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Dutch Midwives' Behavior and Determinants in Promoting Healthy Gestational Weight Gain, Phase 1: A Qualitative Approach

Astrid Merkx, Marlein Ausems, Luc Budé, Raymond de Vries, and Marianne J. Nieuwenhuijze

BACKGROUND: A significant contributor to the global threat of obesity is excessive gestational weight gain (GWG). The aim of this article is to explore Dutch primary care midwives' behaviors in promoting healthy GWG.

METHODS: We used the attitude–social influence–self-efficacy (ASE) model to guide interviews with a purposive sample of 6 midwives working in primary care.

RESULTS: Midwives reported activities in 3 areas related to GWG: GWG monitoring (weighing and discussing GWG), diet education, and to a lesser degree physical activity education. The determinants from the ASE model were confirmed and other relevant determinants, including midwives' perception of their role in health promotion, were added.

PRACTICE IMPLICATIONS: The identified determinants can be used for quantitative research. Quantitative research is necessary to identify the magnitude of the determinants associated with midwives' behavior in promoting healthy GWG.

KEYWORDS: healthy weight gain; prenatal care; education; ASE model; qualitative

INTRODUCTION

High gestational weight gain (GWG) is associated with later overweight and obesity among women and their offspring (Koletzko, Brands, Poston, Godfrey, & Demmelmair, 2012; McClure, Catov, Ness, & Bodnar, 2013; Rode, Kjaergaard, Ottesen, Damm, & Hegaard, 2012). Obesity is seen as a global threat to public health because it is related to major health problems, including diabetes and coronary heart disease (World Health Organization, 2012). Several studies have found that both high and low GWG are positively associated with problems during pregnancy and birth (Rasmussen & Yaktine, 2009; Viswanathan et al., 2008; Yu et al., 2013). The Institute of Medicine (IOM) guidelines recommend minimum and maximum GWG for women based on prepregnancy body mass index (BMI; Rasmussen &

Yaktine, 2009). The percentage of women in high-income countries who gain weight within these recommendations varies from 21.6% to 48.7% (Daemers, Wijnen, van Limbeek, Budé, & de Vries, 2013; Hunt, Alanis, Johnson, Mayorga, & Korte, 2013; Rauh et al., 2013). The incidence of pregnant woman who gain weight below (19%), within (44%), and above the guidelines (38%) in the Netherlands (Althuisen, van Poppel, Seidell, & van Mechelen, 2009) also demonstrates a clear need to focus on healthy GWG to improve the health prospects of mothers and their offspring. It is as yet unclear how midwives anticipate and adapt to the growing incidence of unhealthy GWG (Fieldwick et al., 2014; Furness et al., 2011; Willcox et al., 2012). A review of the literature on GWG reveals that we do not yet know what the best intervention is for promoting healthy GWG (Adamo, Ferraro, & Brett, 2012; Muktabhant, Lumbiganon,



Ngamjarus, & Dowswell, 2012; Rasmussen & Yaktine, 2009). Three professional behaviors are frequently mentioned as relevant, however: GWG monitoring, diet education, and physical activity (PA) education (Brown et al., 2012; Cohen & Koski, 2013; Muktabhant et al., 2012; Thangaratinam et al., 2012). Prenatal care providers are the preferred professionals to perform these monitoring and educational behaviors. However, to date, there is no research on interventions aimed at prenatal care providers and on how best to support them in performing these monitoring and educational behaviors (Heslehurst et al., 2014). When designing an evidence-based intervention to effectively influence the monitoring and educational behaviors of prenatal care providers, it would seem crucial that the intervention be tailored to their current practices (Bartholomew, Parcel, Kok, & Gottlieb, 2006). It is therefore necessary to gain insight into the factors that determine prenatal care providers' behavior in promoting healthy GWG.

Maternity care in the Netherlands is organized at three levels (de Geus, 2012). The first level (primary care) is provided in the community and is available to all women with a healthy pregnancy, birth, and postpartum term. The second level (secondary care) is provided in all hospitals and is available to women and babies who encounter problems during pregnancy, birth, or during the postpartum term. The third level (tertiary care) is provided in specialized hospitals having expertise and facilities for specialized obstetric and neonatal care. Midwives can work at all three levels. When they work in secondary or tertiary care, they are employed by the hospital and work in close cooperation and share responsibilities with obstetricians, nurses, and neonatologists. In total, 83% of Dutch working midwives work in primary care (van Hassel, Kasteleijn, & Kenens, 2014). Most of these primary care midwives work in an autonomous practice in cooperation with other midwives (82.3%), some midwives have an autonomous solo practice (5.2%), and others work as an employee in a practice of one or more autonomous midwives (12.5%; van Hassel et al., 2014).

To earn a full-time income, midwives are required by the compensation rules for insured care to carry a workload of 105 full cases per year (Koninklijke Nederlandse Organisatie van Verloskundigen [KNOV], 2015). Forty percent of all midwives with an autonomous practice carry fewer than 105 cases per year and are considered to work part-time but many work full-time nonetheless (van Hassel et al., 2014). Unlike midwives in some countries who assist physicians in delivering maternal care, Dutch midwives provide full maternity care (including education and risk selection), consisting of prenatal care

at the practice (10–12 meetings), natal care (at home or if the woman prefers in hospital), and postpartum care at the woman's home (3–6 visits; de Boer, Zeeman, & Offerhaus, 2008; Reitsma, Groenen, & Fermie, 2007). Administration and practice management take up about one third of the total working time (Wiegers, Warmelink, Spelten, Klomp, & Hutton, 2013). Some midwifery practices employ a practice assistant who takes care of, for example, scheduling appointments, measuring weight, blood pressure, administration, and providing information (van Hassel et al., 2014). Approximately, 85% of all pregnant women in the Netherlands start their pregnancy in midwifery practices (Perinatale Registratie Nederland [PRN], 2013). From this high percentage we conclude that midwives play a central role in women's pregnancy and could play an important role in weight management.

Almost all Dutch primary care midwives (98.1%) are members of the Royal Dutch Organization of Midwives (KNOV; van Hassel et al., 2014) and follow KNOV guidelines (de Geus, 2012). Attention to weight management was recently included in the KNOV's prenatal care guideline (de Boer et al., 2008, p. 172); midwives are advised to weigh a woman during her first visit, to advise her about a healthy diet, to inform her about normal weight gain (10–15 kilograms), to explain their weighing practice, and to invite questions and concerns about weight gain. The KNOV has yet to adopt the IOM guidelines for GWG, and the Dutch guidelines do not include any reference to PA education. Most Dutch midwives were not trained to measure bodyweight during pregnancy in their educational years because bodyweight was not considered a predictor for hypertension disorders. The most recent edition of a key Dutch study book follows neither the KNOV guidelines nor the IOM guidelines in this respect (Heineman, Evers, Massuger, & Steegers, 2012, pp. 295–296). The Dutch Association for Obstetricians and Gynaecologists (Nederlandse Vereniging voor Obstetrie en Gynaecologie, NVOG) developed a guideline about management of obese pregnant women (NVOG, 2009). In this guideline, obstetricians are advised to calculate BMI before or at the start of pregnancy, to provide secondary care for women with a prepregnancy BMI higher than 40 kg/m², to use a large cuff for measuring blood pressure in obese women, to refer women with a prepregnancy BMI higher than 40 kg/m² to an anesthesiologist for a prepartum visit, and to develop a local guideline on obese women for all care providers involved in maternity care (NVOG, 2009). The NVOG did not adopt the IOM guidelines for GWG. In conclusion, the guidelines concerning GWG in the Netherlands are contradictory as well as

complementary and overlapping. It is unclear if prenatal primary care providers in the Netherlands use the midwifery guidelines, the obstetric guidelines, the IOM guidelines, or a combination of these guidelines. It is also unclear what exactly Dutch midwives do to promote healthy GWG as well as what determinants are associated with their behaviors in promoting healthy GWG.

We focused in our study on how healthy GWG is promoted by primary care midwives and on the determinants related to this behavior. We focused on midwives working in primary care because they deliver most of the prenatal care in the Netherlands. The information derived from this study can be used to develop an evidence-based intervention for midwives to adapt their behaviors in promoting healthy GWG.

METHODS

We performed a qualitative face-to-face study using semistructured interview questionnaires.

Participants

This study is part of the project *Promoting Healthy Pregnancy*, which aims to provide health benefits for healthy pregnant women. The project is advised by a multidisciplinary consortium. We used the network of our consortium members to select a purposive sample of six Dutch midwives working in primary care. The aim was to gather information from different types of midwives working in different types of practices. All invited midwives agreed to participate in our study. They were informed about the aim and procedures of the study and

they were told that they were free to withdraw at any moment without restrictions. The practice setting of the included midwives varied: One worked alone, two worked with another midwife, two worked in a group of midwives, and one midwife worked in a group of midwives in close cooperation with other health professionals. One midwife was pregnant herself; all midwives were mothers. Their working experience ranged from 5 to 27 years.

Procedure

The interviews were scheduled in September 2011 at a time and place convenient for the participants and lasted between 45 and 90 minutes. All interviews were conducted by the same researcher (first author [AM]), who was trained in qualitative interviewing. Participants were informed that there were no wrong answers and they were encouraged to reveal anything they wanted to say about the subjects addressed in the interview. The researcher made notes during and after the interviews. At the end of an interview, the interview was summarized for a member check. All interviews were audiotaped and transcribed verbatim.

The study was entered into the Dutch trial register under number TC 3543. The Research Ethics Committee of Atrium-Orbis Zuyd confirmed that because of the noninvasive character of the study, ethical approval was not required.

Measurement

We used a semistructured questionnaire based on a behavioral model known as the *attitude-social influence-self-efficacy* (ASE) model (Figure 1; De Vries,

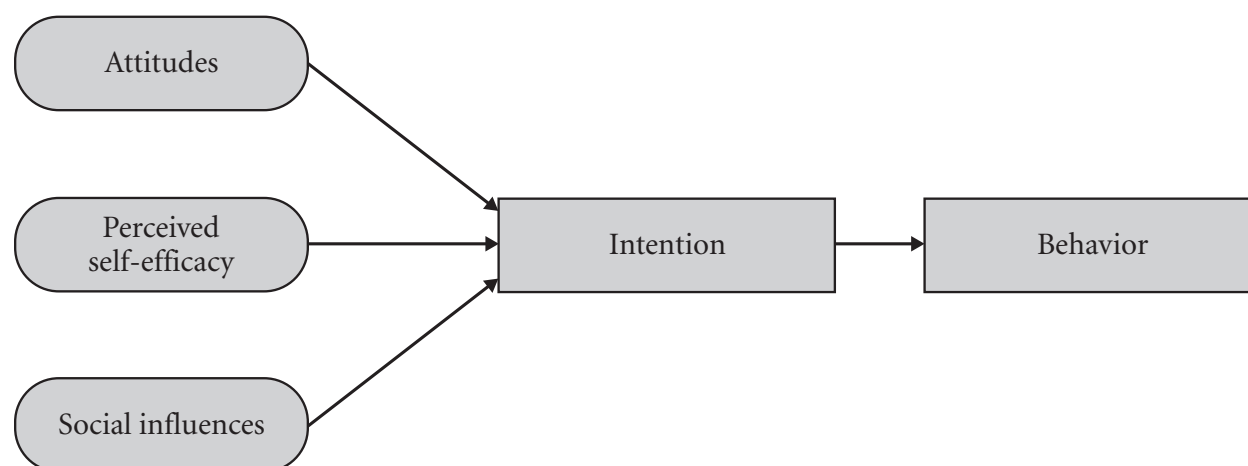


FIGURE 1 Attitude-social influence-self-efficacy model.

Mudde, & Dijkstra, 2000). The ASE model is an extension of the theory of planned behavior (TPB; Ajzen, 1991; De Vries et al., 2000).

According to the ASE model, behavior can be explained by behavioral intention, which in turn is determined by *Attitudes* (salient beliefs about the particular behavior), *Social influences* (perceived norms of important others, perceived social support or pressure, and perceived role models), and *perceived self-Efficacy* (a person's expectations regarding his or her capability to perform the particular behavior). This model is widely used to explain professional behavior, including midwives' behavior (Bartholomew et al., 2006; Gijsbers, Mesters, Knottnerus, Kester, & van Schayck, 2006).

We first asked which midwife *behaviors* were related to the GWG of their clients. Next, we proactively explored the calculation of BMI, weighing women, discussions about GWG (content and methods), diet education, and PA education. The reasons for midwives' behaviors were also explored. In addition, the researcher asked proactively about the *intention* to perform the behavior, about *attitudes* (e.g., "What is your belief about the importance of promoting a healthy GWG?"), *social influence* (e.g., "What do you believe the client expects from you?"), and *perceived self-efficacy* (e.g., "To what extent do you feel capable of discussing a healthy diet?").

Analysis

We used content analysis (Polit & Beck, 2012) of incorporated transcripts and interviewers notes (data triangulation). The transcripts were read, reread, and marked independently by the first two authors (AM and MA) to achieve a sense of the whole and to identify possible content areas. Quotes were then labeled using constructs of the ASE model and ASE determinants were filled with content. During the analysis process, several determinants not covered by the ASE model came up. We interpreted the text, discussed it, and framed new additional determinants to get a comprehensive understanding of the meaning of the text.

RESULTS

In all interviews, a conversation took place in which the midwife openheartedly talked about her underlying opinions, beliefs, and barriers. All midwives indicated that they enjoyed the conversation, and during or at

the end of the interview, they expressed an interest in learning more about GWG and appropriate care for women to achieve a healthy GWG.

Five of the six midwives were recently involved in the development of local guidelines as a response to the obstetric guideline about pregnancy management of obese pregnant women mentioned in the introduction of this article (NVOG, 2009). The midwives expressed ambivalence about these local obstetric guidelines. They recognized the problems of obesity, such as difficulties in measuring babies' growth and a higher incidence of complications. But at the same time, they did not fully agree with the added value of using secondary care as compared to primary care. They felt that midwives in primary care are also qualified to measure glucose levels, prescribe diets, use large cuffs, and make referrals for growth measurements. Furthermore, some midwives mentioned that they only reluctantly agreed with referring women with a BMI higher than 30 kg/m² (instead of 40 kg/m²). One midwife recalculated BMI during the second or third trimester and referred women to an obstetrician if the BMI at that time exceeded 40 kg/m². Following local guidelines means that more women were actually referred than required by the NVOG guidelines. Midwives expressed concern about growing medicalization with the new NVOG guidelines but were unable to clearly formulate their objections. Although the aim of the interviews was discussed with the participants prior to the interviews, it was hard to focus on GWG with respect to *all* pregnant women at the beginning of the interviews because the midwives still had reservation about accepting the guidelines for obese women and they wished to talk about this.

One midwife was involved in a local project that she had initiated which aimed to enhance prenatal care from a public health perspective. The project was at a stage in which other parties (such as dietitians, physiotherapists, psychologists, health insurers, and municipalities) were becoming interested in collaboration. Diet and PA education were also part of this project, which was intended to address problems of obesity, maternal distress, and teenage pregnancy. This midwife was more active in promoting healthy GWG and had more positive attitudes toward promoting healthy GWG than the other participants in our study.

The midwives provided information related to "the constructs of the ASE model" as well as to "additional determinants." The determinants are presented next, including quotations (italicized in boxes) to illustrate them. In some quotes, additional contextual information is provided between square brackets.

The Constructs of the Attitude–Social Influence–Self-Efficacy Model

The following ASE themes turned up in the interviews: behaviors (weight monitoring, diet education, and PA education), intention, attitudes, social influences, and self-efficacy.

Behaviors

MONITORING GESTATIONAL WEIGHT GAIN. All midwives reported that BMI calculation was integrated in the computer-based monitoring system they used for their pregnancy files. To calculate BMI, midwives weighed women during their first visit or asked women what their prepregnancy weight was. All midwives asked for height and measured only when the woman did not know her height, except for one midwife who always measured during the first visit.

Data on weight were always collected during the first visit. Some of the midwives never measured weight again during the course of pregnancy, others weigh all women during every visit, others weighed every time for specific groups (such as obese women, women with large weight loss in history, or women with anorexia in history), or on request. All midwives were open to women's questions about weight. None of the midwives proactively discussed setting a weight gain goal or asked what the woman herself had in mind about weight gain. Midwives advised differently about appropriate weight gain; one midwife mentioned the IOM guidelines but did not know the right cutoff points, four mentioned 10–15 kilograms for all pregnant women (according to the Dutch midwifery guideline), and one mentioned “not above 20 kilograms.” None of the midwives mentioned using a systematic approach to behavior change, such as motivational interviewing. However, the midwives did describe efforts to help women with their weight gain struggles.

We discuss weight because I always ask about it. Women then say, “well, I just lost weight” or “weight is an issue for me.” Then we discuss this. And I follow the women and offer to weigh them if they want. But I tell them that for me it's not necessary. As long as your belly is growing and you and your baby are ok . . . and when I don't see the woman about to explode, I don't weigh her. But I think 40% want to weigh themselves a couple of times during pregnancy. Just out of curiosity. And with a BMI higher than 30 or 35, women easily agree to being weighed. We motivate them, we tell them we want to keep an eye on their weight gain, just in case . . .

DIET EDUCATION. One midwife with a personal interest in nutrition was very active in diet education. She advised women to eat 10 different vegetables per day, to engage in physical activity before a meal, to avoid factory-made foods, and to avoid milk products. She shared food recipes with pregnant women and emphasized the importance of eating healthy food. One midwife referred all women with a BMI higher than 27 kg/m² to a dietitian. The other midwives discussed diet in general, mostly to inform pregnant women about safe eating during pregnancy (i.e., diets that avoid harm to the fetus), and they generally advised “to eat enough fruits and vegetables.” If questions arose, or weight gain seemed to be getting out of hand, further recommendations were made to reduce sugar and fat intake and sometimes a visit to a dietitian was suggested.

But, when women ask for advice, I say . . . if you want to take care of your weight . . . just quit the most obvious things and use common sense. You have common sense! Don't drink soft drinks and . . . well . . . you can have chocolate, but eat just one piece and not a whole bar. Not the whole package of cookies, but just one. . . . You know . . . that sort of thing . . . that everyone knows.

[about women who lost 30 kilograms before pregnancy] I don't want them to focus on their weight but on healthy diet instead. They're happy when I say that. They know they can do that.

Interviewer: And when they gain too much weight?

No . . . well, then I ask, “Did you change your diet? Do you eat more, what do you eat more of? Do you eat more sweets or do you sit down with a bag of potato chips?” That sort of thing, then . . . then I ask . . . yes . . . but in other cases . . . no.

PHYSICAL ACTIVITY EDUCATION. Midwives paid little attention to PA education. In most cases, they advised women to slow down if they had physical complaints while moving. One midwife changed her mind while discussing this topic.

[About discussing PA] Well, I think it is a good suggestion . . . eh . . . no . . . I don't mention it, . . . “do you have your 30 minutes of PA per day?” But I think it's a good suggestion, I can do that!

One midwife encouraged women to be more active. She tailored her advice to the women's daily activities.

You cannot change women's lifestyle completely. But you can say, "Well . . . you can go by bike to do groceries. Or walk with the other children, just go for a walk and do it regularly." Well . . . they are open to it.

Intention

Midwives were very brief about their intentions to promote healthy GWG. They expressed that their intentions and behaviors correspond to each other. They felt that they are autonomous in this respect and that they do what they intend to do.

Attitudes

In general, midwives were moderately positive about monitoring GWG and diet education. The main reasons to be positive were the prevention of postpartum weight retention and the belief that healthy food contributes to mothers' and babies' health in general. One midwife mentioned that talking about healthy diet was so obvious; she could not explain why she did it. Later in the interview, however, she recognized her perceived role with respect to the health of mother and baby.

Because . . . yes, why do you want to talk about healthy diet? Yes, in general, you live on what you eat. I mean . . . you cannot live without food. And unhealthy food has damaging effects on health, yes, why do you want to . . . It is such a basic question . . . I cannot answer that.

Well . . . you are there at the beginning of life. And you want to give it a good start. . . . It's about giving the pregnant woman good chances for health and a healthy start for her baby.

. . . We've been midwives for 25 years. We see women from consecutive generations. And we see them doing the same things their parents did. We don't want them to copy the same bad habits when we know they could do better. We seriously want to stop this vicious circle.

One midwife was somewhat reluctant about diet education. She mentioned that pregnancy was the only time that it was normal for a woman to gain weight. She did not want to focus on weight gain for women with a normal, healthy weight.

Then I say . . . it's normal to gain weight. It's not necessary to gain 20 kilograms and you don't need to eat for two. You do need to eat healthy. And when you have a moment of craving and you want something sweet . . . well . . . give in to it once in a while. Because this may be the only time you don't need to watch out that much. For 9 months.

Some midwives were less positive about the effectiveness of promoting healthy GWG in women with unhealthy lifestyles but still wanted to contribute something to the health of the woman and child.

Some women say, "We don't eat healthy because we're always busy and we don't like cooking." Then I advise them to skip the really bad things and take vitamin pills. Well . . . they can do that. It is an easy way to handle this. You can't change the entire lifestyle but you can add something.

In general, midwives expressed a positive attitude toward promoting healthy PA. At the same time, they spent no time on it because they seemed to be unaware of the relationship between PA and GWG and the need to discuss PA in this respect. During the interview, they became more aware of the benefits of PA.

It is good to pay attention to PA, because in the end, if the woman remains physically active, she'll have a better birth as well. And yes . . . probably also a better weight gain.

Social Influences

Although their behaviors differed, all midwives considered that they were aware of women's needs in monitoring GWG, diet education, and PA education. They felt that they were open to questions and provided sufficient information. Most midwives had very little idea about what other midwives offer to women regarding education on diet and PA.

Interviewer: Some midwives ask women about their diet and how much PA they engage in. What do you think of that?

Oh, really? Are there midwives who do that?

One midwife emphasized that her colleagues adhere to the guidelines without having any intrinsic motivation to monitor weight gain.

Other professionals want to work with us. My colleague and I wish that our other colleague midwives would work together like we do with the dietitian, the psychologist, the physiotherapist, the municipality, no matter what! They all see the importance. But the people most difficult to convince are our own colleagues. And the obstetricians. They don't think about prevention. Oh no, no. You may think I am being too black and white about this, but that's the way I see it. I just don't see why we have to be told to do this. And our professional board still doesn't recommend weighing women. . . . There will come a time that national guidelines and rules require us to pay attention to weight gain . . . but it is . . . just because there are third parties who say you have to deliver good quality care . . . And then . . . [my colleagues will start weighing women] . . . I think they [third parties] are right. I can't help it . . . yes, it's too bad we have to be told to do this.

Self-Efficacy

In general, the responding midwives felt confident about their ability to talk about weight gain issues and to discuss diet and PA with women to a certain extent. For detailed dietary advice, however, they preferred to refer to a dietitian.

Well, I don't have time for it, but I also want to do it in a professional way. And when it goes in depth . . . I'm not the right person. You need to consult a dietitian who has studied for this.

One midwife revealed that talking about weight was a touchy topic in the past but that she had learned to discuss it.

No, it is absolutely not difficult to tell women to engage in more PA. No . . . we're going to change that in our practice policies.

[About talking with obese women about weight] Yes, I think it's easy now, but in the

beginning, [just after implementation of local obstetric guidelines] there were a couple of times that I didn't talk to the woman about her weight during the first visit. I postponed it to the second visit. We all had difficulties with it. Oh, man, we need to say it . . . "you have to go to secondary care because you are too fat." But we found a way to do it and I can deal with it now. Well, you are heavy if your BMI is over 40, but . . . yes . . . at that time, it was really hard for me.

Additional Determinants

In addition to the ASE model determinants, we identified additional determinants related to professional behaviors in promoting healthy GWG. We identified these determinants as knowledge, barriers, work-related stress, involving other professionals, health promotion, and personal experience.

Knowledge

Five midwives were not aware of the IOM guidelines or the KNOV guidelines nor about the general relevance of gaining less weight with a higher prepregnancy BMI. However, they were all aware of the association between high weight gain and weight retention postpartum. Knowledge about healthy eating and PA was superficial, except for the one midwife with a special interest in these issues.

Work-Related Stress

Midwives experienced their work as demanding and this seemed to influence their flexibility in implementing new guidelines or looking for new ways to enhance the quality of care they provide.

The whole midwifery world is like . . . well, there is so much to do . . . we need to do so many things . . . we don't want to add something else.

[About other midwives experiencing everything as burdensome] Everything is seen as a heavy load. And that . . . if everything . . . if everything that comes to you is seen as heavy . . . yes, your life becomes heavy, too. You cannot motivate them [other midwives] to do something with it.

Barriers

Barriers were mentioned that impede midwives from monitoring GWG, providing diet education, or PA education. Indicated were a lack of time, money, and energy on the part of both midwives and pregnant women. Furthermore, midwives expressed that they lacked a Dutch guideline or practice card with easy to use information to help guide women.

You can do it in a nice way or you can make nice things. And this is a good part of midwifery. But, you know, it's always a question of time and money and . . . and . . . always the question of what everyone is willing to invest.

Interviewer: It needs to be feasible?

Yes. And the pregnant woman needs to go along with you. So . . . sometimes it takes energy to convince her. To teach her the need.

Involving Other Professionals

Some midwives were active in using the expertise of other health professionals. Midwives who involved other health professionals, including dietitians, psychologists, and professionals providing PA courses for pregnant women, seemed to be more active in promoting healthy weight gain. It seemed to stimulate them to think in a broader perspective and to take account of other professionals' point of view. They also seemed to be relieved that someone else could take care of this part of promoting healthy GWG. Being acquainted with other professionals helped midwives in working together with them. All midwives seemed to be aware of the influence they had on pregnant women and assumed pregnant women would go to another health professional if they advised them to do so. But some midwives were reluctant to involve other professionals because they felt it had no added value.

And when you say they [pregnant women] need to go to a dietitian, well, then women do that. . . . But I often think, well, they [pregnant women] know what to do and what not to do, so I think the dietitian can't really add anything to that.

Health Promotion

In the course of the interviews, the researchers gained the impression that some midwives view themselves as professionals who adhere to guidelines simply because

they were taught to do so. This was expressed by midwives who referred to guidelines using language such as “we have to” and “they want us to,” whereas others expressed an intrinsic motivation to help women take an important new step in their lives. The latter expressed their wish to contribute to public health in general out of a desire to help create a healthier world. They aimed to find the best way to reach their ideals and they expressed their interest in and concern about a wide variety of topics. One of the participants used a metaphor to express this, seeing herself as an ambassador of health.

Look, women go their various way in life and we hope to see them get on the right track. When they are on the right track, we don't need to do anything. They step into the right train and then they go off on their own . . . the train is moving . . . But some colleagues . . . they even don't bring them to the station, you know . . . they leave them to sort it out for themselves. And to be honest, our profession doesn't compensate us for telling women why you want them to have a healthy lifestyle. You need to go into detail to be able to adjust your advice to their lives. The same is true for maternal distress.

Although this midwife proactively helped women to “the right train,” another midwife tries to empower women so they can find “their own train.”

Well, I think it's necessary to raise women's awareness of their own body. Most women don't know their own body. They don't know the meaning of certain physical complaints and their reactions. You know, I very often say to women: Nowadays, we seem to be pregnant on top of everything else. We work 100%, we are a 100% partner, 100% social contacts, and we want to look good 100% of the time. Yes, and on top of all of that, we happen to be pregnant. I say, “that's not the way it works. In the first place, you're pregnant, and the time that's left can be used for the rest.” And that's another way of looking at things: “Oh yes, I am just plain pregnant. I can't do it in the sixth gear. I'm going back to zero and then I can see what's left for the other things.” I think it's a turning point for women when they realize: “Well, I'm pregnant, I am simply pregnant. And that is what my life is about.

It's not about finishing my work or about my partner having enough sex or that I am there for my friends. No, it's about me, being pregnant. Taking good care of myself and of my baby."

I encourage them to trust themselves. I ask them, "What does your intuition tell you, your own answer?" And they say, "Yes, I think I need to do this or that." Well, that is the right answer. Just do it.

I think, it is just . . . so good when you, being a woman, think: "I am good the way I am. And I can do it."

A third midwife expressed her attitude toward health promotion from the perspective of the woman.

By not saying anything, I think you then stimulate unhealthy behaviors. "Yeah, the midwife didn't say anything, so it must be ok." That. No, you are an advisor; you are there to help women, to promote their health.

Although these three midwives expressed their attitude toward health promotion in different ways, all three combined promoting healthy GWG with their general attitude toward their profession. Midwives who did not proactively look for solutions to problems they encountered were nonetheless willing to promote healthy GWG if they were provided clear guidelines on GWG.

The practice card you are going to develop . . . yes, I am impatiently waiting for you to do that.

Personal Experience

Midwives expressed the similarity between their clients' experiences and their own experiences with weight gain during their pregnancies. If they had an issue with diet during pregnancy themselves, it seemed that they expected it to be an issue for women in their practice and vice versa.

I say to them, "don't forget to eat." Because that's my own experience. When you have two kids . . . you forget to eat. You need to eat sitting at the table, you need to eat properly, because as a young mother, I think you tend not to do that.

If you are constantly concerned with your weight and always thinking about what you eat . . . I think you see pregnant women differently . . . yes, maybe that is . . . maybe that's why it's not such a big deal for me.

DISCUSSION

We were able to identify behaviors to promote healthy GWG (monitoring GWG, diet education, and PA education) and the ASE determinants related to these behaviors. Midwives were willing to perform monitoring and educational behaviors. Some already performed these behaviors and others expressed their willingness to do so if advised by trustworthy sources. We found that what midwives described as their intention corresponded with their behavior. Midwives had moderately positive attitudes toward monitoring GWG and diet education. Their attitude to PA education was less positive, but their perception of the importance and effectiveness of PA education seemed to change during the interview, suggesting that awareness of the need to engage in PA was an important determinant for their behavior. Concerning social influence, midwives were not always aware of what other midwives do to promote healthy GWG nor of what pregnant women expect them to do. Midwives experienced sufficient self-efficacy. In the study of Heslehurst et al. (2013), midwives were not confident in their ability to discuss weight-related issues. Our sample experienced problems with discussing weight-related issues as well but in the past. After implementation of the NVOG guidelines, they quickly discovered that they had to discuss weight as a reason to refer obese women to an obstetrician. Although this was difficult in the past, they no longer had difficulties with discussing how to regulate GWG.

In addition to the ASE determinants, we distinguished several determinants that likely play an important role in influencing midwives' behaviors in promoting healthy GWG. Midwives in our study were not aware of the risks of excessive or too little GWG. They did not know that weight gain goals vary per prepregnancy BMI group, and they filled the gap in their knowledge with personal beliefs and experiences. Knowledge has been recognized as an important determinant for behavior in behavioral models (Ajzen, 2011). The same is true for barriers, which are more often mentioned in behavioral models (Glanz, Rimer, & Viswanathan, 2008)

and which were present in our findings. In our case, the most important barriers seemed to be a lack of available guidelines and a lack of time. Work-related stress seemed to hinder the behaviors in promoting healthy GWG as well. Some of the participants expressed that they found it difficult to balance the demands of the job with the rewards of the job and were on the verge of a burnout. Wiegers et al. (2013) studied work diaries kept by Dutch primary care midwives and estimated that a full-time workload of a primary care midwife translates to 87 full cases per year. This means that the required 105 cases for a full-time salary amount to 120% of a full-time work week. The part of the job experienced as most fulfilling, the client-related work, decreased in 2008 (67%) as compared to 2001–2004 (73%; Wiegers et al., 2013). Lindqvist, Mogren, Eurenus, Edvardsson, & Persson (2014) conducted a qualitative study on midwives' experiences in counseling pregnant women on PA in Sweden. They noted that the Swedish National Board of Health and Welfare recommended that counseling about lifestyle changes, such as increasing PA, be performed in short sessions of 10–15 minutes and in sessions of 30 minutes for more challenging cases. The Swedish midwives who were interviewed considered this to be a rather short amount of time, in which they felt the pressure of time constraint (Lindqvist et al., 2014). In the Netherlands, by comparison, the first visit is scheduled for 20 minutes (excluding an echo and counseling on screening for trisomy 21), whereas subsequent visits are scheduled for 10 minutes each (Reitsma et al., 2007). If we want Dutch midwives to spend more time on health promotion, including promoting healthy GWG, decreasing midwives' workload could be an important way to facilitate and support their work in this respect.

Involving other professionals could be related to midwives' sense of urgency about the problem of unhealthy GWG, unhealthy diet, and lack of PA. When midwives are unaware of the health risks related to these problems, they may tend not to seek help from another professional. Midwives aware of the problem of unhealthy GWG, on the other hand, seek solutions to the questions that arise on the topic. Referral to other professionals could be a way to provide solutions.

Midwives who saw themselves as an important professional in a significant life-changing event seemed to pay more attention to healthy lifestyle for the long-term benefit of the whole family and were more willing to involve other care providers. They were of course promoting healthy GWG and healthy lifestyles. Other midwives, however, were more reluctant in promoting healthy GWG, and it did not occur to them to be

proactive in looking for solutions to common problems they encounter (such as weight-related problems). We found this variation in how midwives defined their role in this regard to be comparable to Walsh and Devane (2012), who noticed that some midwives see themselves as a partner in health, helping the client to realize her own strength, whereas others see their role as a medical guard of pregnancy and birth and focus primarily on risks and safety. We also compared our findings with the findings of a Swedish study in which antenatal appointments of midwives were filmed and analyzed (Olsson, Sandman, & Jansson, 1996). The authors described two perspectives of antenatal care. The first view is focused on the physical process of birth and the latter on the process of becoming parents, including the psychological and social circumstances in addition to the physical (Olsson et al., 1996). Being focused on the physical process in the study of Olsson et al. (1996) could be related to the reluctant attitude we encountered in our study. When guidelines explain and prescribe why and how midwives need to change their practice, the physically oriented/reluctant midwives follow the guidelines. It could be that midwives who focus on the total process of becoming parents also focus on health promotion in general, including promoting healthy GWG, healthy diet, and healthy PA. Our findings from the interviews together with the literature cited above would seem to confirm our hypothesis that midwives' attitude and midwives' activity in health promotion are associated with behaviors in promoting healthy GWG.

In our study, we found midwives who felt that advice that had helped them in their personal situation would be helpful to their clients as well. Having personal weight problems has been mentioned in other research as a determinant for midwives' behavior in promoting GWG (Heslehurst et al., 2013).

So far, this study has provided only qualitative evidence for midwives' behavior. Quantitative studies are indicated to reach more sound conclusions about midwives' behaviors and the determinants related to these behaviors. Although our sample consists of only a limited number of participants, we believe we were able to identify important determinants of behavior, which was the aim of this study. This is because the sample was diverse and informed us about the various views of the midwives. The major determinants were mentioned several times across all interviews.

This information can be used to create an adapted model for midwives' behavior to promote healthy GWG. We recommend that intention be removed and that other determinants be added, including barriers,

work-related stress, involving other health professionals, health promotion, and personal experience with weight-related problems, because these determinants have been revealed as important for primary care midwives.

CONCLUSION

We conducted a qualitative study on midwives' behaviors in promoting healthy GWG, with the guidance of the ASE model. Midwives confirmed the determinants provided by this model and enabled us to identify several additional determinants. Quantitative research is needed to measure the extent of the determinants associated with midwives' behaviors in promoting healthy GWG.

REFERENCES

- Adamo, K. B., Ferraro, Z. M., & Brett, K. E. (2012). Can we modify the intrauterine environment to halt the intergenerational cycle of obesity? *International Journal of Environmental Research and Public Health*, 9(4), 1263–1307. <http://dx.doi.org/10.3390/ijerph9041263>
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [http://dx.doi.org/10.1016/0749-5978\(91\)90020-T](http://dx.doi.org/10.1016/0749-5978(91)90020-T)
- Ajzen, I. (2011). The theory of planned behaviour: Reactions and reflections. *Psychology & Health*, 26(9), 1113–1127. <http://dx.doi.org/10.1080/08870446.2011.613995>
- Althuisen, E., van Poppel, M. N. M., Seidell, J. C., & van Mechelen, W. (2009). Correlates of absolute and excessive weight gain during pregnancy. *Journal of Women's Health*, 18(10), 1559–1566.
- Bartholomew, L. K., Parcel, G. S., Kok, G., & Gottlieb, N. H. (2006). *Planning health promotion programs: An intervention mapping approach*. San Francisco, CA: Jossey Bass.
- Brown, M. J., Sinclair, M., Liddle, D., Hill, A. J., Madden, E., & Stockdale, J. (2012). A systematic review investigating healthy lifestyle interventions incorporating goal setting strategies for preventing excess gestational weight gain. *PLoS One*, 7(7), e39503. <http://dx.doi.org/10.1371/journal.pone.0039503>
- Cohen, T. R., & Koski, K. G. (2013). Limiting excess weight gain in healthy pregnant women: Importance of energy intakes, physical activity, and adherence to gestational weight gain guidelines. *Journal of Pregnancy*, 2013, 787032. <http://dx.doi.org/10.1155/2013/787032>
- Daemers, D. O. A., Wijnen, H. A. A., van Limbeek, E. B. M., Budé, L. M., & de Vries, R. G. (2013). Patterns of gestational weight gain in healthy, low-risk pregnant women without co-morbidities. *Midwifery*, 29(5), 535–541. <http://dx.doi.org/10.1016/j.midw.2012.04.012>
- de Boer, J., Zeeman, K., & Offerhaus, P. (2008). *KNOV-Standaard prenatale verloskundige begeleiding, wetenschappelijke onderbouwing* [Guideline prenatal midwifery care]. Utrecht, The Netherlands: KNOV.
- de Geus, M. (2012). *Midwifery in the Netherlands*. Retrieved from <http://www.knov.nl/samenwerken/tekstpagina/489/midwifery-in-the-netherlands/>
- De Vries, H., Mudde, A. N., & Dijkstra, A. (2000). The attitude-social influence-efficacy model applied to the prediction of motivational transitions in the process of smoking cessation. In P. Norman, C. Abraham, & M. Conner (Eds.), *Understanding and changing health behaviour: From health beliefs to self-regulation*. Amsterdam, The Netherlands: Harwood Academic.
- Fieldwick, D., Paterson, H., Stephen, M., Cameron, A., Egan, R., McFadden, S., . . . Watson, C. (2014). Management of excess weight in pregnancy in Otago, New Zealand: A qualitative study with lead maternity carers. *The New Zealand Medical Journal*, 127(1392), 27–37.
- Furness, P. J., McSeveny, K., Arden, M. A., Garland, C., Dearden, A. M., & Soltani, H. (2011). Maternal obesity support services: A qualitative study of the perspectives of women and midwives. *BMC Pregnancy Childbirth*, 11, 69. <http://dx.doi.org/10.1186/1471-2393-11-69>
- Gijsbers, B., Mesters, I., Knottnerus, J. A., Kester, D. M., & van Schayck, C. P. (2006). The success of an educational program to promote exclusive breastfeeding for 6 months in families with a history of asthma: A randomized controlled trial. *Pediatric Asthma, Allergy and Immunology*, 19(4), 214–222. <http://dx.doi.org/10.1089/pai.2006.19.214>
- Glanz, K., Rimer, B. K., & Viswanathan, K. (2008). *Health behavior and health education: Theory, research, and practice* (4th ed., p. 552). San Francisco, CA: Jossey-Bass.
- Heineman, M. J., Evers, J. L. H., Massuger, L. F. A. G., & Steegers, E. A. P. (2012). *Obstetrie en gynaecologie, de voortplanting van de mens* [Obstetrics and gynaecology; human reproduction]. Amsterdam, The Netherlands: Reed Business.
- Heslehurst, N., Crowe, L., Robalino, S., Sniehotta, F. F., McColl, E., & Rankin, J. (2014). Interventions to change maternity healthcare professionals' behaviours to promote weight-related support for obese pregnant women: A systematic review. *Implementation Science*, 9, 97.
- Heslehurst, N., Russell, S., McCormack, S., Sedgewick, G., Bell, R., & Rankin, J. (2013). Midwives perspectives of their training and education requirements in maternal obesity: A qualitative study. *Midwifery*, 29(7), 736–744.

- Hunt, K. J., Alanis, M. C., Johnson, E. R., Mayorga, M. E., & Korte, J. E. (2013). Maternal pre-pregnancy weight and gestational weight gain and their association with birthweight with a focus on racial differences. *Maternal and Child Health Journal*, 17(1), 85–94. <http://dx.doi.org/10.1007/s10995-012-0950-x>
- Koletzko, B., Brands, B., Poston, L., Godfrey, K., & Demmelmaier, H. (2012). Early nutrition programming of long-term health. *The Proceedings of the Nutrition Society*, 71(3), 371–378. <http://dx.doi.org/10.1017/s0029665112000596>
- Koninklijke Nederlandse Organisatie van Verloskundigen. (2015). *Opbouw van het tarief voor verloskundige zorg in 2015* [Calculation for midwifery care in 2015]. Retrieved from <http://www.knov.nl>
- Lindqvist, M., Mogren, I., Eurenus, E., Edvardsson, K., & Persson, M. (2014). “An on-going individual adjustment”: A qualitative study of midwives’ experiences counselling pregnant women on physical activity in Sweden. *BMC Pregnancy and Childbirth*, 14, 343.
- McClure, C. K., Catov, J. M., Ness, R., & Bodnar, L. M. (2013). Associations between gestational weight gain and BMI, abdominal adiposity, and traditional measures of cardiometabolic risk in mothers 8 y postpartum. *The American Journal of Clinical Nutrition*, 98(5), 1218–1225. <http://dx.doi.org/10.3945/ajcn.112.055772>
- Muktabhant, B., Lumbiganon, P., Ngamjarus, C., & Dowswell, T. (2012). Interventions for preventing excessive weight gain during pregnancy. *The Cochrane Database Systematic Reviews*, 4, CD007145.
- Nederlandse Vereniging voor Obstetrie en Gynaecologie: Dutch association for Obstetricians and Gynaecologists. (2009). *Zwangerschap bij Obesitas* [Pregnancy in obese women]. Utrecht, The Netherlands: Author. Retrieved from http://nvog-documenten.nl/index.php?pagina=richtlijn/pagina.php&fSelectTG_62=75&fSelectedSub=62&fSelectedParent=75
- Olsson, P., Sandman, P. O., & Jansson, L. (1996). Antenatal booking interviews at midwifery clinics in Sweden: A qualitative analysis of five video-recorded interviews. *Midwifery*, 12(2), 62–72. [http://dx.doi.org/10.1016/S0266-6138\(96\)90003-0](http://dx.doi.org/10.1016/S0266-6138(96)90003-0)
- Polit, D. F., & Beck, C. T. (2012). *Nursing research: Generating and assessing evidence for nursing practice*. Philadelphia, PA: Wolters Kluwer/Lippincott Williams & Wilkins.
- Perinatale Registratie Nederland: The Netherlands Perinatal Registry. (2013). *Trends 1999-2012*. In H. A. A. Brouwers (Ed.). Utrecht, The Netherlands: Stichting Perinatale Registratie Nederland. Retrieved from http://www.perinatereg.nl/uploads/174/146/Perinatale_Registratie_Nederland_Grote_Lijnen_1999-2012_2.pdf
- Rasmussen, K. M., & Yaktine, A. L. (Eds.). (2009). *Weight gain during pregnancy: Reexamining the guidelines*. Washington, DC: Institute of Medicine and National Research Council of the National Academies.
- Rauh, K., Gabriel, E., Kerschbaum, E., Schuster, T., von Kries, R., Amann-Gassner, U., & Hauner, H. (2013). Safety and efficacy of a lifestyle intervention for pregnant women to prevent excessive maternal weight gain: A cluster-randomized controlled trial. *BMC Pregnancy and Childbirth*, 13, 151.
- Reitsma, E., Groenen, C., & Fermie, M. (2007). *Takenpakket Eerstelijns Verloskunde 2007* [Midwifery in the Netherlands]. Utrecht, The Netherlands: Koninklijke Nederlandse Organisatie van Verloskundigen. Retrieved from <http://www.knov.nl/werk-en-organisatie>
- Rode, L., Kjaergaard, H., Ottesen, B., Damm, P., & Hegaard, H. K. (2012). Association between gestational weight gain according to body mass index and postpartum weight in a large cohort of Danish women. *Maternal and Child Health Journal*, 16(2), 406–413.
- Thangaratinam, S., Rogozinska, E., Jolly, K., Glinkowski, S., Roseboom, T., Tomlinson, J. W., . . . Khan, K. S. (2012). Effects of interventions in pregnancy on maternal weight and obstetric outcomes: Meta-analysis of randomised evidence. *British Medical Journal*, 344, e2088. <http://dx.doi.org/10.1136/bmj.e2088>
- van Hassel, D. T. P., Kasteleijn, A., & Kenens, R. J. (2014). *Cijfers uit de registratie van verloskundigen* [Numbers of obstetric registration Utrecht]. Retrieved from <http://www.nivel.nl/sites/default/files/bestanden/Cijfers-uit-de-registratie-van-verloskundigen-peiling-jan-2013.pdf>
- Viswanathan, M., Siega-Riz, A. M., Moos, M. K., Deierlein, A., Mumford, S., Knaack, J., . . . Lohr, K. N. (2008). Outcomes of maternal weight gain. *Evidence Report/Technology Assessment (Full Rep)*, (168), 1–223.
- Walsh, D., & Devane, D. (2012). A metasynthesis of midwife-led care. *Qualitative Health Research*, 22(7), 897–910. <http://dx.doi.org/10.1177/1049732312440330>
- Wiegers, T. A., Warmelink, J. C., Spelten, E., Klomp, M. T., & Hutton, E. (2013). Work and workload of Dutch primary care midwives in 2010. *Midwifery*, 30(9), 991–997. <http://dx.doi.org/10.1016/j.midw.2013.08.010>
- Willcox, J. C., Campbell, K. J., van der Pligt, P., Hoban, E., Pidd, D., & Wilkinson, S. (2012). Excess gestational weight gain: An exploration of midwives’ views and practice. *BMC Pregnancy and Childbirth*, 12(1), 102. <http://dx.doi.org/10.1186/1471-2393-12-102>
- World Health Organization. (2012). *Obesity and overweight*. Retrieved from <http://www.who.int/mediacentre/factsheets/fs311/en/index.html>
- Yu, Z., Han, S., Zhu, J., Sun, X., Ji, C., & Guo, X. (2013). Pre-pregnancy body mass index in relation to infant birth

weight and offspring overweight/obesity: A systematic review and meta-analysis. *PLoS One*, 8(4), e61627. <http://dx.doi.org/10.1371/journal.pone.0061627>

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Correspondence regarding this article should be directed to Astrid Merkx, MSc, Research Centre for Midwifery Science, Midwifery Education & Studies Maastricht-ZUYD, PO Box 1256, 6201 BG Maastricht, The Netherlands. E-mail: a.merkx@av-m.nl

Astrid Merkx, MSc, midwife, lecturer, PhD student, Research Centre for Midwifery Science, Midwifery

Education & Studies Maastricht-ZUYD, and CAPHRI, School for Public Health and Primary Care, Maastricht, The Netherlands.

Marlein Ausems, PhD, senior lecturer and researcher, Research Centre for Midwifery Science, Midwifery Education & Studies Maastricht-ZUYD, Maastricht, The Netherlands.

Luc Budé, PhD, senior lecturer and researcher, Research Centre for Midwifery Science, Midwifery Education & Studies Maastricht-ZUYD, Maastricht, The Netherlands.

Raymond de Vries, Prof, PhD, Research Centre for Midwifery Science, Midwifery Education & Studies Maastricht-ZUYD, and CAPHRI, School for Public Health and Primary Care Maastricht, The Netherlands.

Marianne J. Nieuwenhuijze, MPH, PhD, midwife, researcher, head of Research Centre for Midwifery Science, Midwifery Education & Studies Maastricht-ZUYD, Maastricht, The Netherlands.