

In search of balance

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Valorisation

In this valorisation addendum we explain the societal value of this thesis, “In search of balance: promoting healthy gestational weight gain”. In addition, we describe how the findings can be used to benefit maternity care.

Relevance

The research presented in this thesis addresses gestational weight gain (GWG) in healthy pregnant women.

Unhealthy GWG is associated with obesity and overweight in both mothers and babies. Obesity is associated with health problems in life, which makes unhealthy GWG a social and economic burden for society. Therefore it is crucial to find ways to prevent unhealthy GWG. In this thesis, we add to the body of knowledge on how to stimulate healthy GWG in all pregnant women. As in 2015 in the Netherlands more than 150.000 children were born, and less than half of their mothers reached a healthy GWG, many women and their children are at risk for overweight and obesity related to their GWG during pregnancy.

Pre-pregnancy Body Mass Index (BMI)

To begin with, we revealed in two studies, both described in this thesis, that pre-pregnancy BMI in healthy women was not associated with GWG as recommended by Institute of Medicine (IOM)-guidelines, which are the most common guidelines on GWG. These guidelines recommend for women of normal weight a GWG in the range of 11.5 to 16.0 kg. Women with a lower pre-pregnancy BMI are advised to gain more weight for GWG within the IOM-guidelines than women of normal weight, and women with a higher pre-pregnancy BMI are advised to gain less weight for GWG within the IOM-guidelines. In the international literature pre-pregnancy BMI is recognized as a factor associated with GWG outside the IOM-guidelines. This means that overweight and obese women, when compared to normal weight women, more often have higher GWG than the guidelines recommend. Pathology also tends to occur more often in these categories. In contrast to the international literature, our studies involved samples of healthy pregnant women from all pre-pregnancy BMI categories, and we found that pre-pregnancy BMI as such was not significantly associated with GWG within the IOM-guidelines. This finding means that it is wise to continue to make efforts to prevent too high and too low GWG of women in all pre-pregnancy BMI groups. Or, from the opposite perspective: we need to promote healthy GWG for all women, including healthy women with a normal pre-pregnancy BMI.

Physical activity in pregnancy

Our studies revealed that more than half of pregnant women indicated that they reduced their physical activity (PA) when they became pregnant. We found that PA is related to healthy GWG. An increase in the level of PA could result in more women reaching a healthy GWG, and experience less overweight and obesity in the postnatal period. Our intervention did not result in the hypothesized outcomes, i.e., an increase in PA and an increase in the number of women gaining healthy gestational weight. Additional efforts need to be made to investigate effective strategies for increasing the level of PA during pregnancy. Midwives revealed in a study described in this thesis that they do not feel well-informed on this issue. As a result, many women hear from care providers and also from their partners and colleagues that they should rest and take it easy during pregnancy. Research indicates, however, that PA during pregnancy reduces discomfort in pregnancy and contributes to normal delivery. It even contributes to a healthy GWG. The new instruction should be: engage in healthy PA, even though, or even better, because you are pregnant.

The combination of physical complaints and PA can seem counterintuitive. Women in our study revealed that pregnancy-related issues were a barrier to maintaining their usual PA. It is not easy to

tell a tired woman experiencing pain that she should continue her PA. It costs energy to promote PA in a woman with serious complaints. We can imagine that the social environment empathizes with a woman with complaints and it is understandable that partners, parents and peers are not in the position to motivate the woman to overcome her reluctance to engage in normal PA. Feeling sorry for someone is not the best attitude to help them through a difficult period in life, however. Prenatal care providers should be well-informed of the benefits of PA in pregnancy and should be able to motivate pregnant women to engage in healthy PA. Knowing that prenatal care providers can have a blind spot with respect to PA helps us realise that they need training so as to be informed and motivated to discuss this issue with the pregnant women in their care.

The role of diet in healthy pregnant women in relation to their GWG

In our review of interventions we found that dietary prescriptions for obese women, including support to stick with a diet, helped them to lower their GWG by more than eight kilograms on average. In our studies with samples of healthy women, we did not detect an association between GWG and diet. However, we only measured fruit- and fish-norms and the gram weight of vegetable consumption. The mean vegetable consumption was lower than recommended; less than half of healthy women ate the recommended amount of fish. Since vegetables, fruits and fish do not make up a complete diet, we cannot conclude that diet altogether is not associated with GWG. Like other researchers, we suggest that long-term, validated dietary studies of pregnant women are necessary to be able to draw conclusions regarding diet, GWG and the health of pregnant women and their offspring. Informal information exchange during the course of this study provided examples of how women's dietary preferences changed during pregnancy. Vegetarian women sometimes craved meat and meat-eaters wanted to eat vegetarian, for example. Women wished to eat more or less sugar, or more or less fat than they did while they were not pregnant. In a study described in this thesis, we found that diet was a difficult subject for prenatal care providers. They did not view themselves as having expertise about healthy food and lacked confidence in their dietary knowledge. Women when not pregnant have to sort out themselves what diet best suits them, no easy task considering the variety of opportunities of the current diet. In order to help pregnant women sort out what is best for them in their situation and for their body, it would be wise to offer every pregnant woman at least one hour of consultation with a dietician with expertise in pregnancy nutrition. Additional consultation may be necessary for women who experience difficulty in finding their dietary balance.

Set a GWG goal, but what goal?

Setting a goal for healthy GWG is associated with healthy GWG. Our study revealed that only 25% of women set a GWG goal and even fewer discussed a GWG goal with their midwife. Prenatal care providers should be convinced that women who set a healthy GWG goal more often reach that goal. In the discussion we reflected on our choice to use the IOM-guidelines to establish a GWG goal and concluded that these guidelines lack the support of sound evidence.

Given this lack of evidence for the GWG guidelines, we could consider that women may be capable and wise enough to set a healthy GWG goal for themselves. If prenatal care providers inform women about physiological GWG and the relationship between too high (and too low) GWG and problems in pregnancy and at the long term, pregnant women should be able to set a GWG goal that is appropriate to their situation.

Where should the resources go?

An interesting question in promoting healthy GWG has to do with the focus of our financial resources and efforts. Should we focus on pregnant women or should we invest in the prenatal care providers who care for pregnant women? Or in both?

Given that prenatal care providers are seen as experts, their skills and knowledge should go further than the knowledge of an average pregnant woman. But as we have seen with respect to the issue of PA, some prenatal care providers make recommendations counter to what is current knowledge (e.g., to slow down), which may be potentially harmful to pregnant women. We also noticed the restraint of participating midwives with respect to providing dietary advice. For this reason it is important that prenatal care providers stay up-to-date with current knowledge on issues concerning pregnant women. However, staying well-informed can be challenging in the busy practice of midwives. Some issues also require skills, in addition to knowledge, in order to be properly addressed. For instance, motivational interviewing can make the difference in motivating a pregnant woman to overcome barriers to engaging in healthy PA. During the development of “Come on!”, we considered providing motivational interviewing training for midwives. Such a training did not fit in the narrow schedule of the program in the time available, however. In the future, providing motivational interviewing training should be reconsidered in GWG programs.

In conclusion, we think that financial resources should go to training and enhancing the competence of midwives, with the result that they can then help women better inform themselves and better evaluate the information they acquire. Money and efforts should also go toward providing reliable and easy-to-use information that explains current knowledge to all stakeholders, including pregnant women. For women who do not actively seek information, prenatal care providers should be proactive in providing information and raising awareness about the issues in pregnancy that affect the future health of the mother and her baby.

Target groups

This thesis is valuable for several target groups. Recommendations for these target groups are given below.

Pregnant women

Pregnant women can learn from this thesis that they need to be aware of their own GWG. They should consider setting a GWG goal, discuss this goal with their midwife and ask their midwife for support to attain this goal. Furthermore, pregnant women can learn that maintaining (or increasing) PA during pregnancy is well-advised for achieving a healthy GWG, but also in relation to the upcoming birth. In the follow-up from this thesis we produced a short educational film on PA in pregnancy for pregnant women. This film is available on the internet (https://www.youtube.com/watch?v=F-9mg_Cg2f0) and on the websites of a number of midwives.

We believe that the findings in this thesis confirm that it is important to hear the voices of pregnant women. We see reasons to stimulate pregnant women to make their own decisions, to set their own GWG goal, as long as they are aware of what is happening in their body. Pregnancy is a special life experience, and a sign of health, not a reason for being scared or overly dependent on others.

Midwives

Reflecting on our choice to develop an intervention in the form of a tailored internet program, rather than on in-person discussion with the midwife, we now believe that we have reasons to make a different choice. We advise midwives to spend more time on providing information to and raising awareness in pregnant women about changes in the body caused by pregnancy, including optimal GWG based on her pre-pregnancy BMI, changed dietary preferences and pregnancy-related barriers that may prevent women from being physically active. By doing so midwives can help pregnant women set appropriate GWG goals that match their personal weight attitude. Furthermore, when women face problems with maintaining PA, midwives can help them by using their knowledge and skills to promote health-enhancing behaviour. Midwives can also help pregnant women with their concerns about their diet and can refer them to a nutritionist for dietary consultation. If midwives have not been trained in engaging in health promotion conversations with pregnant women, they

could be given skills training in motivational interviewing and shared decision-making. In addition, midwives can organize themselves and advocate for financial remuneration for advising pregnant women with respect to healthy lifestyle. Finally, midwives can collaborate with dietitians and physiotherapists so that they all disseminate the same messages regarding GWG, diet, PA and health in pregnancy. Using each other's knowledge and skills reinforces the messages given and the positive attitudes of the health workers. Schools for midwifery education can play an important role to increase midwives' involvement in health promotion.

Physiotherapists and sport coaches

Sport coaches and physiotherapists should encourage pregnant women to be active and to overcome barriers to engaging in physical activity. Preferably, they should collaborate with midwives and dietitians to provide the same advice.

Dieticians

Dieticians should organize their profession to advocate that pregnant women receive at least one hour of dietary consultation free of charge. They should provide pregnant women not only with information about what not to eat, but also with information about healthy (and easy) food choices. Dieticians should collaborate with midwives and physiotherapists and should reinforce the message to pregnant women that they continue to be physically active.

Researchers

Researchers should continue researching ways to promote healthy GWG, ways for improving PA during pregnancy and further investigate why the intervention "Come on!" did not provide measurable effects on GWG, diet or PA. Furthermore, we need evidence-based GWG guidelines for our population. Research in a population of healthy pregnant women could be a reasonable way to provide evidence-based margins for GWG.

Policy makers

Policy makers should provide financing for up-to-date, non-commercial information on healthy lifestyle for pregnant women. They should be aware that it is worthwhile to invest in the health of pregnant women and their babies. Pregnant women who request facilities (e.g., attending Mom in Balance®, membership in a sportclub) should be helped to get them. Prenatal care providers should be afforded the opportunity to educate themselves in shared decision-making and motivational interviewing. Ways should be found to provide this in efficient care models. Centering Pregnancy® could be a good option. Policy makers should work with health professionals, including midwives, dietitians, physiotherapists and general practitioners.

Health insurance and municipalities

Health insurance providers need to continue their efforts to help women stay healthy during pregnancy without patronising them. Pregnant women should be encouraged to choose a healthy lifestyle and to raise their babies in a healthy (prenatal) environment. Health insurance companies should talk with prenatal care providers to find out what their needs are. Prenatal care providers may need support, training and time to take up their health promotion role. With adequate financial investment, prenatal care providers can learn communication skills, and new forms of prenatal care, such as Centering Pregnancy®, can be integrated. Collaboration with health workers is essential. When midwives advocate for pregnant women, they should be taken seriously.

Activities and products

This thesis contains studies conducted in the context of Dutch midwifery. Publications and oral presentations related to this thesis are listed below. It is necessary that the physiology of pregnancy and childbirth become more visible in the academic world. This project is also valuable because another midwife has been added to the ranks of midwives skilled in doing research.

Publications

- Merx A, Ausems M, Budé L, de Vries R, Nieuwenhuijze MJ. Interventions aiming to achieve a healthy gestational weight gain: a systematic review/meta analysis. Posterpresentatie Kennispoort, 3 februari 2012 Utrecht
- Merx A, Ausems M, Nieuwenhuijze M, Budé L, de Vries R. Gestational weight gain in the Netherlands: what do pregnant women eat and why do they do so? Maternal and Child Nutrition 2013, Supplement 3: 1–38
- Merx A, Ausems M, Budé L, de Vries R, Nieuwenhuijze MJ. Wat doen verloskundigen voor zwangere vrouwen om een gezonde gewichtstoename te bereiken? Poster, Nederlands Congres VolksGeZondheid, 4 april 2013 Ede.
- Ausems M, Merx A, Budé L, de Vries R, Nieuwenhuijze MJ. Predictors of gestational weight gain (GWG), poster, European Congress of Epidemiology - Healthy Living, 25 June 2015 Maastricht
- Merx A, Ausems M, Budé L, de Vries R, Nieuwenhuijze MJ. Dutch Midwives' Behaviour and Determinants in Promoting Healthy Gestational Weight Gain, Phase 1: a Qualitative Approach. International Journal of Childbirth 2015, 5,3, 126-38.
- Merx A, Ausems M, Budé L, de Vries R, Nieuwenhuijze MJ. Dutch Midwives' Behaviour and Determinants in Promoting Healthy Gestational Weight Gain, Phase 2: a Quantitative Approach. International Journal of Childbirth 2015, 5,3, 139-53.
- Merx A, Ausems M, Budé L, de Vries R, Nieuwenhuijze MJ. Weight gain in healthy pregnant women in relation to pre-pregnancy BMI, diet and physical activity. Midwifery 2015, (31) 7, 693-701.
- Merx A, Ausems M, Budé L, de Vries R, Nieuwenhuijze MJ. Bewegen tijdens de zwangerschap! Posterpresentatie Kennispoort, 22 januari 2016 Utrecht.
- Merx A, Ausems M, de Vries R, Nieuwenhuijze MJ. "Come On!" Using Intervention Mapping to help healthy pregnant women achieve healthy weight gain. Public Health Nutrition, 2017;1-15 doi:10.1017/S1368980017000271

Oral presentations

- Gewoon Gezond Zwanger: interventies ter bevordering van een normale gewichtstoename. 25 oktober 2011, Symposium De zwangere centraal, naar multidisciplinaire samenwerking rondom geboortezorg in de Regio Rivierenland, Tiel.
- Gewichtstoename in de zwangerschap: een review en meta-analyse van interventies, 11 april 2012, Nederlands Congres VolksGeZondheid Amsterdam.
- Gestational weight gain in the Netherlands: what do pregnant women eat and why do they do so? 11 juni 2013, Nutrition & Nurture in Infancy & Childhood conference, Grange over Sands.
- Gewichtstoename in de zwangerschap: een review en meta-analyse van interventies, 29 november 2013, Kennis in Bedrijf, Hogeschool Zuyd Heerlen.
- Workshop How to teach (student) midwives to work with parents, 29+30 nov 2013, EMA Congress Maastricht.
- Midwife-led care and public health: Experiences and preferences about multidisciplinary collaboration. June 2014. International Confederation of Midwives Triennial Congress, Prague.
- Public health in midwife-led care: Opportunities, challenges and dilemma's, Healthy Gestational Weight Gain. June 2014. International Confederation of Midwives Triennial Congress, Prague.

- Programma ontwikkeling gewichtsbegeleiding bij zwangeren (Intervention Mapping): 12 februari 2015 Interactief Avondseminarie Zwangere vrouwen begeleiden naar een gezonde leefstijl. UC Leuven.
- Het bevorderen van de gezondheid van zwangere vrouwen: de rol van bewegen. Symposium ter gelegenheid van de inauguratie van Marianne Nieuwenhuijze als lector aan de AVM-Zuyd. mei 2015, Maastricht.
- Bewegen tijdens de zwangerschap, Wetenschappelijke avond voor sportgeneeskunde, 4 april 2017, Bilthoven.

Education

- Teaching midwives and practice assistants how to work with the program “Come on!”, April 2010.
- Bewegen tijdens de zwangerschap. Contribution to the Massive Open Online Course (MOOC) of the Academie verloskunde Maastricht, Maastricht 2015
- Several activities for student midwives to teach them how to work with different aspects of developing an intervention (using Intervention Mapping, Tailorbuilding, Videoscribe, designing multifaceted interventions).

Products

- Educational film for midwives to provide them with scientific information on PA and pregnancy. The aim of the film is to increase the positive attitude toward stimulating pregnant women to keep on moving during their pregnancy.
<https://www.youtube.com/watch?v=5aZiToCNzTw&t=11s>
- Educational film for pregnant women to stimulate them to stay physically active.
https://www.youtube.com/watch?v=F-9mg_Cg2f0
- Midwifery card to provide midwives with IOM-guidelines in a visual easy-to-read manner.

Innovation

Since an effect of the intervention “Come on!” on GWG, diet or physical activity, was not proven, the program is not ready to implement. However, the change objectives formulated in this thesis are underpinned with research, which make them valuable for reuse by other researchers and program developers.

The animation film about PA for pregnant women is finding its way to the websites of midwives. The thesis, presented at the Dutch forum of midwives (Kennispoort), and will make its way through the professional organization of midwives.