if I had too much weight around my neck or something, they worry about not being able to intubate you. But that is not where I tend to carry my weight so she was comfortable with that. That was the only time I think in two whole pregnancies that it ever was on the table, kind of in the face issue."*

The health care providers we interviewed did not talk about having conversations with overweight and obese women about the health risks associated with overweight, obesity and pregnancy despite being aware of these risks. Nor did they explain to patients their practices for monitoring such risks despite this being a large part of their maternity care practices. For example, as one practitioner

noted, increased risks meant that health care providers had to monitor these patients more frequently:

> *"Well we know that the medical complications in the pregnancy are going to be overall more likely than in a non-obese patient so we test for diabetes, sometimes earlier, sometimes several times during a pregnancy that we would in a normal pregnancy, we would look for hypertension a little more assiduously, we might see them a little more often towards the end of the pregnancy because of that risk and we look for the fetal growth definitely more often than we would with a normal pregnancy because we're aware that some women have small babies when they're overweight. We're not sure why that is – perhaps some metabolic abnormalities develop, but we are looking a little more carefully for the growth of the baby."*

While certain practices related to physical health risks were easily maintained, others were more difficult. For instance, most providers followed guidelines in monitoring blood pressure and hypertension, as well as with respect to referring patients for consults with an anaesthesiologist. However, practitioners noted that the standardized ways of measuring fundal height to detect the size of baby and any intrauterine growth abnormalities was challenging, as standard procedures did not always work with larger bodies, especially with women who have a lot of adipose tissue around the stomach. One practitioner explained:

> *"When you are doing a physical assessment of them, me as a [profession], where I would be doing a symphysis- fundal height, which is measuring from pubic bone to the top of the fundus of the uterus, which is usually proportionate to the gestational age, it's very difficult to get a true picture on a lady who has a lot of excess weight on her because it interferes with the measuring. ... I will often say to the ladies, 'I need you to lift your belly.' And they'll lift their belly up while I do the measurement. It gives me a better picture of what it is. That's important because if it is exceptionally larger than it was last visit, it could be indicative of there being a problem. And if it's the exact same as it was the last visit that could be indicative of a problem... Also it's harder to listen to a fetal heart with a Doppler [scan] with ladies who are extremely large because you cannot palpate the abdomen to find out the position of the baby well. You know you don't know where the back is. So it's a hit or miss. It's a guess."*

We found that practitioners frequently made use of internal monitoring devices with obese women, as recommended by the SOGC (2010), to resolve the issue of "*guess work*" that would otherwise take place. However, two providers noted that timely access to such devices and weight restrictions for the equipment still created challenges. As one practitioner explained, "*we had an ultrasound chair in our own department and it had a limiting weight defined as 350 pounds and we have had a few patients over that, so we couldn't do the ultrasound on the chair."*

Labour and Delivery

Our conversations with women and health care providers pertaining to labour and delivery revealed both the physical and emotional experiences surrounding these stages. The following section examines women's choice of birthing location (setting), their means of delivery (i.e., vaginal or caesarean birth), and medical interventions that may have taken place during labour or delivery. In this section, we also present health care providers' perspectives and descriptions surrounding their practices within these three contexts. To close this discussion, we describe women's overall experiences of labour and delivery.

Place of Birth

Clinical care guidelines highlight places of birth as an important consideration for pregnant women with overweight and obesity and their health care providers. The AOM (2010) stipulates that a woman's choice of birthplace should always be supported by health care providers as long as all possibilities have been discussed. However, there is overwhelming advice for overweight and obese women to avoid home births altogether, especially women with a BMI above 35, because of potential risks to the health of mothers and babies (SOGC, 2010; NICE, 2010; CMACE/RCOG, 2010). If overweight or obese women choose to birth at home, the guidelines recommend the use of the main floor of the residence to facilitate transfer to hospital if necessary. Health care providers told us that they had to consider potential complications when supporting or questioning overweight and obese women's choices (usually in this case to have a home versus hospital birth). One health care provider noted, *"for example, if a woman is planning an out of hospital birth we have to think about how easy would it be to get her out if she was incapacitated and she needed to be transferred to the hospital."*

The majority of the women we interviewed provided information on where they birthed, but did not necessarily give detailed responses on how they had come to choose that location. This is probably largely due to the fact that the majority of women in both Nova Scotia and Saskatchewan do not have the option of birthing anywhere other than a hospital. While the majority simply stated that they had birthed at hospitals, one or two women who had the option of a home birth, said that they felt more comfortable birthing at a hospital. As Kara shared:

> *"No I wasn't comfortable being away from the hospital and I'm glad I didn't do that because of the situation that happened with my son being stuck. I think it would have been better to have been in the hospital."*

Only one participant had a home birth. During her interview, she described the conversations and self-advocacy that took place in order for her to convey her desires to birth at home, as her providers were not comfortable with her birthing at home given the known risks associated with labour and delivery in overweight and obese women:

"Even before I was pregnant I had a vision about what my labour would be like. I had done a lot of research and I knew what I wanted but I at least wanted a shot at what I wanted his birth to be and I felt that was taken away from me."

Means of Delivery

Clinical care guidelines recommend that vaginal delivery be encouraged with women regardless of their body size. Most women described having conversations about their birthing options with their providers at some point during their pregnancies. In fact, 15 of the 18 women we interviewed commented specifically on how they gave birth and their choices around birthing vaginally or by caesarean. Nine women had vaginal deliveries and seven had caesarean deliveries. We found that not all of the women who had a C-section had planned on this mode of delivery. Complications during labour required them to have a caesarean – often after hours of labour fatigue or their health care providers' fears of larger-than-expected babies and complications of shoulder dystocia. Others experienced complications late in their pregnancies, which influenced their decisions not to have a vaginal birth. For example, one woman was encouraged and admitted into the hospital by her primary caregiver to have a scheduled C-section because her own health was at risk:

"So for a couple of weeks he knew it was a large baby but he was trying to find every reason so I could have a successful outcome in the end. So when I developed superficial blood clots in my leg [at 36 weeks] he said that was enough and the health of the baby has become less important than my health."

Two women did prefer to have C-sections, for different reasons. One participant simply asked her physician for one because that was what she wanted, while the second explained that "b*ecause I had a C-section the first time, I have elected to have a C-section the second time."*

Medical Interventions

The women interviewed touched upon their experiences with medical interventions used during labour and delivery, including inductions, epidurals, and fetal monitoring. As discussed in the literature review, in comparison with non-overweight/obese women, women who are overweight or obese are more likely to develop complications with these interventions. Furthermore, the presence of adipose tissue in specific areas on the body, particularly the abdomen and neck, can make it harder for health care providers to use these interventions. The health care providers we spoke with shared their knowledge about these medical procedures and were very candid about the challenges posed by overweight and obesity during labour.

According to published literature, there are increased risks of complications when labour is induced for overweight and obese women (Arendas, Qiu & Gruslin, 2008). One practitioner told us that she does not often induce larger sized women, typically because of difficulties monitoring the baby and the possibility of complications that coincide with not being able to do the monitoring accurately (see

below for further discussion on this topic). In contrast, another health care provider told us that, in her experience, overweight and obese women were actually more likely to be induced, and induced earlier, than non-overweight/obese women because of the fear of larger babies. Despite clinical concerns, at least two of the women we spoke with had been induced by their health care provider.

Epidurals were also discussed by a number of the women and practitioners who participated in this project. Complications with epidurals seemed to be the most common fear voiced by health care providers. Challenges administering epidurals to women who are overweight and obese may pose risks to the women themselves. However, as we saw in the previous section, overweight and obese women often had consultations with anaesthesiologists earlier in their pregnancies to assess their individual cases. Practitioners also told us that epidurals may take longer to work in overweight and obese women – limiting the amount of pain relief available. Additionally, because epidurals temporarily limit women's mobility there is a risk that women or their health care providers may be injured. As one practitioner explained:

> *"If women chose to have epidural pain relief and it affects their own mobility that becomes, of course, a much bigger problem for obese women. As long as the woman can move herself, you're fine if she's obese, but at the point when she can't and you actually have to help her, that's when it becomes a problem."*

The final labour intervention discussed by participants was fetal monitoring. As with previous research findings, the health care providers in our study said that external monitoring of fetal heartbeats in overweight and, in particular, obese women can be difficult due to excess adipose tissue in the abdomen. Health care providers talked about their challenges with palpating the fetus and thus ultrasound and internal monitoring devices were often used. However, a number of complications and limitations existed with this form of monitoring as well. As two practitioners explained:

> Interviewer: *Is that a very frequent issue then is the difficulty in finding [baby's] heartbeat?"*
> Practitioner: *Yes, it's very frequent….*
> Interviewer: *How are you able then to be able to cope if it is difficult to find a heartbeat? What do you do?*
> Practitioner: *You move them in all kinds of positions sometimes if you can't find it then you would have to have someone come and ultrasounds show you where would be the best option.*
> Interviewer: *And does that get frustrating?*
> Practitioner*: Yes it does because you don't always have that available to you when you would like it. Yes, it's frustrating*.

> Practitioner: *Just because of the large body habitus they more frequently will have an intrauterine catheter put in so that we can measure the contractions because it is very hard to palpate a contraction in a woman who is morbidly obese. We would use fetal scalp clips on the babies more frequently on them because you cannot monitor well a woman that large.*

Interviewer: *Is there a risk to the baby and mom as a result of doing that?*
Practitioner: *Oh absolutely – the baby's risk. It's not just external fat but there is internal fat in the vagina and stuff – babies, yeah, they struggle, yeah.*

Health care providers told us they took all necessary precautions and followed clinical care guidelines to the best of their abilities. For the most part, practitioners said they had very positive results in the cases where medical interventions were needed, and, in preventing medical interventions in the first place. They did, however, share experiences where outcomes were not favourable and instances in which overweight and obese patients experienced very serious complications – some that even resulted in death – highlighting the real and present risks associated with overweight and obesity in pregnancy.

Overall Experiences

A number of the women we spoke with commented on their overall labour and delivery experiences. For the most part, women had very positive labour and delivery experiences and were treated with respect by health care providers. For example, when we asked one woman how she was treated during labour, she said, "*Really good. People were really polite and helpful and made sure we had everything we needed. They were very calm, which was helpful. Yeah I had a good experience with that*." Further, another participant noted, "*I was treated very well.*"

But other women did not have good experiences during labour. Even women who characterized their overall experiences as positive often described at least one unfavourable event that occurred during labour and delivery. Some of these examples were serious in nature, including physical health complications that emerged during labour and delivery. For some of those women, labour and delivery was truly a traumatic experience:

Interviewer: *How was it for delivery for you when you went in to give birth to your son? How was your experience?*
Woman: *It was not a good experience because he [baby] got stuck. That was a bit traumatic and I had high blood pressure... they had to jump on the shoulder because the shoulder was stuck behind the hip bone. So the nurse jumped on the shoulder. They had to use the vacuum.*
Interviewer: *When you said jumped on the baby, not literally? What does that mean?*
Woman: *She pushed on my stomach. The lady stood on a stool and had to push on my stomach to dislodge the shoulder and then the baby came out. I admit it was scary and his heart rate was like jumping really high. They probably would have used forceps but the doctor was a GP [general practitioner] not an obstetrician so they can't use forceps.*

There were also incidents that did not compromise the physical health of women and their babies, but which nevertheless distressed women. As one woman shared:

Woman: *And then I got into the hospital to deliver my son and the nurse looked at me and she's like, 'Oh, you put on a lot of weight with this pregnancy' going through the weight record. And I'm like,' Okay, lady, I'm in labour. I'm like seven centimetres dilated and you choose now to make a comment about my weight?'*
Interviewer: *This was your labour and delivery nurse?*
Woman: *Yes. And I just kind of thought like... I don't know, I guess because I had such a positive experience with my doctor, I kind of thought okay, you don't really have to worry about this. And I was very surprised when she said that. And I'm thinking you said a comment like that to a woman in labour? Like are you crazy? I could rip your hair out right now, lady. I mean that is all she really said. And then looking back, I kind of think well, I did gain a lot of weight with him. It's not like she made a comment that wasn't true. But I just thought... I don't know that that is not really socially acceptable to say to somebody.*

Further, a number of women described their labour and delivery in an unfavourable light because of the anxieties they had about their bodies and a fear of being judged. Having to be naked in front of health care providers during labour and delivery was difficult for many of the women who participated in this study. As one of the currently pregnant participants shared:

> *"There's going to be all kinds of strangers that are going to be seeing me naked. You know, that is a little bit unnerving as well. I am looking forward to having the birth but also a little bit...a lot actually anxious about it. For a lot of reasons, but also the biggest thing is not very many people have seen me without my clothes on in my lifetime. And that part alone is a bit nerve-wracking... From the videos I've seen, it's not very flattering positions that you get in during the birth process. So I think that is probably my biggest anxiety. Aside from making sure that my weight doesn't affect the health of my baby, there's the self-consciousness that comes in with people seeing my body."*

Despite the fact that some women had negative experiences during labour and delivery, the majority of participants we spoke with were happy with the care they received. We also found that the final experience of giving birth could reverse negative feelings or circumstances that happened to women in their pregnancies.

Post-Pregnancy

Clinical care guidelines set out a number of recommendations specific to the post-pregnancy period with a focus on three main areas, including physical health complications, breastfeeding, and post-partum weight consultations. Similar to the findings from earlier stages of pregnancy, we found that weight-related topics were discussed in varying degrees by health practitioners after pregnancy. One interesting finding that emerged from the data was that while practitioners largely discussed issues related to physical health outcomes, the women talked more about the emotional aspects that arose for them after pregnancy. Our discussion of the post-pregnancy findings is organized into the following sections: (1) concerns and challenges, (2) breastfeeding, and (3) weight loss.

Concerns and Challenges

We know from the literature that a number of health complications can arise for women with overweight and obesity after labour and delivery, such as blood clots, infections, hemorrhage, and prolonged hospitalization (Arendas, Qiu & Gruslin, 2008; Lewis, 2007; Morin, 1998; Sarwer et al., 2006; Smith, Husley & Goodnight, 2008). Physical health risks were mentioned more frequently by health care providers than by the women themselves. Practitioners, particularly nurses, focused on their concern about and treatments for blood clots and infections:

> *"She [a patient] went on to develop a massive, massive infection within a few days. And she ended up back in hospital again for three weeks. She lost a large portion of her abdomen from the infection and then had to have plastic surgery. So that would be a negative experience in that regard. She was a wonderful little mommy – very attentive. But the doctor said it was because of her weight that she developed the poor healing. She wasn't diabetic. It was just the fact that it was a lot of fatty tissue and it became necrotic [i.e., is the death of cells or tissues through injury or disease]."*

> *"I know these ladies, or anyone who is obese, can be prone to pressure sores so we have to have positioning and positioning devices as well in the operating theatre… and they are more prone to infections so if there was a pressure dressing that you use the proper pressure dressing and tape because we know that some tapes can cause more perspiration and sweating and causing infections."*

Given the attention to physical health risks have received in the literature, we expected these issues to be at the forefront of women's post-partum experiences. However, only two women talked about physical health complications post-delivery. Specifically, they discussed their firsthand experiences with developing blood clots, high blood pressure, and prolonged hospitalization. They said:

> *"I was in hospital for five days actually. The thing is the blood clots started to moving around after [baby] was born. [Baby] was doing just fine, but they were sure worried about me for a while because they didn't want it to develop into a deep vein clot."*

> *"And my blood pressure is still high. It was high with both pregnancies. It went right down, but now it's back up again. And that kind of happens apparently if you've had high blood pressure during pregnancy."*

Both women expressed that they had discussions with their health care providers about their post-partum complications and felt well-advised as they faced these challenges.

Women's worries in the post-partum period rarely focused on physical health complications. Instead they talked more about emotional aspects, such as adjusting to their new lives as mothers, their

weight after baby, parental decisions affecting their children, such as vaccinations, battling post-partum depression, and simply trying to feel "*normal*" again. As one woman explained:

> *"And I think it's part of that transition into motherhood, is learning to feel like ourselves in this new life that we've chosen…. I felt like I had really put a lot of energy into caring for myself in a way that I could feel a certain way in the world. And I feel like I lost that. I lost all that work that I did to really be comfortable in my own skin. And I am starting again like to get re-comfortable in my own skin."*

Breastfeeding

The period immediately following birth is considered an optimal time for practitioners to share guidance on lactation and breastfeeding, including positioning, latching and milk supply (AOM, 2010; NICE, 2010). Our research indicates that some providers did offer this type of guidance and many were aware of the challenges that women who are obese or overweight face when breastfeeding. The majority of women interviewed also discussed their experiences with breastfeeding, including the difficulties they encountered, the support they received (or lack thereof), and stories of success.

At least 10 of the 18 women interviewed stated that they had tried breastfeeding their babies. Both the women and practitioners spoke of delayed milk production, which is more common in overweight and obese women than in women who are not overweight or obese (Dartford & Gravesham, 2009). At least three women ended up supplementing with or switching completely to formula due to concerns (their own and/or their partners') with lack of milk supply. As one woman explained:

> "*We really tried... but he [husband] got really nervous because I didn't have any milk coming in right away and he was concerned that something was going to happen to [Baby] if we didn't feed her. I did nurse for six weeks. I kind of persevered and supplemented with bottle feeding."*

Women and health care providers also noted the challenges overweight and obese women often face when trying to breastfed because of larger breast size. For example, one of the woman noted:

> *"I supplemented from the beginning. [Daughter] didn't nurse well. She was tongue tied. In the hospital, it started out well but then it didn't continue very well. And so when the community health nurse came in at home, she said, "You know, honestly I think it's just because you have big breasts that are kind of smothering the child."*

Health care providers were aware of or had given some thought to the challenges facing breastfeeding women with overweight and obesity. One practitioner commented:

> *"I think breastfeeding rates are lower for obese women as well. And I wonder why that is… [S]ometimes there are challenges where you need extra supports under very large breasts*

and that kind of thing. When they can exclusively breastfeed their babies and see their babies thriving and healthy as can be, that's also really, really empowering. It helps women to appreciate their bodies in way they might not have up to that point, which is great."

It was evident that many of the health care providers we spoke with had reflected on how to provide overweight and obese women with optimal breastfeeding support. Many talked about trying to find creative solutions for the physical challenges of breast feeding for overweight and obesity women. As one practitioner offered:

"Even things like breastfeeding and how to hold the baby. These are massive ladies and how do you hold a baby and they've just come out of a C-section, so how do you hold the baby and being creative and inventive and how to get babies to nurse because they are large women?"

Six of the 10 women reported that they had received breastfeeding support from their providers. Women described receiving helpful suggestions and strategies from their providers with respect to positioning, supplements and medications, aids, and nutrition information. The support provided, however, did not always guarantee success:

"I tried to breastfeed her and really felt like I did everything right, and she [baby] kept losing weight and she kept losing weight. And she wound up in the NICU [neonatal intensive care unit] *for dehydration because it sort of was let go for too long. I had to start supplementing with formula and, like, I did everything. I did the drugs and the herbs and the pumping with the hospital grade pump every two hours. And I did it for about three or four months, and I still wasn't making anything. Like, there wasn't even a drop coming out... [I was] reading that being overweight is a risk factor. And I sort of thought, well, maybe that was the reason. Maybe I was too big."*

Health care providers were unable to report how long women who initiated breastfeeding continued to breastfeed their babies because these statistics are simply not collected within the health care system. Further, many maternity care providers stop seeing women at six weeks post-birth, including obstetricians and gynaecologists and midwives, making it impossible for them to determine how long women breastfeed their babies. We did not ask how long women continued to breastfeed if they were initially successful and so we cannot comment on breastfeeding rates. However, one health care provider said:

"About 95, 98% of our clients breastfeed and breastfeed until six weeks. That's when care is transferred back to the family doctor so we don't really know how long they breastfeed after that. But I encourage them to follow the guidelines of up to two years and beyond. When women have any kind of challenge with breastfeeding then we do more post-partum follow-up. So we see women at home on day one, day three, day five, somewhere between day seven and 10. For first babies, we visit on day two as well. So we can usually help to prevent some of

the bigger challenges from ever really happening or turn them around early no matter what they are."

It was suggested that support for breastfeeding, as well as weight loss, may be more effective if women are connected to resources and programs in the community.

Weight Loss

The NICE (2010) guidelines suggest that practitioners approach women post-pregnancy to ask if they would like further weight loss advice, services, or supports. When we asked practitioners about their experiences of providing maternity care to overweight and obese women, few described their post-pregnancy care experiences. This may be due to the fact that many of the practitioners we spoke with did not work with women after the birth of their babies. The topic of weight after birth, however, was a predominant issue for the women we interviewed.

In this study, 15 of the 18 women interviewed told us that post-partum weight loss was on their minds. One woman saw losing weight as a way to move forward in setting an example for her children about a healthier lifestyle and being able to have energy to play with her children:

"*And now with the girls, you know, trying to shed the pregnancy weight but also get back to a healthier weight so I can get down on the floor and play comfortably and make sure that we're setting a better model for them too. Yes, going forward."*

Participants commonly stated that although they felt pressured to lose weight post-baby, it was not a priority for them. Others were not too concerned because they knew they had not gained an abundance of weight during pregnancy.

Five women discussed how, with the encouragement of their health care providers, they had signed up for or created their own weight loss programs -which included menu planning, eating well, and some form of exercise. Conversations with their practitioners provided women with the information and strategies they needed to work towards post-partum weight loss. Two women shared their plans:

"They do talk about, you know, you should have a plan for afterwards. And the nice thing about the team there is they do have…they've created a program with [grocery chain]. And you can meet with a dietician there and go through and do menu planning and such after the baby is born. So that's a really good proactive [strategy]."
"And I mean both times, my family doctor, when it was all said and done and I'd bring the baby for the six week check-up, he'd be like, "So, you know, when you get out... Now you have a year off. You can get walking and stuff."… So I have worked that into my life."

Having support from providers and the availability of weight-loss or healthy lifestyle programs made an impact for some women. Four participants described successfully losing weight post-partum through various programs:

> *"I had gone to the gym and met with a trainer. So I got some specific exercises, like more muscle building than just the cardio that I had always done. And I was getting some herbal supports from my naturopath. So I was seeing the weight come off. Like it seemed like in the space of a couple of months, the 20 pounds went. And it was probably a lot of hormonal stuff kind of sorting out and getting my lifestyle habits changing a bit."*

Participants told us that having a child, as well as setting sights on having another baby, were also strong motivators for being as healthy as possible:

> *"I think that in spite of all the issues that I have went through with the pregnancy and with being overweight after I had him I became motivated to start losing weight. I stated running and eating healthy. So having him has been a huge motivation. I am under the weight from where I was when I started."*

> *"And after we had my daughter, I thought okay, I want to get this weight off because we knew we wanted to have another one sort of close in age. And so that is when I first started Weight Watchers. And I managed to get down probably to... Like I lost all my pregnancy weight, which was good, and I managed to get down probably another 10 or 15 pounds below where I was with her."*

However, weight loss after having a baby presented a number of challenges for many of the women who participated in this project. Many of the practitioners we interviewed also acknowledged the struggles overweight and obese women endure post-partum. As one health care provider noted:

> *"There are a lot of women who really up the self-care when they're pregnant and try to get in shape and try to eat properly and feel better about themselves. And a lot of them try to continue afterwards. But I have to say, it's kind of like quitting smoking when you're pregnant. It seems that it's harder to maintain that after you have your baby."*

Sleep deprivation as well as time and other pressures associated with child-rearing, meant that many women did not have time to make meals or eat well and so relied on energy-dense, high-caloric foods that are known to contribute to weight gain. The same challenges made it difficult for woman to exercise. For example, one woman commented, "*I could go run, but I would rather go have a nap.*"

It was evident that post-pregnancy weight-loss struggles took an emotional toll on overweight and obese women. One participant said, "*It has definitely been an issue and currently I am the heaviest I have ever been, because I didn't lose all my baby weight, so it is still an issue.* The emotional distress

appeared even more intense for women who entered each of their pregnancies at higher and higher weights, because they could not get the weight off in between their pregnancies. For example one woman shared, "*I gained way too much weight the first time I was pregnant and I never lost any of it... and I keep thinking I'll lose weight, but it just hasn't happened yet."* Again, we saw that women's battles with post-pregnancy weight were a constant struggle:

> *"Since I've had my children, I put on weight with each pregnancy. And I can't get that off. So that is kind of where I am now. Sort of out of the where I was for years and years and years and now I'm more in...And that stresses me out because I think okay, where is this going to end kind of thing. But other than that, it goes back and forth between what are you going to do? We all have our lot in life, and okay, this sucks. So usually any day you'll find me between those two."*

We found that only a few of the health care providers we interviewed offered support to women, or were available to support women once they initiated a conversation about weight. As one participant noted, "*If I went in and said I need help to lose weight then he would be more than happy to do that but I don't think he[doctor] would ever initiate it."* Most practitioners we spoke with were not family physicians and thus did not have practice models that included working with women on their post-partum weight loss. As one health care provider commented, one challenge she faced was not always being able to follow-up with women in the post-partum period to see what support they needed to make lifestyle changes – particularly with respect to eating well, exercising, and weight loss:

> *"I do see some of them afterwards for the six week post-partum visit. …. So I don't have the final impact in terms of following them afterwards and saying what can we do for lifestyle changes? Some of them have markedly elevated blood pressure, and so unfortunately, they have to limit their activities, which doesn't help with their obesity"*

A second provider described her practice in working with women to ensure they had the support and resources to continue with healthy eating and exercise after their babies were born:

> *"Yes, chat with them and make sure that they're eating appropriately, I guess. Not planning any specific diets because generally people are... Even obese, a lot of obese people follow I think sometimes a healthy diet. … and kind of guiding them toward post-partum resources that are available. We do have a newer post-partum weight loss program that we're delivering as a partnership through the community, with [grocery chain nutrition program]."*

While some women struggled with post-partum weight loss, others succeeded in losing weight. Having support, resources, and programs available, as well as sensitive and engaging conversations with health care providers seemed, from the interview data, to make a difference in some of these success stories. However, as one woman noted, having the program available is not enough if other issues, such as childcare, remain unaddressed. She said, "*I wanted to do something about it [weight] with the*

last baby but I didn't really have any babysitters I guess. Every time I did try to join a program they didn't provide babysitters so it was a struggle." Throughout the experiences and stages women had with their maternity care it is evident that having access to information, tools, programs and other resources is not sufficient if they do not consider all the elements of these women's needs and lives.

RESEARCH FINDINGS:

Part 3

Part 3: Providing Optimal Maternity Care for Overweight and Obese Pregnant Women

It was evident from our interviews with health care providers that they strive to provide the highest quality of care possible to patients. However, we found that while most of the practitioners we interviewed were aware of clinical guidelines related to overweight, obesity and pregnancy (either those we reviewed or adopted by their clinical care setting), they did not necessarily know how to implement them in a manner that best supports overweight or obese pregnant women. This section examines issues that influence the quality of care provided to overweight and obese women, including equipment and staff support, as well as health care providers' attitudes and approaches to maternity health care.

Equipment

Two of the clinical care guidelines we reviewed (CMACE/RCOG and SOGC) called attention to the vital role proper equipment plays in the provision of quality maternity health care for overweight and obese women. While the women themselves did not comment on equipment issues, health care providers were quick to discuss how the presence or lack of bariatric equipment (equipment and supplies designed for overweight and obese people that typically have a weight limit of 300 or more pounds) influenced their care practices and the quality of maternity care women received.

Few of the health care providers we spoke to said that their clinical care environments had planned for and acquired the necessary equipment to provide optimal maternity health care to overweight and obese parturient women. However, a small number of practitioners believed that their heath settings did in fact have suitable equipment so that women of all sizes could receive quality maternity care. As one practitioner explained:

> *"All of our rooms have standard sized blood pressure cuffs. And we have two large cuffs on wheels that flow around the clinic, plus a third one in the working area of the clinic where the computers and the nursing and medical staff congregate. We also have a thigh cuff when those large cuffs don't fit people."*

Some had even consciously designed their clinics to be able to serve overweight and obese women:

> *"Initially, when we set up this clinic, we made sure that we had capacity to do the same kinds of assessments for women up to 500 pounds. So we have a scale that will accommodate them. We have a bed that will accommodate them that we can be sure about. We don't want to run into situations where we can't do the clinical assessments we need to do for any of our clients."*

It was mentioned that the presence of the multidisciplinary team referral system helped ensure that issues around weight restrictions, care, and equipment were addressed:

"It's a complex patient referral. So it goes to a multidisciplinary team. And it looks at what that patient is going to require during her course of stay in the hospital from care in the perinatal centre or wherever…. Does she have to have a special kind of a bed if she weighs over 500 pounds? Here in [the perinatal centre], we have designated rooms for people of specific weights. Like our regular beds will hold people up to 350 pounds, and then there's other beds that will hold people up to 500 pounds, and then there's other beds that will hold people up to 600 pounds. So it's separated. And this multidisciplinary team looks at all kinds of things…"

This particular approach is very similar to the recommendation put forth by the CMACE/RCOG (2010), which stated that overweight and obese women receive a documented assessment to make sure everything is in order and available for when they arrive to give birth. However, there may be limits to the equipment available at a clinical site. Practitioners are seeing related lengthier wait-times in clinics and hospitals because they only have one or two examination rooms specifically outfitted with the proper bariatric equipment for larger sized pregnant women:

"And a lot of the patients get upset because they have to wait so long. And the reason they have to wait so long is because the bed that is compatible to their weight is not available… There are only certain rooms that we can put obese people in."

For the most part, however, health care providers told us that the hospitals and clinics they worked in did not have the proper bariatric equipment they needed to provide the best possible care to overweight parturient women – particularly obese women. Even in instances where some equipment was available it was often not enough. Mary (Practitioner) said that the weight scales they had in their clinic were only good for a weight up to 350 pounds. Women who weighed over 350 pounds were sent to the hospital where a larger scale was available. Similar weight restrictions for ultrasound equipment have posed problems for practitioners. According to Kelly (Practitioner), a few of her patients have not been able to use a particular ultrasound machine because they were over the weight limit. Other equipment issues that were raised included inadequately sized blood pressure cuffs, beds, maternity suites, wheelchairs and ramps. Perhaps the most common equipment shortage that practitioners raised was the lack of appropriate seating both in waiting and examination rooms in a variety of clinical care settings. For example, one practitioner said:

"*The chairs that we have in this unit and the chairs that we have in that waiting area are not suitable for the patients that we are dealing with. They have a certain weight restriction. Most of our patients are beyond that weight restriction. Have we gotten new chairs? No. We have one chair out there in that whole atrium that is for a heavy woman. There's no couches for people to sit on who don't fit the weight requirements of those chairs... The chairs in there, they're suitable for people who are under 250 pounds... The beds are okay. They might not fall off the bed but they might fall off the chair*."

Health care providers also spoke about the challenges they faced in providing even basic maternity when the appropriate equipment was not available. They often found themselves having to be inventive and adapt quickly to each particular case. This meant working with what was available at the time of care as well as moving toward purchasing necessary equipment whenever possible. For example, when asked how she worked around equipment challenges, one practitioner explained:

> *"Well, you find a chair that doesn't have arms. Or you just tell her to go straight to the examining bed. In terms of assessing the growth or the fetal wellbeing, you would have to order an ultrasound to check for growth because you would not be able to assess if the abdomen is that big. And blood pressure, well, we've gotten like a very large cuff. We've had to adapt for that."*

Not having the proper equipment sometimes posed serious threats to patients' and practitioners' physical safety. As one practitioner stated, "*staff here are concerned about their own health because of the lifting ... like we deliver babies her, and nurses are lifting legs of very powerful people, regardless of if they are overweight or not. If they are, they are more weight, and so there's risk*." Additionally, one health care provider shared an unfortunate story about a clinical experience that could have resulted in serious physical injury – which could have been avoided altogether had the proper equipment been in place:

> *"Before in our perinatal area we had exam tables, they were just normal exam tables from 1970 or whatever. And a patient stepped on the end to get on and almost came back and knocked over a very small nurse who...you know, it could have been really bad. It was I'm sure, humiliating for the patient and scary for her because she could have been hurt and also for the nurse."*

The majority of providers we spoke with attributed the lack of appropriate bariatric equipment to organizational barriers, such as issues of cost and a lack of funding, which made it exceptionally difficult for them to put the recommendations set forth in clinical guidelines into practice. Further, a more widespread bias toward overweight and obese patients' needs was also said to be a contributing factor. As two health care providers aptly noted:

> *"We applied for some funding for bariatric chairs. Like even our chairs in our waiting rooms, it's a safety issue. They don't really accommodate overweight people. So we tried to access funding through that, but we weren't successful."*

> "*I mean we can't enforce a policy if we don't have funding for the equipment and if we're not properly supplied. You can't follow a policy if you don't have the equipment to follow it. We need to have beds and chairs and an understanding of weight bias, and that type of thing*."

Similar to the findings of previous research (see Heslehurst, 2007), we found that a lack of appropriate maternal bariatric equipment was a major barrier to providing quality care for overweight and obese

pregnant women. Therefore, even if practitioners wanted to implement certain practices recommended in clinical care guidelines, they did not always have the proper tools to do so. It is evident that given the rise in rates of overweight and obesity, hospitals and other clinical care settings need to be given the funding and budget requirements necessary to purchase suitable equipment to provide optimal care to women with larger body sizes.

Staff Support (Education and Training)

Proper education and training for health care providers on weight and pregnancy has been viewed as an important aspect of providing optimal maternity care (see CMACE/RCOG, 2010). Thus, one of the questions we asked practitioners we interviewed was about their education in this area. Most had not received any formal education and were much more likely to encounter discussions related to this topic at conferences or workshops as part of their continuing medical education (CME):

> *"Primarily it's what I've picked up from continuing education either from conferences or rounds but not formalized training at all….Our specific discipline of obstetrics and gynecology in our final year where students [offer] clinical hands-on care of patients and receive some didactic teaching [however] we don't have a specific topic of obesity related problems for them at this time*."

Moreover, according to participants, the focus of CME and on-the-job training was on the physiological effects of overweight and obesity on mothers' and infants' health and did not include information on mental health or emotional support. For example, one practitioner stated:

> *"It was a thematic topic of a two day conference … a couple of years ago. Many of the speakers were addressing the issue of obesity in pregnancy from their particular area of expertise. So there were neonatologists speaking about mostly around the effects of diabetes on newborns. There were anaesthesiologists who were speaking about their dilemmas in terms of anesthesia and caesarean birth. Obstetricians talking about how they feel their care is impacted. So that was interesting. A lot of our colleagues were there. A lot of family doctors who provide maternity care. Obstetricians and midwives …. So, other than that there's been no formal training."*

Similarly, another health care provider offered:

> *"I mean I've gone to lectures about specific concerns about obese women - pre-conceptually the increased risk of anatomical defects, the risk factors around macrosomic infants, and looking after women and trying to assess women, especially the morbidly obese. So I mean it's just been education courses that I've attended. . . some of them have been . . . organized through the [hospital]."*

We found that health care providers were more likely to receive formalized training related to the physical handling of patients with elevated BMIs and/or use of specialized equipment that might be needed than they were to have discussions about issues related to weight and pregnancy. While one participant indicated that her specialized technical training was offered by the health region after she was hired to her maternity care position, most practitioners we interviewed said they learned these techniques "*on the job.*" In addition, some of the practitioners we spoke with said that they took on the responsibility of training newer staff on the use of technical equipment for pregnant women with larger BMIs:

> *"When I orientate new nurses into the O.R., I do train and teach them how to put on . . . compression pump stocking and sleeves are well-used. . . It's like any equipment if it's necessary for that patient then they can use it so they need to be aware of it and how to use it and they know that I am their resource or each other or other senior nurses"*

Attitudes

We know from the literature that peoples' negative attitudes towards overweight and obese individuals occur in a variety of settings and have an influence on overweight and obese women's and men's experiences of education, employment and general health care (Puhl & Brownell, 2008). Therefore, we wanted to ask practitioners about their attitudes – and those of their colleagues – towards working with overweight and obese pregnant women. The majority of health care providers we interviewed said they were either fine or quite happy to work with this population. In fact, some noted that it was now more of a norm to work with pregnant women who are overweight or obese than non-overweight/obese women. For example, two practitioners shared:

> *"Very frequent [seeing women classified as overweight or obese]. It's more the norm than not."*

> *"About 80% of those [pregnant women] are overweight or obese. … In our clinic, I would like to think that we are very supportive and I do feel good about the care that we provide. And I haven't heard a lot of negative things within our system. And I think part of the reason again is because overweight and obesity is becoming such of a norm in our society that maybe there's not as much of a stigma to it as there was maybe even 20 years ago. I'm sure there probably is but I don't feel like I see a lot of it."*

Further, there were a number of health care providers who said that the care they provided was not contingent on the size of a woman. For example, one practitioner said, "*There's nothing specific, we treat them all the same*." While at first glance, this comment may seem positive in that practitioners do not discriminate based on weight, we also felt that we had to raise the question here of whether or not treating overweight and obese women in the exact same manner as non-overweight/obese women was a disservice to this particular group. As we saw earlier in the report, many practitioners did not discuss issues of weight with their patients and many women we interviewed did not link their

overweight or obesity to specific health outcomes. While we do not want women to receive different levels of care based solely on their weight, we caution that treating overweight and obese women the same as non-overweight/obese women may lead to them being ill-informed about their pregnancies.

In addition to participants who expressed positive or neutral feelings towards larger sized women, some health care providers believed that many practitioners were not fond of working with overweight and obese pregnant women. Some practitioners told us they had witnessed blatant bias – in word or deed -- towards overweight and obese women and said they were at a loss for how to fix the problem. As one provider noted:

> *"All of us hate it and I know they pick up on it. Ideally it would be better if they never got that way but there you are; I don't know what you would do. Some physicians are totally rude to their patients even about it and I don't think that's the way to go about it. It's a problem – it's a big problem."*

In most cases though, the difficulties described stemmed mainly from a lack of needed resources as well as worries about health risks and the emotional well-being of the women:

> *"You know, sometimes [you] could regard them as a population of special needs if they are very large. And [their] needs aren't necessarily met by the system. And it's usually themselves who are blamed for... There's more of a blame culture being obese than about any other physical feature that women might come in with. They say it's their own fault."*

> *"I think it depends on the physician; there's no strong guidelines that say that a family physician can't take care of a patient and they have to refer. Some physicians would say this is more risk than I can handle and refer them immediately and then some physicians would say I can take care of anybody... For the morbidly obese patient with BMIs over 40, I guess the specialist in the community would suggest that patient be taken care of by a specialized physician because of the increased risk of medical difficulties, but there's no mandatory requirement that I am aware of."*

> *"There's not enough. There's very limited resources. There's stereotypic ideas. They're [overweight and obese women] frowned upon. You know, comments are made. The attitude is different. I'm not saying everybody, but there is some negativity out there. Very much so."*

In general, practitioners expressed the desire to provide care with sensitivity, particularly in light of potential body image issues overweight and obese women may experience, and maintaining awareness and understanding around the complexities of the women's lives and feelings. As two practitioners noted:

> *"To have a better understanding of how to respect and accommodate each individual woman's experience with her own body image, her own expectations for care, and her own decision-*

making processes, I think. To have it just more woman-centred. That's kind of an easy way to put it. More woman-centred rather than policy-centred. I think that could make care more comprehensive and more respectful."

"We really get to know them, I think, and we do get to spend a little bit of time with them to look... So that we don't just see their weight and see it as a problem, I guess. So I think just improving sensitivity and maybe sensitivity training around pregnant women with obesity. Maybe finding out why they...you know, how they got there and different issues that can cause someone to become overweight rather than just like having a blame or that kind of feeling, I suppose."

Approaches to Maternity Health Care

We found there were four main approaches to providing information and maternity care, which we describe as: (1) informative and engaging, (2) direct and professional, (3) insufficient or avoidant, and (4) insensitive. It was common for women to encounter a variety of health care providers throughout their pregnancies who used any one of these approaches. Further, practitioners talked about using more than one approach depending on individual cases.

Informative and Engaging

A highly valued approach to conversations and practices by both women and health care providers was one that was informative and engaging. Eleven of the 15 practitioners we interviewed described using this kind of approach. Strategies for increasing sensitivity around the topic included being more gentle and collaborative in nature, establishing a supportive and nonjudgmental environment, learning about women's weight histories, and recognizing their specific circumstances. Some practitioners eased into the conversation by stating upfront that their policy was to provide all women with the same information they needed to have a healthy pregnancy, regardless of their size, which was viewed as a highly effective approach. Another strategy commonly used by health care professionals was to ask probing questions to assess women's willingness to talk about weight-related issues. The following two excerpts explain this approach from the perspectives of the health care providers:

"Well, you know, I think we talk about a lot of things that worry people. And often people don't want to talk about them but I just very gently see... You know if people sense that I won't blame them about it, that my approach is really to support them personally and help them personally, that's all I'm there for. I'm not there to judge or blame them for anything. That it's an opportunity to talk about it [weight] and explore it a bit."

"So rather than, you know, discussing their weight right off, we ask some probing questions about how they feel about their weight or, you know, do they see it as a concern or are they comfortable where they are, and go from there..."

Eight women said they appreciated health care providers who were willing to listen to them and have a full discussion about the information and care their providers were offering. In these cases, women described gaining new perspectives and strategies related to their circumstances, feeling that they had been heard and were given the space to ask questions, being supported, and working collaboratively with their health care providers. The following excerpt illustrates this affirmation:

> *"And my doctor was... She wasn't the one who followed us during the pregnancy because we were followed by [the Perinatal Centre]. But she was definitely supportive with trying to... You know, we talked about my food intake. We talked about different strategies. She was very open and in a caring way, supportive of but also very realistic that, you know, overweight was a risk factor. So she was very honest with that.*"

Direct and Professional

A direct and professional approach to communicating weight-related issues and corresponding practices, such as weight gain, nutrition and exercise, and physical health implications, was viewed favourably by 11 of the 18 women we interviewed. These women stated that they felt their providers were offering the information they required and would discuss and address concerns when they arose, creating a sense of reassurance for the women. For example, one participant said, *"For the most part, it made me feel very comfortable with her. And I did think that she was a pretty honest lady, and if she thought I was doing something really wrong that she would then intervene."* While some women valued their providers' neutral approach, others said they would have appreciated more engagement or emotional investment. One participant explained, *"I mean there were times certainly for some other reasons where you're just... You're really excited about this pregnancy. You know, you want a little bit more emotion out of the person you see."* However, the majority did express a general sense of satisfaction with this approach and felt comforted knowing that while their providers may not have connected with them emotionally, they nonetheless provided them with valuable information. At least eight health care providers we interviewed described providing information in a direct and professional manner.

Insufficient or Avoidant

A third communication style described by at least ten women we interviewed was one of health care providers failing altogether to provide weight-related information, either avoiding the issue by not answering patients' questions or using anecdotes instead of facts to get around the issue. For example, in speaking about the maternity care she received in her home country compared to Canada, one woman said:

> *"The difference between Canada and [home country] as well is that every time I have go to a doctor he tries to calm me down and he says, 'My kids had that and that and they're okay.' I will say, 'Just give me the information about risks and diet,' which is something a [home*

county] doctor would do. Every doctor here will just say just do this and they'll be fine and I'll take care of you."

The women believed that there were a number of contributing factors associated with this particular method of information delivery and clinical practice, including a lack of time and consistency with their primary maternity health care providers. We found that some health care providers were uncomfortable bringing up weight and said that women often became embarrassed when they did. This finding is consistent with other research (see Heslehurst et al., 2001). For example, one health care provider said, *"Yes. Like I think that people have a discomfort with [weight]... Not everybody but a lot of people. And people have said, look, I don't know how to bring this weight up to this patient, and not feeling comfortable bringing the topic up…"* Additionally, health care providers found it difficult to determine how to deliver a balance of information, explaining that they did not want to worry or upset their patients. As a result, many simply chose not to bring up the subject. Speaking from prior experiences, health care providers also feared that if they discussed weight, women would not return for care. Several also felt that it was more important to focus on elements of a healthy pregnancy rather than make an issue of the woman's weight or any risks it might pose. As one provider explained, being torn between these issues often resulted in the use of avoidance or limited disclosure:

"I think probably the biggest challenge is trying to assess how big a deal to make of it – I feel torn. The literature is clear that the women who are obese are likely to have more complications they will have with the birth. Does that mean everyone is going to have them? No. The less weight they gain in pregnancy, based on a healthy diet of course, the better the odds are for their birth outcome. For many women, however, focusing on diet and size in pregnancy doesn't help and probably harms."

Insensitive

The final style described by women participants was an insensitive approach to information delivery and maternity care practices. This approach may or may not have been intentional and included such actions as health care providers making hurtful comments to overweight and obese pregnant women, not listening to them, or making assumptions about women's lifestyles based on their size. While none of the health care providers we interviewed said they used this type of approach, nine had witnessed other health care providers responding to women negatively and unprofessionally. For example, one health care provider said, "*Some physicians are totally rude to their patients even about it [their weight] and I don't think that's the way to go about it. It's a problem – it's a big problem."*Another explained:

"Some of the doctors have a hard time with the fact that they're [the patients] overweight... Their personal opinions come into play. And I have heard the anaesthetists [say]... 'You're too fat. I can't get this. You're too fat.' And going on and on and on about it while they're trying to

put an epidural in. And I think, you know, here this woman is in pain and this doctor telling her that. And I mean what is the point? You know, why would they make her feel...belittle her while she's trying to get some pain control at the worst time? Why would you say that to her? And there is a surgeon too that would be very opinionated with that, although he's not as blunt as what these other two anaesthetists would be."

Other practitioners had patients disclose personal experiences of discrimination to them. As one health care provider described, *"we had a lot of conversations about her weight and her feelings about that, and her feelings of being discriminated because of it, and being looked down on and treated as not as good because of it."* Health care providers who had observed instances where their colleagues had used an insensitive approach to discussing information and/or performing certain tasks with women said that it diminished the quality of maternity care women received. They were also concerned that it might leave women reluctant to have any further contact with health care providers:

"There's a lot of different ways that you can approach it rather than just saying you're overweight, you need to exercise more and eat less. You know, people have seen and heard that, and it's just not helpful. In fact, it's probably harmful in that it might just keep people away from getting care."

It was also evident from the experiences of the women that some practitioners were insensitive in their communications and practice styles. Fourteen out of the 18 women we interviewed had received a distressing comment related to their weight at least once during their pregnancy. For example, one woman had a doctor say that she "*would die at an early age for being so morbidly obese and why would you leave a child with no parent."* While this was an extreme example, there were many other illustrations of less harsh – but equally distressing – comments that were made towards the women we interviewed. Another participant told us:

"I went back [to my doctor] and said that I was really concerned because I had gained a lot of weight. I don't want complications and I was afraid I was going to have a huge baby because that is what the ultrasound said. She said 'I don't want you take this the wrong way, but you are a bigger boned woman, so you can handle a bigger baby.'"

We found that the manner in which participants received information from their health care providers made a profound impact on how they felt both about themselves and their health care providers, as well as the care they received and if they had been adequately informed. For instance, women who were overweight or obese were much more likely to be open to discussions about weight with health care providers if they were approached using one of the two favourable strategies outlined above. Having an encounter with someone in the health field who was insensitive in their approach to information delivery and care practices, not surprisingly, had a negative effect on women. Many of the women we spoke with described feelings of hurt as a result of the remarks health care providers made. For example, when one woman was asked about how she felt when her doctor told her she was

big boned and could carry a larger baby, she said, "*I don't know. I was offended. She's such a nice woman and I don't think she meant it to be rude. It offended me because I'm bigger boned and that sucks..."*

As we saw in one of the previous section of the report, women also described stronger feelings of being stigmatized or openly discriminated against because of their weight, which in turn affected their ability to communicate with their health care providers, particularly around issues related to their weight. As one woman expressed about a doctor she encountered early in her pregnancy, "*I think that her whole attitude was that she had no tolerance for someone who was overweight and was going to make life miserable for anyone who was overweight. I truly believe that. It was how she thought of people in society…"* As a result of the distressing comments women received and the overall discomfort and dissatisfaction women felt towards their caregivers due to these comments, five women switched primary providers. A sixth woman told us that she had wanted to change doctors for the same reasons, but was unable to do so.

DISCUSSION

Overweight and obesity in pregnancy are complex issues that are difficult for both the women who experience it and their health care providers to navigate. While some women are open to discussions related to their weight during pregnancy, others are reluctant and uncomfortable with the topic – making it challenging for practitioners to decipher how to best support overweight and obese women throughout all stages of pregnancy. Further, few resources are available to practitioners to help them in their quest to provide optimal maternity care for this group of women. Clinical care guidelines have only recently emerged and given the relative newness of these documents many health care providers are not aware of them. Additionally, there is little information on how to implement many of the recommendations contained in these guidelines. This study provides new information and insight from both parturient women and from practitioners.

This research suggests that, for the most part, practitioners are committed to providing overweight and obese pregnant women with the highest quality of care. But challenges stand in their way: limited training, lack of appropriate equipment and other infrastructure supports, widespread weight-based stigma and discrimination. Yet we found that, even with the best of intentions, some health care providers are simply not engaging in discussions about weight and pregnancy with their patients – and they need to be open to these conversations with their patients. Among those we interviewed, women appear to be the ones initiating these dialogues when they do happen. While some women are content with not discussing issues of weight in relation to their pregnancy, others want to be informed about any and all factors that can affect their pregnancies, as well as their own health and that of their babies.

Health care practitioners we interviewed are knowledgeable about physical health risks associated with overweight and pregnancy. However, there appears to be a disconnect between their knowledge and women receiving this vital information. From our interviews we found that health care providers need to be talking to women about weight-related information and clinical care practices, including weight loss and gain, weight monitoring, diet and exercise, and health outcomes – and they need to be doing it with sensitivity and an awareness that women come from different life circumstance and have differing responses to these conversations.

Our findings suggest that in order to increase sensitivity health care providers should undertake weight-related conversations and clinical care practices using one or both of the effective approaches to maternity care outlined earlier: (1) informative and engaging, and/or (2) direct and professional. If practitioners could reassure their clients that it is their policy and practice to discuss weight with all women regardless of their size, then overweight or obese women may not feel stigmatized. Beginning with this standard practice will also help practitioners to gauge women's willingness to continue the conversation based on their initial responses or body language

Among the key components of a sensitive and respectful approach to information delivery and maternity care practices is to involve women in the decisions about their care and in formulating pregnancy and delivery plans. For example providers can describe their standard methods for

weighing women at prenatal visits, but then give their patients an opportunity to decide where they would like to be weighed (i.e., at home or in a clinical care setting), by whom (i.e., self or health care provider), and how frequently. As our findings suggest, some women may not have a preference, but for those who are uncomfortable with weigh-ins, giving them privacy and some decisions on how to monitor their weight is an essential way to increase sensitivity and gain their respect.

We think that it is also important for health care providers to discuss weight-related topics – particularly health risks – within a framework that informs women, but does not assume that these outcomes are necessarily true for all overweight and obese women. Practitioners should recognize that many factors are at play when it comes to women's health and weight and a focus on overall health instead of just women's weight can be more sensitive and can strengthen the relationship with patients. As participants highlighted, it is frustrating when practitioners assume that a woman who is overweight or obese is automatically unhealthy and invariably has an unhealthy approach to eating and exercise. As we saw, despite their appearance women may eat well and be physically active. Further, there are many factors, such as income, employment, education, place of residence, and social support networks, that affect individual women's ability to eat a healthy diet or to exercise. For some women, diet and physical activity are not "choices" they make, because they are not realistic options and health care providers need to understand this when offering advice or support. Thus, it is important not only for health care providers to offer patients the information they need, but help find strategies that they can realistically use.

Focusing on overall health and well-being (including physical, psychological, emotional, and social factors) may also help decrease much of the focus we saw around weight gain during pregnancy. As we mentioned, the most frequently discussed weight issue was total recommended weight gain during pregnancy. Expectations to gain little weight in pregnancy can be unrealistic for many women who struggle with overweight and obesity. It is unreasonable to think that women can always control the amount of weight they gain through their pregnancy and ignore mitigating factors. These kinds of expectations often left women feeling defeated early in and throughout their pregnancies and many carried a lot of guilt. A focus on health that includes but is not reduced to weight can encourage discussions and strategies for increasing well-being for mothers and babies, whether women are already engaging in physical activities and eating well or need to make substantial changes to their daily routines.

Inter-professional care teams that include family physicians, obstetricians and gynaecologists, midwives, anaesthesiologists, nurses and dieticians may also be another way to ensure that overweight and obese women receive the highest quality of care possible in all stages of pregnancy. In fact, women who had been cared for by an interdisciplinary team during their pregnancy spoke highly of this clinical care model. While many models of health care emphasize a team approach and they are endorsed by many health authorities across Canada, some regions have been more successful than others in implementing this approach. More research is needed in this area to determine the effectiveness of team versus individualized maternity care for overweight and obese women, but we encourage health care providers to take advantage of all opportunities to collaborate with other

professionals, as well as community resources to better support overweight and obese pregnant women.

The more that health care providers can connect women to community resources to increase their health and well-being, the more positive overweight and obese women may feel about their pregnancies and the maternity care they receive. For example, women and health care providers in our study discussed the benefits of having community and health care partnerships through the provision of community based weight loss and healthy living programs. They explained one weight and nutrition program put on by a local grocery chain was helpful not only in providing women with valuable information and strategies, but also in providing emotional support. Furthermore, engaging the community and schools to introduce curriculum on weight and pregnancy into their sexual and reproductive health courses may allow more women to receive the vital information they need before they become pregnant. As we mentioned earlier, many women do not plan their pregnancies, therefore they may not benefit from the pre-conception weight-loss consultations recommended in clinical care guidelines. Introducing this information into the school curriculum may be one way around this pitfall. Community-based services and programs may also help assist overweight and obese women after pregnancy with such issues as breastfeeding and weight loss. Local organizations and community-based clinics may be better able to address the non-clinical challenges women face.

There are no easy answers for how to engage in weight-related conversations and maternity care practices given the complexity of the issue for women, as well as their health care providers. The topic itself can be very uncomfortable for both sides, but finding ways to increase sensitivity and respect around weight-related issues (such as those we have outlined here in the discussion) will lead to increased quality of care for this particular group of women. Further, as we continue to engage more in these conversations, both at the individual level – between overweight and obese women and their practitioners – and at a broader level – through research, policy analysis and advice, and knowledge-sharing events – we will continue to expand our ideas about how to best support overweight and obese women and their maternity care providers prior to, during and after pregnancy.

RECOMMENDATIONS

This study suggests that health care providers are not consistently engaging women in conversations about weight and pregnancy and related clinical care practices. In order to ensure women receive the highest quality of care possible it is essential that health care providers talk about maternal overweight and obesity and provide maternity health care in a sensitive and respectful manner. To support this aim, we make the following recommendations based on the research findings:

1. Some approaches to discussing weight-related issues and maternity care practices were more effective than others. To increase the level of quality maternity care overweight and obese women receive, we recommend that health care providers adopt at least one of the two valued approaches: (1) an informative and engaging approach where practitioners use gentle and collaborative methods to engage women, establish a supportive and non-judgmental environment, actively learn about women, their histories, and their specific circumstances and/or (2) a direct and professional approach where women feel reassured that their health care providers will discuss concerns directly and informatively and will not withhold information.

2. Broaching the topic of weight was often difficult and uncomfortable for both women with overweight or obesity and their health care providers. We recommend that practitioners state upfront that it is their policy to discuss weight-related and engage in particular practices, such as monitoring weight, with all patients.

3. Many of the women who shared feelings of dissatisfaction about their maternity care felt that they had been made to do certain things that made them uncomfortable, such as being weighed in a public space and having their weight disclosed aloud. We recommend that practitioners provide women with options and allow them to make choices in their care and pregnancy plans, as well as have input in decisions made throughout all stages of pregnancy.

4. Placing a large focus on BMI and total recommended weight gain, as well as routinely weighing women, was emotionally distressing for many participants. We recommend that health care providers focus their practices and discussions on elements for a "healthy pregnancy" rather than concentrating on "the numbers." By changing the focus to health and well-being in pregnancy, women with overweight or obesity may feel less guilt and self-blame, have fewer fears of being judged or lectured about their weight, and may feel less stigmatized and discriminated against because of their weight.

5. Social factors contribute to women's struggle with overweight and obesity and play a large role in their pregnancy and maternal health care experiences. We recommend that health care providers take the social context of women's lives into consideration. By addressing social factors that may create health inequities for women, including challenges for achieving and maintaining healthy weights, practitioners can offer more appropriate strategies to increase the psychological, emotional and physical health and well-being of women with overweight or obesity during pregnancy.

6. Due to the complexity of overweight and obesity in pregnancy, which may require additional health supports and medical intervention, and the favourable attitude women had towards interprofessional maternity care teams, it is recommended that an interprofessional, collaborative approach be utilized where professionals including family physicians, obstetricians and gynaecologists, midwives, anaesthesiologists, nurses, dieticians and community agencies would work together with women to provide the best care, services and support possible prior to, during and after pregnancy.

7. Given that many health care providers may not have had much education or training with respect to working with overweight and obese pregnant women, we recommend that practitioners create or seek out opportunities to increase their knowledge about overweight and obesity throughout all stages of pregnancy.

8. A lack of appropriate equipment for larger sized bodies prevents the provision of optimal maternity care for overweight and obese women. We recommend that hospitals and community clinics assess whether their equipment and resources are adequate and in sufficient quantity to meet the needs of larger sized patients and identify needed equipment and resources.

REFERENCES

Amador, N., Judrez, J.M., Guizar, J.M., & Linares, B. (2008). Quality of life in obese pregnant women: A longitudinal study. *American Journal of Obstetrics & Gynecology, 198*(2), 203.e1-203.e5.

American Congress of Obstetricians and Gynecologists (ACOG). (2009). Clinical Management Guidelines for Obstetrician–Gynecologists: Bariatric Surgery and Pregnancy. ACOG Practice Bulletin. *American Journal of Obstetrics & Gynecology, 6*(113), 1405-13.

Allison, K.C., Sarwer, D.B., & Pare, E. (2007). Issues related to weight management during pregnancy among overweight and obese women. *Expert Review of Obstetrics & Gynecology, 2*(3), 249-254.

Amir, L & Donath, S. (2007). A systematic review of maternal obesity and breastfeeding intention, initiation, and duration. *BMC Pregnancy and Childbirth 7:9* doi:10.1186/1471-2393-7-9.

Arendas, A., Qiu, Q., & Gruslin, A. (2008). Obesity in pregnancy : Pre-conceptional to post- partum consequences. *Journal of Obstetrics and Gynaecology Canada, 30*(6), 477-488.

Association of Ontario Midwives (AOM). (2010). Clinical practice guideline No. 12: The management of women with a high or low body mass index. Toronto, ON: Author.

Bernier, J.R., & Hanson, Y. (2012). *Overweight and Obesity in Pregnancy: A Review of Evidence*. Halifax, NS: Atlantic Centre of Excellence for Women's Health.

Bhogul, K. & Jayawardane, I.A. (Dec 2008-Jan 2009). Obesity on obstetrics: New challenges and solutions using abdominal fetal ECG. *Midwives Online*.

Brennand, E., Dannenbaum, D., & Willows, N. (2005). Pregnancy outcomes of First Nations women in relation to pregravid weight and pregnancy weight gain. *Journal of Obstetrics & Gynecology Canada, 27*(10), 936-44.

Bryant, A., Worjoloh, A., Caughey, A., & Washington, E. (2010). Racial/ethnic disparities in obstetric outcomes and care: Prevalence and determinants. *American Journal of Obstetrics and Gynecology,* doi: 10.1016/j.ajog.2009.10.864

Buchanan, T. & Kjos, S. (1999). Commentary: Gestational diabetes: Risk or myth? *The Journal of Clinical Endocrinology & Metabolism, 84* (6), 1854-7.

Catalano, P. M., & Ehrenberg, H.M. (2006). The short- and long-term implications of maternal obesity on the mother and her offspring. *BJOG: An International Journal of Obstetrics & Gynaecology, 113*(10), 1126–33.

Catalano, P., Presley, L., Minium, J., & Hauguel-de Mouzon, S. (2009). Fetuses of obese mothers evelop insulin resistance in utero. *Diabetes Care, 32*(6),1076-80. doi: 10.2337/dc08-2077

Catenacci, V. & Hill, J., Wyatt, H. (2009). The obesity epidemic. *Clinics in Chest Medicine, 30,* 415-44. doi:10.1016/j.ccm.2009.05.001

Centre for Maternal and Child Enquiries (CMACE) & Royal College of Obstetricians and Gynaecologists (RCOG). (2010). *Management of women with obesity in pregnancy.* London, UK: Authors.

Clark, H., van Walraven, C., Karovitch, A., & Keely, E. (2003). Did publication of a clinical practice guideline recommendation to screen for type 2 diabetes in women with gestational diabetes change practice? *Diabetes Care*, *26*(2), 263-8.

Cnattingius, S., Bergstrom, R., Lipworth, L., & Kramer, M.S. (1998). Prepregnancy weight and the risk of adverse pregnancy outcomes. *The New England Journal of Medicine, 338,* (3), 147-152.

Darling, L. (2006). Clinical practice guideline review: Screening for gestational diabetes. Toronto, ON: Association of Ontario Midwives.

Dartford & Gravesham. (2009). *Obesity in Pregnancy Guidelines*. NHS Trust. WAC023.

Dietz, P.M., Callaghan, W.M., Morrow, B., & Cogswell, M.E. (2005).Population-based assessment of the risk of primary caesarean delivery due to excess pre-pregnancy weight among nulliparous women delivering term infants. *Maternal and Child Health Journal, 9*, 237-44.

Di Lillo, M., Hendrix, N., O'Neill, M. & Berghella, V. (2008). Pregnancy in obese women: What you need to know. *Contemporary Ob/Gyn, 53*(11), 48-53.

Dresner, M., Brocklesby, J. and Bamber, J. (2006), Audit of the influence of body mass index on the performance of epidural analgesia in labour and the subsequent mode of delivery. *BJOG: An International Journal of Obstetrics & Gynaecology, 113*(10), 1178–81.

Emslie, C., Hunt, K., & Macintyre, S. (2001). Perceptions of body image among working men and women, *Journal of Epidemiology and Community Health*, *55,* 406-7.

Finer, L. & Henshaw, S. (2006). Disparities in rates of unintended pregnancy in the United States, 1994 and 2001. *Perspectives on Sexual and Reproductive Health, 38*(2), 90-6.

Fitzsimons, K.J., & Modder, J. (2010) Setting maternity care standards for women with obesity in pregnancy. *Seminars in Fetal & Neonatal Medicine*, *15*, 100-7.

Fox, P. & Yamaguchi, C. (1997). Body image change in pregnancy: A comparison of normal weight and overweight primigravidas. *Birth, 24*(1), 35-40.

Furber, C., & McGowan, L. (2010). The psychological impact of being overweight/obese during pregnancy (pp.205-229), In Y. Richens and T. Lavender (Eds.), *Care for pregnant women who are obese.* London: Quay Books.

Geissbuehler, V., Stein, S., & Eberhard, J. (2004). Waterbirths compared with landbirths: An observational study of nine years. *Journal of Perinatal Medicine, 32*, 308-14.

Gillman, M.W., Rifas-Shiman, S., Berkey, C.S., Field, A.E., & Colditz, G.A. (2003). Maternal gestational diabetes, birth weight, and adolescent obesity. *Journal of Pediatrics*, 111, e221-6.

Håberg, S., Stignum, H., London, S., Nystad, W., & Nafstad, P. (2009). Maternal obesity in pregnancy and respiratory health in early childhood. *Paediatric and Perinatal Epidemiology, 23*, 352-62. doi: 10.1111/j.1365-3016.2009.01034.x

Hampton, T. (2004). Maternal diabetes and obesity may have lifelong impact on health of offspring. *The Journal of American Medical Association*, *292*(7), 789-90.

Harper, B. (2010). *The well-rounded mama: Size acceptance warrior, birth activist, and one fierce mama.* Retrieved Feb. 26, 2010, from: http://wellroundedmama.blogspot.com/search/label/waterbirth

Health Canada. (2010). *Canadian community health survey: Self-reported health data.* Retrieved Mar 3, 2010, from: www4.hrsdc.gc.ca/.3ndic.1t.4r@-eng.jsp?iid=10

Health Canada. (2009) *Consultation report: Prenatal nutrition guidelines for health professionals.* Retrieved Jan 13, 2012, from www.hc-sc.gc.ca/fn-an/alt_formats/hpfb-dgpsa/pdf/pubs/omega3-eng.pdf

Health Canada. (2003). *Canadian guidelines for body weight classification in adults* (Catalogue H49-179). Ottawa, ON: Health Canada. Retrieved May 23, 2010, from www.hc-sc.gc.ca/fn-an/alt_formats/hpfb-dgpsa/pdf/nutrition/weight_book-livres_des_poids-eng.pdf

Hendler, I., Blackwell, S.C., Bujold, E., Treadwell, M.C., Mittal, P., Sokol, R.J., & Sorokin, Y. (2005). Suboptimal second-trimester ultrasonographic visualization of fetal heart in obese women: Should we repeat the examination? *Journal of Ultrasound Medicine, 24,* 1205-9.

Heslehurst, N., Lang, R., Rankin, J., Wilkinson, J.R., & Summerbell, C.D. (2007). Obesity in pregnancy: A study of the impact of maternal obesity on NHS maternity services. *BJOG: An International Journal of Obstetrics and Gyaecology, 114,* 334-42.

Hood, D.D., & Dewan, D.M. (1993). Anesthestic and obstetric outcome in morbidly obese paturients. Anesthesiology, 79, 1210-8.

Jevitt, C. (2009). Pregnancy Complicated by Obesity: Midwifery Management. *Journal of Midwifery and Women's Health,54*(6), 445–51.

Jones, S.M.L., Moragianni, V.A., & Ryley, D.A. (2011). Obesity significantly decreases live birth rate (LBR) following in vitro fertilization (IVF), even after controlling for all potential confounders. Fertility and Sterility, 3(Supplement), S82.

Kerrigan, A.M., & Kingdon, C. (2006). Maternal obesity and pregnancy: A retrospective study. *Midwifery, 26,* 138–46.

King, J. (2006). Maternal obesity, metabolism, and pregnancy outcomes. *Annual Reviews Nutrition*, *26*, 271-91.

Krause, K., Østbye, T., & Swamy, G. (2009). Occurrence and correlates of postpartum depression in overweight and obese women: Results from the active mothers postpartum (AMP) study. *Journal of Maternal and Child Health, 13*, 832-838. doi:10.1007/s10995-008-0418-1

LaCoursiere, D.Y., Baksh, L., Blocbaum, L., & Vaner, M.W. (2006). Maternal body mass index and self-reported postpartum depressive symptoms. *Maternal and Child Health Journal, 10*(4), 385-90.

LaCoursiere, D., Hutton, A., & Varner, M. (2007). The association of obesity, body image, and postpartum depression. *American Journal of Obstetrics & Gynecology,* doi:10.1016/j.ajog.2007.10.311

Lashen, H., Fear, K., & Sturdee, D.W. (2004). Obesity is associated with increased risk of first trimester and recurrent miscarriage: Matched case-control study. *Human Reproduction, 19*, 1644-6.

Lewis, G. (2007). *The Confidential Enquiry into Maternal and Child Health (CEMACH). Saving mothers' lives: Reviewing maternal deaths to make motherhood safer—2003–2005*. The seventh report of the Confidential Enquiries into Maternal Death in the United Kingdom. London, UK: CEMACH.

Linné, Y. (2004). Effects of obesity on women's reproduction and complications during pregnancy. Obesity Reviews, 5, 137-43.

Massiah, N., & Kumar,G. (2008). Obesity and pregnancy: A care plan for management. The Internet Journal of Gynecology and Obstetrics, 9(2).

Merrill, E., & Grassley, J. (2008). Women's stories of their experiences as overweight patients. Journal of Advanced Nursing, 64(2), 139-46.

Monynihan, A.T., Hehir, M.P., Glavey, S.V., Smith, T.J., & Morrison, J.J. (2006). Inhibitory effect of leptin on human uterine contractility in vitro. *American Journal of Obstetrics and Gynecology, 195,* 504-9.

Morin, K. (1998). Perinatal outcomes of obese women: A review of the literature. *Journal of Obstetric, Gynecologic, and Neonatal Nursing, 27,* 431-40.

Myles, T., Gooch, J., & Santolaya, J. (2002). Obesity as an independent risk factor for infectious morbidity in patients who undergo caesarean delivery. *American Journal of Obstetrics and Gynecology, 100*(5), 959-64.

National Institute for Health and Clinical Excellence (NICE). (2010). *Dietary interventions and physical activity interventions for weight management before, during and after pregnancy.* London, UK: NICE.

Nuthalapaty, F.S., & Rouse, D.J. (2004). The impact of obesity on obstetrical practice and outcome. *Clinical Obstetrics and Gynecology, 47* 898-913.

Nyman, V., Prebensen, A., & Flensner, G., (2008). Obese women's experiences of encounters with midwives and physicians during pregnancy and childbirth. *Midwifery,* doi:10.1016/j.midw.2008.10.008

Oddy, W., Li, J., Landsborough, L., Kendall, G., Henderson, S., & Downie, J. (2006). The association of maternal overweight and obesity with breastfeeding duration. *Journal of Pediatrics, 149*, 185-91. doi10.1016/j.jpeds.2006.04.005

Perlow, J.H., & Morgan, M.A. (1994). Massive maternal obesity and perioperative cesarean morbidity. *American Journal of Obstetrics and Gynecology, 170*, 560–5.

Perreira, L. (2009). Surgery in the Obese Pregnant Patient. *Journal of Clinical Obstetrics and Gynecology*
52(4), 546-56.

Poobalan, A., Aucott, L., Gurung, T., Smith, W., & Bhattacharya, S. (2008). Obesity as an independent risk factor for elective and emergency caesarean delivery in nulliparous women – systematic review and meta-analysis of cohort studies. *Obesity Reviews, 10*, 28-35.

Puhl, R., Moss-Racusin, C.A., Schwartz, M.B, & Brownell, K.D. (2008). Weight stigmatization and bias reduction: Perspectives of overweight and obese adults. *Health Education Research, 23*(2), 347-58.

Ramachenderan, J., Bradford, J., & Mclean, M. (2008). Maternal obesity and pregnancy complications: A review. *Australian and New Zealand Journal of Obstetrics and Gynaecology*, 48, 228–235.

Rasmussen, S.A., Chu, S.Y., Kim, S.Y., Schmid, C.H., & Lau, J. (2006). The prevalence and impact of overweight and obesity in an Australian obstetric population. *Medical Journal of Australia, 184*(2), 56-9.

Rasmussen, K.M., & Yaktine, A.L. (2009). *Weight gain during Pregnancy: Re-examining the guidelines*. Washington, DC: National Academies Press.

Razak, F., Anand, S., Shannon, H., Vuksan, V., Davis, B., Jacobs, R., Teo, K., McQueen, M., Yusuf, S., (2007). Defining Obesity Cut Points in a Multiethnic Population. Circulation, 115, 2111-8. doi: 10.1161/circulationaha.106.635011

Richens, Y., & Fiennes, A. (2009). Pregnancy following bariatric surgery. *British Journal of Midwifery, 17*(6), 356-59.

Robinson, H.E., O'Connell, C.M., Joseph, K.S., & McLeod, N.L. (2005). Maternal outcomes in pregnancies complicated by obesity. *Obstetrics & Gynecology, 106*, 1357-64.

Saravanakumar, K., Rao, S.G., & Cooper, G.M. (2006). Obesity and obstetric anaesthesia. *Anaesthesia, 61,* 36-48.

Sarwer, D., Allison, K., Gibbons, L., Tuttman Markowitz, J., & Nelson, D. (2006). Pregnancy and obesity: A review and agenda for future research. *Journal of Women's Health, 15*(6), 720-33.

Schrauwers, C. & Dekker, G. (2009). Maternal and perinatal outcome in obese pregnant patients. *The Journal of Maternal-Fetal & Neonatal Medicine*, *22*(3), 218-26.

Siega-Riz, A., & Laraia, B. (2006). The implications of maternal overweight and obesity on the course of pregnancy and birth outcomes. *Journal of Maternal and Child Health, 10,* S153-S156. DOI 10.1007/s10995-006-0115-x

Smith, S., Hulsey, T., & Goodnight, W. (2008). Effects of obesity on pregnancy. *Journal of Obstetric, Gynecologic, and Neonatal Nursing,* 37, 176-84. doi: 10.1111/j.1552-6909.2008.00222.x

Smith, G., Shah, I., Pell, J., Crossley, J., & Dobbie, R. (2005). Maternal obesity in early pregnancy and risk of spontaneous and elective preterm deliveries: A retrospective cohort study. American *Journal of Public Health, 97*, 157-62. doi:10,2105/AJPH,2005,074294

Smith, D. & Lavender, T. (2011). The maternity experience for women with a body mass index $\geq$ 30 kg/m^2: A meta-synthesis. *BJOG: An International Journal of Obstetrics and Gynaecology, 118,* 779-89..

Smirnakis, K., Chasan-Taber, L., Wolf, M., Markensen, G., Ecker, J., & Thadhani, R. (2005). Postapartum diabetes screening in women with a history of gestational diabetes. *Journal of Obstetrics & Gynecology, 106*(6), 1297-1303.

Society of Obstetricians and Gynecologists of Canada (SOGC). (Nov 2008). *Discussion Paper on the Fundamental ties of Maternal Health on Children's Health Outcomes*. Ottawa, ON: SOGC.

Society of Obstetricians and Gynecologists of Canada (SOGC). (2010). SOGC clinical practice guidelines: Obesity in pregnancy. *Journal of Obstetrics and Gynaecology Canada, 239*, 165-73. Retrieved Nov 23, 2011, from www.jogc.com/abstracts/full/201002_SOGCClinicalPracticeGuidelines_1.pdf

Soltani, H. (2009). Obesity in pregnancy: an evidence-based commentary. *Evidence Based Midwifery, 7*(4): 140-2.

Sparks, P. (2009). Do biological, sociodemographic, and behavioural characteristics explain racial/ethnic disparities in preterm births? *Social Science & Medicine, 68*, 1667-75.

Stothard, K., Tennant, P., Bell., & Rankin,J. (2009). Maternal overweight and obesity and the risk of congenital anomalies: A systematic review and meta-analysis. *Journal of the American Medical Association, 301*(6), 636-50.

Sweeting , H., & West, P. (2002). Gender differences in weight related concerns in early to late adolescence. *Journal of Epidemiology and Community Health*, *56*, 700-1.

Tennant, P.W.G., Rankin, J., & Bell, R. (2011). Maternal body mass index and the risk of fetal and infant death: A cohort study from the North of England. *Human Reproduction, 26*(6), 1501-11.

Thomas, S., Hyde, J., Karunaratne, A.S., Herbert, D., & Komesaroff, P.A. (2008). Being 'fat' in today's world: A qualitative study of the lived experiences of people with obesity in Australia. *Health Expectations, 11*(4), 321-30.

Torloni, M., Betran, A., Horta, B., Nakamura, M., Atallah, A, Moron, A., & Valente, O. (2009). Prepregnancy BMI and the risk of gestational diabetes: A systematic review of the literature with meta-analysis. *Obesity Reviews*, *10*, 194-203. doi: 10.1111/j.1467-789X.2008.00541.x

van der steeg, J.,W., Steures, P., Eijkemans, M.J.C., Habbema, J.D.F., Hompes, P.G.A., Burggraaff, J.M., Oosterhuis, G.J.E., Bossuyt, P.M.M., van der Veen, F., & Mol, B.W.J. (2007). Obesity affects spontaneous pregnancy chances in subfertile, ovulatory women. *Human Reproduction*, *23*(2), 324-8.

Vogel, N., Burnand, B., Vial, Y., Ruiz J, Paccaud, F., Hohlfeld, P. (2000). Screening for gestational diabetes: Variation in guidelines. *European Journal of Obstetrics & Gynecology and Reproductive Biology. 91*, 29-36.

Wall, P.D., Deucy, E.E., Glantz, J.C., & Pressman, E.K. (2003). Vertical skin incisions and wound complications in the obese parturient. *Obstetrics and Gynecology,102*, 952–6.

Watkins, M., Rasmussen, S., Honein, M., Botto, L., & Moore, C. (2003). Maternal obesity and risk for birth defects. *Pediatrics, 111*, 1152-8.

Wax, J.R. (2009). Risks and management of obesity in pregnancy: Current controversies. *Current Opinion in Obstetrics and Gynecology, 21*, 117–23.

Weber, M.M., Louik, C., Shapiro, S., & Mitchell, A.A. (1996). Pregnant weight in relation to risk of neural tube defects. *Journal of the American Medical Association, 275*, 1127-8.

Weir, Z., Bush, J., Robson, S.C., McParlin, C., Rankin, J., & Bell, R. (2010). Physical activity in pregnancy: a qualitative study of the beliefs of overweight and obese pregnant women. *BMC Pregnancy and Childbirth, 10*(8).

Wiles, R. (1998). The views of women of above average weight about appropriate weight gain in pregnancy. *Midwifery, 14*, 254-60.

Yogev, Y., & Catalano, P.M. (2009). Pregnancy and Obesity. *Obstetrics & Gynecology Clinics of North America, 36*, 285–300.

Yu, C., Teoh, T., & Robinson, S. (2006). Obesity in pregnancy. *British Journal of Obstetrics and Gynaecology, 113,* 1117–25. doi: 10.1111/j.1471-0528.2006.00991.x

Zhang, J., Bricker, L., Wray, S., & Quenby, S. (2007). Poor uterine contractility in obese women, *British Journal of Obstetrics and Gynaecology, 114*, 343-8.