



International Journal of Surgery Science

E-ISSN: 2616-3470

P-ISSN: 2616-3462

© Surgery Science

<https://www.surgeryscience.com>

2024; 8(1): 164-166

Received: 09-12-2023

Accepted: 17-01-2024

Dr. Asra'a Alnakeb

Medical Student, Dubai Medical
College, Dubai, United Arab
Emirates

Dr. Juhi Godara

Specialist Obstetrics and
Gynaecology, Dubai Hospital,
Dubai, United Arab Emirates

Dr. Ghaya Alrais

Medical Student, Dubai Medical
College, Dubai, United Arab
Emirates

Dr. Eman Khaled

Medical Student, Dubai Medical
College, Dubai, United Arab
Emirates

Navigating the impacts of excessive weight gain in pregnancy on obstetric outcomes: An in-depth evaluation

Dr. Asra'a Alnakeb, Dr. Juhi Godara, Dr. Ghaya Alrais and Dr. Eman Khaled

DOI: <https://doi.org/10.33545/surgery.2024.v8.i1c.1065>

Abstract

The prevalence of overweight and obesity in pregnancy has surged globally, posing significant challenges for maternal and fetal well-being during gestation and childbirth¹. Women with a pre-pregnancy body mass index (BMI) exceeding 25 kg m² encounter heightened risks of fertility issues, miscarriages, and stillbirth compared to those within the optimal BMI range of 20-24.99 kg m². Complications arising from overweight, obesity, and excessive weight gain during pregnancy increase the likelihood of life-threatening situations for both mothers and babies, along with complications during labor. Despite the critical phase of pregnancy being an opportunity for health guidance, present management of pregnancy weight gain and the impact of being overweight often fall short. Tailored interventions focused on dietary adjustments show promise in controlling weight gain and reducing pregnancy complications.

Keywords: Pregnancy complications, Maternal BMI, Gestational weight gain, Fertility, Miscarriage and stillbirth, polycystic ovary syndrome (PCOS), Gestational Diabetes Mellitus (GDM), Pre-Eclampsia (PE), Labor complications, Antenatal care

Introduction

Advanced medical care has considerably improved the safety of pregnancy and childbirth, especially in developed countries where maternal death rates are below 1 per 10,000 births^[7] and stillbirth and late fetal death rates range from four to six per 1000 births^[8]. This progress stems from factors like enhanced hygiene, better nutrition, and crucially, increased control over reproduction for women. With approximately 60% of pregnancies now planned beforehand^[9], there's an opportunity for lifestyle changes to enhance health during pregnancy and diminish the likelihood of adverse outcomes.

The safety of pregnancy and childbirth in high-income nations is a notable benefit of medicalized pregnancy care involving careful monitoring and intervention^[10]. While obstetric advancements benefit some women, there are concerns that the extensive medical management of pregnancy, especially during labor, might be excessively intrusive and might not justify the associated costs and loss of autonomy for women^[11].

Despite these advancements, dietary changes and weight management aren't consistently integrated into pregnancy care^[5]. Recommendations are often vague, focusing on listing items to avoid rather than providing specific guidance for a healthy diet.⁵ Considering the poor quality of many Western diets and the prevalent issue of overweight and obesity, this generalized approach is unlikely to be effective^[1].

Additionally, advice on weight gain during pregnancy is often lacking, especially before conception^[2]. This review emphasizes that avoiding excessive body fat should be a top priority for women planning pregnancy as it is the most significant risk factor for adverse pregnancy outcomes and complications^[2].

The prevalence of overweight and obesity varies globally, with the highest rates seen in Pacific island nations, the Caribbean, and the Middle East^[1]. Approximately 39 million pregnancies worldwide are affected by maternal obesity annually^[1]. In some countries, the prevalence of overweight and obesity in pregnancy exceeds 60%^[1]. In the UK, the combined prevalence of overweight and obesity is notably high among women of reproductive age, especially among

Corresponding Author:

Dr. Asra'a Alnakeb

Medical Student, Dubai Medical
College, Dubai, United Arab
Emirates

those from deprived areas, older mothers, and certain ethnic groups^[9].

This review explores the implications of overweight and obesity on pregnancy complications and outcomes^[2]. Overweight and excessive weight gain during pregnancy significantly increase the risks of infertility, pregnancy loss, complications during pregnancy and labor^[2], as well as maternal and fetal mortality^[3]. Managing gestational weight gain (GWG) is crucial for a successful pregnancy, and while some regions offer guidance on appropriate GWG, it's not consistently available, such as in the UK^[4].

Although overweight and obesity elevate the risks associated with pregnancy, it's essential to note that the majority of women with a BMI over 25 kg m⁻² will likely have normal pregnancies without major complications^[2]. Despite this, conditions like gestational diabetes, pre-eclampsia, and preterm birth remain concerns^[2], although the risk for each individual woman with obesity is relatively small^[2].

Impact on Reproductive Health

Body fatness significantly influences women's reproductive health, impacting menstrual cycle regularity and fertility^[12]. Obesity and underweight status disrupt hormonal balance, leading to ovulatory disorders and menstrual irregularities^[12]. Obesity-related infertility, often associated with leptin resistance, stands as a primary concern, affecting assisted reproductive therapies negatively^[8]. Moreover, obesity serves as a significant risk factor for polycystic ovary syndrome (PCOS) due to insulin resistance, influencing fertility issues^[8]. Addressing obesity through weight loss strategies and exercise remains key in restoring fertility in PCOS^[8].

Miscarriage, Stillbirth, and Maternal Risks

The maternal BMI significantly affects the risk of spontaneous miscarriage^[13], with both underweight and overweight statuses elevating these risks^[14]. While studies vary in establishing direct links between obesity and miscarriage, several indicate a noteworthy association, especially in Asian populations^[14]. Similarly, stillbirth risks are complex and influenced by multiple factors^[14], with both inadequate and excessive gestational weight gain impacting the likelihood of stillbirth^[13]. Maternal death risk during the perinatal period escalates with rising BMI, particularly due to cardiovascular complications^[13], accentuated during the COVID-19 pandemic^[13].

Pregnancy Complications

Overweight and obesity heighten the risks of several pregnancy complications, including Gestational Diabetes Mellitus (GDM)^[4], Pre-Eclampsia (PE)^[4], and labor-related issues like Symphysis Pubis Dysfunction (SPD) and post-partum hemorrhage^[4]. Obesity exacerbates the risk of GDM and PE due to insulin resistance and inflammatory states associated with excess adipose tissue^[4]. Labor complications, such as reduced uterine contractile proteins, lead to frequent interventions during labor and increased risks of caesarean sections among overweight and obese women^[4].

Long-Term Implications for Infants

Maternal obesity during pregnancy influences the long-term health of infants, potentially predisposing them to obesity, type-2 diabetes, and cardiovascular diseases in adulthood.

The Antenatal Period as a Teachable Moment

Pregnancy presents a teachable moment for women to adopt

healthier lifestyles^[9], yet obstacles like lack of awareness, timing of necessary changes^[15], and physiological challenges impact the adoption of healthier habits. Although pregnant women are open to health-related information^[9], the abundance of unreliable online sources and physiological changes affect lifestyle choices.

Challenges in Encouraging Healthy Choices

Encouraging lifestyle changes during pregnancy encounters obstacles like smoking and alcohol consumption among pregnant women^[15], with compliance varying across different demographic groups^[15]. Weight-related discussions with healthcare professionals often lack clarity, training, and sensitivity, hindering effective interventions^[15].

Strategies for Managing Weight Gain in Pregnancy

While the recommendations by the US Institute of Medicine for Gestational Weight Gain (GWG) are widely accepted for guiding healthy pregnancy outcomes for those with overweight or obesity^[3], there's a lack of clear directives on when and how to intervene for managing weight gain during pregnancy.³ In the UK, the focus in NICE guidelines is on attaining a healthy weight between pregnancies^[3], raising concerns that interventions during pregnancy might lead to weight loss or insufficient gain, the consequences of which are unknown for infants^[3]. Despite this, several NHS Trusts in the UK have established local services to prevent excessive weight gain, often with limited evidence-based approaches^[3].

Across various BMI categories, the initial 20 weeks of gestation witness modest weight gain (approximately 2.5 kg), followed by a three to fourfold increase in the rate of gain thereafter^[3]. This early-mid gestation period sets the stage for weight-related complications^[4], with gestational hypertension (GHT) potentially emerging from 20 weeks and gestational diabetes mellitus (GDM) from 24 weeks^[4]. However, since most women do not engage with antenatal services and health professionals until around 11-12 weeks of gestation^[4], there remains only a brief period to introduce strategies to prevent excessive weight gain before rapid gains might hinder the effectiveness of interventions^[3].

Regarding weight management, the approach should be relatively similar for pregnant and non-pregnant individuals, aiming to allow weight gain within healthy limits during pregnancy rather than focusing on weight loss^[3]. Physical activity plays a crucial role, encouraging previously sedentary women to reduce sitting time, include daily walks, and engage in continuous exercise for up to 15 minutes a day (like brisk walking or swimming) three times a week^[3]. Additionally, 150 minutes of moderate-intensity exercise per week is recommended. The unique aspect during pregnancy lies in the access to healthcare professionals who, if appropriately trained, could offer guidance on weight management^[3]. Specialist dietitians may also play a valuable role^[3], and the rise of eHealth resources like smartphone applications tailored to weight status is an innovative step to empower pregnant women in managing their health and fitness^[9].

There exists an extensive body of literature examining the effectiveness of interventions aimed at limiting GWG in overweight and obese women, with diverse outcomes^[16]. For instance, various interventions, from individualized nutrition plans to intensive counseling programs, have yielded mixed results^[16]. Large-scale randomized controlled trials (RCTs) focusing on limiting weight gain in pregnancy or enhancing neonatal health have shown inconsistent outcomes^[16].

The effectiveness of these interventions seems to depend on women's characteristics and the nature of the intervention, with diet-based approaches showing promise in reducing excessive GWG and related complications [16]. However, designing and implementing effective interventions at scale for overweight women remains challenging and could impose significant resource burdens on healthcare services [16].

Lessons from the Lincolnshire Bumps and Beyond intervention emphasized the success in reducing GWG and pregnancy complications in severely obese women [16], an achievement that larger RCTs have not replicated [16]. This points to the limitations of rigid RCT protocols in nutrition studies, where subject disengagement and minor side effects can influence outcomes [16]. Additionally, the low uptake of the program underscores the need to include hard-to-reach social groups, especially those at higher risk [16]. Cultural sensitivity and personalized experiences in interventions seem crucial for success, considering varied responses across different settings [16].

In summary, implementing effective interventions for managing weight gain during pregnancy requires flexible, adaptive, and multimodal approaches [16], possibly tailored to each woman's needs and culture. Training healthcare professionals in behavior change techniques [15], extending appointment times, and offering personalized, culturally sensitive interventions may enhance the success of interventions aimed at managing weight in pregnancy [16].

Conclusion

As overweight and obesity rates continue to rise globally, the risks they pose to pregnant women and their babies necessitate urgent interventions. Implementing effective strategies in primary care requires investments in healthcare professional training and personalized interventions. Leveraging the teachable aspect of early pregnancy through eHealth approaches could potentially maximize impact in antenatal weight management.

References

1. Chen C, Xu X, Yan Y. Estimated global overweight and obesity burden in pregnant women based on panel data model. *PLoS One*. 2018;13:e0202183.
2. Marchi J, Berg M, Dencker A, Olander EK, Begley C. Risks associated with obesity in pregnancy, for the mother and baby: A systematic review of reviews. *Obes Rev*. 2015;16:621-38.
3. Mamun AA, Callaway LK, O'Callaghan MJ, Williams GM, Najman JM, Alati R, *et al*. Associations of maternal pre-pregnancy obesity and excess pregnancy weight gains with adverse pregnancy outcomes and length of hospital stay. *BMC Pregnancy Childbirth*. 2011;11:62.
4. Mutsaerts MA, van Oers AM, Groen H, Burggraaff JM, Kuchenbecker WK, Perquin DA, *et al*. Randomized trial of a lifestyle program in obese infertile women. *N Engl J Med*. 2016;374:1942-53.
5. Harrison CL, Teede H, Khan N, Lim S, Chauhan A, Drakeley S, *et al*. Weight management across preconception, pregnancy, and postpartum: A systematic review and quality appraisal of international clinical practice guidelines. *Obes Rev*. 2021;22:e13310.
6. Bahri Khomami M, Walker R, Kilpatrick M, de Jersey S, Skouteris H, Moran LJ, *et al*. The role of midwives and obstetrical nurses in the promotion of healthy lifestyle during pregnancy. *Ther Adv Reprod Health*. 2021;15:26334941211031866.

7. Law A, McCoy M, Lynen R, Curkendall SM, Gatwood J, Juneau PL, *et al*. The prevalence of complications and healthcare costs during pregnancy. *J Med Econ*. 2015;18:533-41.
8. Gambineri A, Laudisio D, Marocco C, Radellini S, Colao A, Savastano S, *et al*. Female infertility: which role for obesity? *Int J Obes Suppl*. 2019;9:65-72.
9. Deputy NP, Dub B, Sharma AJ. Prevalence and trends in prepregnancy normal weight - 48 states, New York City, and District of Columbia, 2011-2015. *Morb Mortal Wkly Rep*. 2018;66:1402-7.
10. Leeners B, Rath W, Block E, Görres G, Tschudin S. Risk factors for unfavorable pregnancy outcome in women with adverse childhood experiences. *J Perinat Med*. 2014;42:171-8.
11. Verweij EJ, Koster MPH, van Kooij BJM, Groen H, Hoek A, Roeters van Lennep JE, *et al*. The prevention of pregnancy complications in overweight and obese women: A Dutch national implementation study. *Eur J Obstet Gynecol Reprod Biol*. 2014;176:35-43.
12. Sermondade N, Huberlant S, Bourhis-Lefebvre V, Arbo E, Gallot V, Colombani M, *et al*. Female obesity is negatively associated with live birth rate following IVF: a systematic review and meta-analysis. *Hum Reprod Update*. 2019;25:439-51.
13. Voerman E, Santos S, Inskip H, Amiano P, Barros H, Charles MA, *et al*. Association of gestational weight gain with adverse maternal and infant outcomes. *JAMA*. 2019;321:1702-15.
14. Mourtakos SP, Tambalis KD, Panagiotakos DB, Antonogeorgos G, Alexi D, Georgoulis M, *et al*. Maternal lifestyle characteristics during pregnancy, and the risk of obesity in the offspring: a study of 5,125 children. *BMC Pregnancy Childbirth*. 2015;15:66.
15. Liu J, Song G, Zhao G, Meng T. Relationship between weight retention at 6 weeks postpartum and the risk of large-for-gestational age birth in a second pregnancy in China: a retrospective cohort study. *BMJ Open*. 2021;11:e049903.
16. Poston L, Caleyachetty R, Cnattingius S, Corvalán C, Uauy R, Herring S, *et al*. Preconceptional and maternal obesity: epidemiology and health consequences. *Lancet Diabetes Endocrinol*. 2016;4:1025-36.

How to Cite This Article

Alnakeb A, Godara J, Alrais G, Khaled E. Navigating the impacts of excessive weight gain in pregnancy on obstetric outcomes: An in-depth evaluation. *International Journal of Surgery Science* 2024; 8(1): 164-166

Creative Commons (CC) License

This is an open-access journal, and articles are distributed under the terms of the Creative Commons Attribution-Non Commercial-Share Alike 4.0 International (CC BY-NC-SA 4.0) License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.