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Addressing transition to motherhood, guideline adherence by midwives in prenatal booking visits: Findings from video recordings

Elke Tichelman [a,b,c,*], Lilian Peters [a,b,c], Jorien Oost [c], Anne Westerhout [c], François G. Schellevis [d,e], Huibert Burger [b], Janneke Noordman [d], Marjolein Y. Berger [b], Linda Martin [a]

[a] Amsterdam UMC, Vrije Universiteit Amsterdam, Midwifery Science, AVAG, Amsterdam Public Health Research Institute, Amsterdam, the Netherlands
[b] University of Groningen, University Medical Centre Groningen, Department of General Practice and Elderly Care Medicine, the Netherlands
[c] AVAG Amsterdam Groningen Midwifery Academy, the Netherlands
[d] NIVEL, Netherlands Institute for Health Services Research, Utrecht, the Netherlands
[e] Department of General Practice and Elderly Care Medicine, Amsterdam Public Health Research Institute, VU University Medical Center, Amsterdam, the Netherlands

Abstract

Objective:
To assess if and how primary care midwives adhere to the guideline by addressing transition to motherhood at the first prenatal booking visit and to what extent there was a difference in addressing transition to motherhood between nulliparous and multiparous women.
Design:
Cross-sectional observational study of video-recorded prenatal booking visits.
Setting and participants:
126 video recordings of prenatal booking visits with 18 primary care midwives in the Netherlands taking place between August 2010 and April 2011.
Measurements:
Five observers assessed dichotomously if midwives addressed seven topics of transition to motherhood according to the Dutch guideline prenatal midwifery care from the Royal Dutch Organization of Midwives and used six communication techniques. Frequencies

and percentages of addressing each topic and communication technique were calculated. Differences between nulliparous and multiparous women were examined with Chi-Square tests or Fischer Exact tests, were appropriate. The agreement between the five observers was quantified using Fleiss' Kappa.
Findings:
During all visits at least one of the seven topics of transition to motherhood was addressed. The topics mother-to-infant bonding and support were addressed respectively in 2% and 16% of the visits. In almost all visits the topics desirability of the pregnancy, experience with the ultrasound examination or abdominal palpation or hearing the foetal heartbeat and practical preparation were addressed. Open questions for addressing transition to motherhood were used in 6% of the prenatal booking visits. Dutch midwives addressed transition to motherhood mostly by giving information (100%) and by using closed-ended questions (94%) and following woman's initiative (90%). Nulliparous women brought up transition to motherhood on their own initiative more often than multiparous women (97% versus 84%). For the topics ‘desirability of the pregnancy ‘and’ practical preparations’ and for conversation techniques ‘giving information’ and ‘closed-ended questions’, 100% agreement was achieved. However, the topic ‘Support’ had poor agreement (kappa = 0.19).
Key conclusions and implications for practice:
Although during every visit the transition of motherhood was addressed, the topics mother-to-infant bonding and support should get more attention. Midwives should improve adherence to the guideline by addressing transition to motherhood and by using more open questions. Furthermore, they should focus on taking the initiative to address the transition to motherhood in multiparous women themselves.

Introduction

Antenatal care aims at optimizing mental and physical health for both mother and child (WHO, 2015). In that respect the World Health Organization recommends to address the transition to motherhood in antenatal care to achieve a positive motherhood for all women (Tunçalp et al., 2017, World Health Organization 2016). Women experience the transition to motherhood as a major life event (Barclay et al., 1997; Prinds et al., 2014). This is often unrecognized and women find it hard to express themselves about this transition (Prinds et al., 2014). As a result, women can develop fear, guilt, and anxiety, which could eventually lead to postnatal depression (Winson and Squire, 2009). Several studies reported that the transition to motherhood was more stressful than mothers had anticipated (Oakley, 1992; Wilkins, 2006; Darvill et al., 2010). Most women need psychosocial support from their midwives for their transition to motherhood (Oakley, 1992, Wilkins, 2006, Darvill et al., 2010), e.g. attention to emotions, receiving information, being able to follow prenatal classes, and spend a moment to the relationship between mother and fetus (for example, Oakley, 1992, Wilkins, 2006, Darvill et al., 2010).

The process of becoming a mother takes place at every birth, and not only for first time mothers (Darvill et al., 2010). However, there is evidence suggesting that expecting a second or third child is associated with lower levels of prenatal mother-to-infant bonding compared to expecting a first child (Gau, 1996, Seimyr et al., 2009). In addition, mothers expecting a second or third child have, in general, less need for information in pregnancy (de Boer et al., 2008), although other research suggests that these mothers have other needs than first-time mothers which are less likely to be fulfilled (Martin et al., 2013). It is unknown whether parity makes a difference in midwives addressing transition to motherhood during the prenatal booking visit.

If midwives address the transition to motherhood, it has been shown to be more effective when they apply an open communication technique (Ha et al., 2010), because open questions compel women to provide more in-depth and insightful responses (Ha et al., 2010). Showing empathy is also an example of a skillful communication technique (Ha et al., 2010). In line with the above research, the Dutch guideline 'prenatal midwifery care' from the Royal Dutch Organization of Midwives recommends addressing the transition to motherhood during the prenatal period preferably using multiple communication techniques (de Boer et al., 2008). The Dutch guideline has not clearly defined a specific time frame for addressing the transition to motherhood. Neither it is defined whether the transition to motherhood should be addressed in detail or more in general at the first prenatal booking visit (de Boer et al., 2008). However, next to the guideline, the Royal Dutch Organization of Midwives published an antenatal care model with the focus on psychosocial support. Here they do mention that the transition to motherhood should be addressed at the first prenatal booking visit and as well later on in pregnancy (Royal Dutch Organization of Midwives, 2008). It is however unknown if midwives comply with this guideline early in pregnancy, in particular during the prenatal booking visit and whether parity makes a difference in midwives addressing transition to motherhood during the prenatal booking visit. Furthermore, we do not know what communication techniques midwives use for addressing topics of transition to motherhood during the prenatal booking visit at the onset of antenatal care.

Therefore, the primary aim of this study was to assess if midwives addressed the transition to motherhood according to the Dutch guideline prenatal midwifery care during the prenatal booking visit. This research will reflect a generic view on how midwives address transition to motherhood rather than insight into performances of individual midwives. In addition, we assessed which communication techniques Dutch midwives applied if addressing the transition to motherhood. Secondary, we investigated to what extent there was a difference in addressing transition to motherhood between nulliparous and multiparous women. Our results will provide insight into the quality of prenatal care with respect to supporting the transition to motherhood, and may lead to recommendations for enhancing prenatal care.

At the onset of antenatal care 86% of all women in the Netherlands contact a midwife (vanDijk et al., 2016, College Perinatale Zorg 2016, Utrecht 2016). During the prenatal booking visit midwives discuss the women's history of physical and psychosocial health and provide health behaviour information (Baron et al., 2017, Spelten et al., 2015, Pereboom et al., 2014). Of all prenatal consultations, the prenatal booking visit is the longest and takes about 30–60 minutes (Reitsma et al., 2007, Spelten et al., 2015).

Methods

Study design and video recording procedure

This is a cross-sectional observational study of video-recorded prenatal booking visits, which were recorded as part of the Data EersteLIjns VERloskunde (DELIVER study). DELIVER, was a multicenter prospective cohort study aimed at evaluating primary midwifery care in the Netherlands with a focus on quality, organization and accessibility of care (Manniën et al., 2012). Video recordings and questionnaire data of pregnant women were collected between August 2010 and April 2011. The data were initially collected to examine antenatal counseling for congenital anomaly tests and prevention of infections (Martin et al., 2014, Pereboom et al., 2014, Spelten et al., 2015). The current study is a secondary analysis of the video recordings.

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Videos were recorded using the following procedure. Midwives were instructed to position the unmanned camera, so the face of the midwife could be fully seen and the women and - if present - her partner were not visible for reasons of privacy. More details were reported elsewhere (Spelten et al., 2015). The women filled in a questionnaire immediately before or after the prenatal booking visit.

Participants

Six of the twenty participating midwifery practices in the DELIVER study were purposively sampled based on their practice size and location in the Netherlands (urban versus semi-rural and percentages of clients from non-Dutch origin) (Spelten et al., 2015) to collect video recordings. Primary care midwives could participate if they had an employment contract at the participating practice.
All women who contacted one of the six participating practices to make their first appointment for a prenatal visit in the period between August 2010 and April 2011 were eligible and were informed about the study. Their visit was recorded if they could read and understand Dutch or English, and signed an informed consent form. For logistic reasons we analyzed 126 of the 191 video recordings (Sample size calculator online, 2013). These video recordings were randomly selected (https://www.random.org/lists/).

Coding of video recordings

The Dutch guideline prenatal midwifery care includes topics and communication techniques that should be addressed and used when discussing transition to motherhood during the prenatal period (see box). Based on these topics we made an observation coding tool. The topics regarding the transition to motherhood addressed by midwives in prenatal bookings were measured dichotomously as ‘addressed’ and ‘not addressed’.
Next, we assessed midwives’ communication techniques inspired by the skilful communication techniques (Ha et al., 2010), the Roter Interaction Analysis System (RIAS) (Roter and Larson, 2002) and the Dutch guideline prenatal midwifery care (see box). The resulting coding tool comprised different communication techniques. The communication techniques varied in complexity from scheduling follow-up policy to open-ended questions. Each communication technique was measured as ‘applied’ or ‘not applied’. Two experts on observing communication techniques assessed the coding tool on face validity. The observation tools were pretested by five observers on four recordings, which were not included in this study.

[BOX]

In total five observers observed the video recordings. To train them in observations they scored three video recordings independently, i.e. masked for each other's scorings. Afterwards they compared the scores. When their scores differed, they made a consensus agreement. This agreement was documented systematically to increase the interrater reliability. When performing the observations for the study the observers could always ask questions to each other. The answers to these questions were also documented systematically.

Characteristics of participants and visits

The questionnaire data contained demographic pregnancy characteristics like parity, age, education, ethnicity, marital status and occupation (Martin et al., 2013). Parity was categorized in nulliparous and multiparous women. The highest attained educational level was categorized into ‘low/medium’ (primary education, high school, lower/medium vocational education) or ‘higher’ (Bachelor or Master Degree) and ethnic origin into Dutch and non-Dutch. Non-Dutch is defined as someone with at least one parent born in a country other than the Netherlands (Keij, 2002). Employment is categorized into employed and unemployed (i.e. attending school, unemployed, housewife). Furthermore,

characteristics of the consultation such as duration and partner presence were obtained from the observations of the videos (Spelten et al., 2015).

Data analyses

Descriptive statistics were reported for the characteristics of the study population. Frequencies and percentages with an exact binomial 95% confidence interval (CI) of each transition to motherhood topic addressed and communication technique used were calculated for an overall description. Variation in scoring between midwives was investigated by calculating the range in aggregated scores per midwife. Statistical differences between nulliparous and multiparous women were examined with Chi-Square tests or Fischer Exact tests where appropriate.
A random ten percent of the video recordings were selected to assess the interrater reliability of the observations between the five observers. If an observer did not analyse one of these videos because of ethical and privacy issues the missing scores were imputed with multiple imputation under the assumption of values being missing at random (MAR) (Huisman and Steglich, 2008, Huisman, 2009). The agreement between the observers was quantified using Fleiss' Kappa (κ) (Fleiss,1971). Because the MAR assumption cannot be tested, a comparison with the results of a complete case analysis was made. We interpreted the kappa values between 0 and 0.20 as poor agreement, 0.21–0.40 fair agreement, 0.41–0.60 moderate agreement, and 0.61–0.80 good agreement. A value exceeding 0.80 is considered optimal agreement (Landis and Koch, 1977; Meriqui Neto et al., 2017). Statistical analyses were performed with SPSS Statistics 24.0 (SPSS inc. Chicago, Illinois).

Ethical approval and privacy issues

The DELIVER study was approved by the Medical Ethics Committee of the VU University Medical Centre Amsterdam (Ref. 2009/284). Privacy was guaranteed in accordance with Dutch legislation. Several measures were taken to ensure client confidentiality during video recordings (Spelten et al., 2015). To ensure the midwives' confidentiality the observers were not allowed to analyze the video recording if they were personally acquainted with the midwife. The videotapes were securely stored at the 'Communication Database' of the Netherlands Institute for Health Services Research (NIVEL).

Findings

Eighteen midwives were included in this study, with a range from two to six midwives per midwifery practice. They invited in total 352 eligible pregnant women to participate. Out of these, 229 women (65%) agreed their visit to be video-recorded and provided informed consent (Pereboom et al., 2014). The reasons for refusal were mostly personal or privacy issues. Of these, 191 videos were included in the DELIVER study (see Fig. 1; Spelten et al., 2015). 38 videos were not included due to empty or incomplete recordings or the recording was not a prenatal booking visit. Within this study, a total of 126 randomly selected videotaped prenatal bookings were analysed. The number of videos per midwife varied from one to twenty-one and from 14 to 45 per midwifery practice (Table 1).

[figure 1][table 1]

The mean age of the women in our study was 29 years (range 20–38). Fifty-eight women (46%) were nulliparous, 48% were higher educated and 8% were of non-Dutch ethnicity. The partner accompanied the majority (70%) of the women to the prenatal booking visit (Table 2). The median duration of the prenatal booking visits was 45 (min-max range 23–101) minutes. The median number of weeks of pregnancy was 8 (min-max range 3–17) at the time of the video recording. Nulliparous women were younger compared to multiparous women and compared to multiparous women, partners of nulliparous women were more frequently present at the prenatal booking visit.

[table 2]

Addressing transition to motherhood

During each visit, at least one of the topics of transition to motherhood was addressed. The topics 'mother-to-infant bonding' and 'support by partner friends and family' were addressed infrequently, 2% (n = 3) (95% CI 0–7%), and 16% (n = 20) (95% CI 10–23%), respectively. The range between the 18 midwives on these topics was 0–25% and 0–38%, respectively. One of the 18 midwives addressed mother-to-infant bonding in 25% of her visits. The topic 'fantasizing about the baby' was addressed in 37% (95% CI 29–46%) of all visits. The range between the 18 midwives on this topic was 0–100%.

In almost all visits the topics 'desirability of the pregnancy', 'experience of the ultrasound or abdominal palpation' or 'hearing the foetal heartbeat' and 'practical preparation' were addressed (Table 2). Post hoc we made a distinction in addressing practical preparation for pregnancy, birth, immediately after birth and upbringing (addressed in respectively 98, 29, 38 and 3% of the visits). There was a statistically significant difference in addressing 'desirability of the pregnancy' between nulliparous and multiparous women (100% versus 93%).

Applied communication techniques

Table 2 shows frequencies and percentages of the communication techniques midwives applied for addressing the transition to motherhood by parity. Open questions for addressing transition to motherhood were used in 6% (95% CI 2 – 10%) of the visits. The range in variation between the 18 midwives was 0– 25%. Two of the eighteen midwives applied open-ended questions. The variation between the 18 midwives was large for 'scheduling follow-up policy' and for 'showing verbal empathy' (range for both 0–100%) and small for the other communication techniques.

Dutch midwives addressed transition to motherhood mostly by giving information (100% n = 126, 95% CI 97–100%), by using closed-ended questions (94% n = 119, 95% CI 89 – 98%) and by following woman's initiative (90% n = 113, 95% CI 83 – 94%). Of the 113 times women brought up the transition to motherhood themselves, nulliparous women initiated this more often than multiparous women (97% versus 84%).

Interrater reliability

Thirteen (10%) recordings were analysed by all five observers. A single observer could not analyse two of these 13 videos to ensure the midwives' confidentiality, resulting in 3% missing values.
For the topics 'desirability of the pregnancy' and 'practical preparations' perfect agreement was achieved (Table 3). 'Support' had poor agreement (k = 0.19), 'mother-to-infant bonding' and 'the experience of the ultrasound or abdominal palpation or hearing the foetal heartbeat 'had fair agreement (k = 0.23 and 0.22). The topics 'concerns about the baby's health' and 'fantasizing about the baby' had moderate agreement (k = 0.52 and 0.49) (Landis and Koch, 1977; Meriqui Neto et al., 2017). For two applied conversation techniques, giving information and closed-ended questions, 100% agreement was achieved. Scheduling follow-up policy had poor agreement (k = 0.03) and open-ended questions had fair agreement (k = 0.37). The conversation techniques, showing verbal empathy and following woman's initiative had good agreement (k = 0.64 and 0.73). The complete case analysis showed similar results compared to the analysis with imputed data.

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Discussion

This study aimed to quantify guideline adherence, if and how midwives address topics related to the transition to motherhood at the first prenatal booking visit. At least one of the seven coded topics was addressed by midwives in all visits. Dutch midwives addressed transition to motherhood mostly by giving information and by using closed-ended questions or following woman's initiative. The topics mother-to-infant bonding and support were addressed infrequently. Nulliparous women only differ from multiparous women in bringing up more often the transition to motherhood on their own initiative.

Transition to motherhood

Overall, midwives adhered to some extent to the guideline ‘prenatal midwifery care’ in our study, because during every prenatal booking visit the transition of motherhood was addressed by midwives (de Boer et al., 2008). Only one midwife addressed mother-to-infant bonding. Mother-to-infant bonding may be addressed by midwives during visits later in pregnancy. However, both transition to motherhood and mother-to-infant-bonding are ongoing processes starting early in pregnancy (Brandon et al., 2009; Pisoni et al., 2014; Shieh et al., 2001, de Cock et al., 2016, Kinsey and Hupcey, 2013, Klaus et al., 1995, Klaus, 1998) or even during the preconception period (Rowan, 2009). This insight is relevant for clinical practice, as it underlines the importance to monitor the development of the mother-baby relationship already early in pregnancy. If a midwife notices suboptimal mother-to-infant bonding early in pregnancy, she is able to provide pregnant women timely with support, information and treatment (NICE, 2014) to prevent fear, guilt, anxiety and postnatal depression and negative consequences for the child (Winson and Squire, 2009, Mason et al., 2001, Pollock and Percy, 1999). Reasons for non-adherence of addressing transition to motherhood in the prenatal booking, could be that midwives try to find the right balance between evidence (guidelines), their expertise and the preferences and needs of the woman. Women in the Netherlands have a preference to woman-centered care, with information specific tailored to them (Baas et al., 2015). So if the midwife may have noticed that the woman was not ready to discuss her transition of motherhood, she would not addressed the transition to motherhood yet in the prenatal booking visit (Fontein-Kuipers et al., 2018).

On the other hand, the fact is that in 90% of the prenatal booking visits a woman addresses a topic of the transition to motherhood herself. This suggests that women have a need to talk about one or more topics. Although this study did not explicitly examine whether or not pregnant women wish the transition to motherhood to be addressed, an earlier qualitative study in the Netherlands confirms this (Seefat-vanTeeffelen et al., 2011). During their transition to motherhood, healthy low-risk pregnant women wanted attentive, proactive, professional psychosocial support from midwives (Seefat-vanTeeffelen et al., 2011). According to the women this should include listening to worries and, if necessary, take action, such as providing extra check-ups (e.g. listening to the fetal heartbeat, an ultrasound examination), so that they can personally see or hear that things were fine. Moreover, they appreciated midwives who stimulated bonding by advising them to foster mindfulness during pregnancy and take the time to make contact with the infant in the womb (Seefat-van Teeffelen et al., 2011).

Some other reasons for non-adherence could be difficulties with changing routines, thinking guideline adherence is time consuming, the recommendations do not fit with the working style, resistance against working according protocols (Offerhaus et al., 2005) and the complexity of the guideline (Francke et al., 2008). Guidelines that are easy to understand and do not require specific resources or skills have a greater chance of being used (Francke et al., 2008).

Communication techniques

Our study evidenced that there is little use of open-ended questions by midwives. This is worrisome, because open-ended questions give clients potentially more room to provide personal information than closed-ended questions. Professionals who use effective communication combine multiple conversation techniques, for example by starting with an open question to introduce a subject, then asking closed questions to zoom in on the subject together with showing empathy (Ha et al., 2010). Our findings suggest that the midwives did not comply with this effective communication technique. In our analyses, we did not analyse voice and phrasing of the questions. According to Roter sometimes a closed-ended question could be interpreted as an open-ended question (Roter and Larson, 2002). In 2006, a continuum of communication styles was identified between midwives and pregnant women in prenatal booking visits. The hierarchical and formal styles, containing more emphasis on the risk model, used more closed questions in a specific order. These styles were dominant in the prenatal booking visits in hospital, despite the focus of midwifery on being 'with-woman' and the recent policy emphasis on consumer choice. The visits of midwives in practices showed a less hierarchical and more conversational form (McCourt, 2006). Communication training improves communication skills (Gysels et al., 2004, Noordman et al., 2014). Therefore, communication skills training should be included in the midwifery education (Alimorad et al., 2013). The most effective strategy for teaching communication skills is an active practice-oriented strategy (Berkhof et al., 2011). Nowadays, active, practice-oriented communication skills training are already included in the Dutch midwifery education curriculum. Dutch students receive various communications skills training with simulated patients and role-play. It is a possibility that they experience a discrepancy between education at school and their internships in midwifery practices and hospitals (Taveira-Gomes et al., 2016, DiMatteo, 1998). Only 6% of midwives asked open ended questions for addressing transition to motherhood. We recommend to further investigate the reasons why midwives did not use more open-ended questions to explore their clients views on transition to motherhood. In our study the median observed duration of the prenatal booking visits was 45 minutes. This fact might account for the shortage of open-ended questions, as there is much to cover in what is relatively a short time for a first booking in visit and midwives might have the misunderstanding that closed-ended questions save time (Robinson and Heritage, 2006). The Dutch midwives have increasing working hours, especially spending their time on non-client related activities (Wiegers et al., al.,2014). They have to implement more multidisciplinary guidelines nowadays. On the other hand, 90% of the women addressed a topic of transition to motherhood themselves, perhaps making the use of other questions redundant.

Parity

Although we found a statistically significant difference in addressing desirability of the pregnancy between nulliparous and multiparous women (100% versus 93%), we do not believe this is a clinically relevant finding.

Our findings show that there is no difference by parity in addressing topics of transition to motherhood. However, we found a difference by parity in the applied communication techniques. Nulliparous women more often brought up the transition to motherhood on their own initiative than multiparous women did. Midwives should take this into account, because multiparous women are more vulnerable to lower levels of mother-to-infant bonding (Gau, 1996, Seimyr et al., 2009). The midwives should be aware to take self-initiative to the address the transition to motherhood by multiparous women.

Strengths and limitations

This research is unique, because to our best knowledge addressing the transition to motherhood in prenatal booking visits has never been researched before. Further, the precision of our study as indicated by the confidence intervals for most percentages of topics of the transition to motherhood addressed and communication techniques used was acceptable. A strength of this study was the investigation in the interrater reliability of the observers' scoring. Scoring support and scheduling follow-up policy showed poor agreement, which affect the robustness of the results regarding these topics. The five researchers may have had different views about whether a topic was addressed which implies that the instructions were not explicit enough for these items. These results should be interpreted with caution, because of the poor interrater reliability.

A limitation of the study is that we did not have data on the prenatal visits during the whole pregnancy. Our study population was not fully representative for the Dutch pregnant population (Statistics Netherlands, 2017). The women in our study are about two years younger than the current Dutch pregnant population (29.3 versus 31.1 years) and have more often a Dutch ethnicity (92% versus 74%) (Statistics Netherlands, 2017). Moreover, higher educated women were overrepresented in our study population. As communication with lower educated women will be more challenging, our results probably represent an overestimation of the frequency of applied communication techniques for addressing the transition to motherhood.

Another limitation is that the data for this study were collected from 2010 to 2011. For midwifery practices in the Netherlands little has changed in the content of prenatal booking visits. In 2012, centering pregnancy was introduced in the Netherlands (Rising, 1998). In 2017, 84 (16%) of the 532 midwifery practices in the Netherlands have implemented this groupwise prenatal care in their practices (Nivel, 2016; personal correspondence with program leader of centering pregnancy in the Netherlands). A Centering group follows the recommended schedule of 10 prenatal visits, but each visit is 90 minutes to two hours long - giving women 10× more time with their provider. All the aspects of transition to motherhood are in theory addressed in the program with special focus on social support (Rising, 1998, Rising et al., 2004). Only the mother-to-infant bonding is not explicitly included in the centering pregnancy program (Heberlein et al., 2016). In the implementation of centering pregnancy (i.e. group prenatal care), there is special focus on communication forms in the training for midwives (Rising et al., 2004). In the Dutch instruction book for midwives, there is special attention for asking open-ended questions. This implies that for women who participate in the centering pregnancy program the transition to motherhood should be explicitly addressed. The adherence to the recommendations of the centering pregnancy program are still unknown.

Implications for research and practice

Observations of prenatal visits during the course of the pregnancy may give more information on whether midwives adhere to the guideline and address all recommended topics of the transition to motherhood during the whole pregnancy. Special attention for addressing mother-to-infant bonding in this future research is recommended, because especially this topic is infrequently addressed during prenatal booking visits and because this topic is not included in the current centering pregnancy program. Midwives who have not implemented the centering pregnancy program should pay extra attention to apply open questions by addressing transition to motherhood. Further research about midwives' reflections about their use of open-ended questions is warranted, together with research to explore midwifery-students experience regarding an eventual discrepancy between their communication training in education and their internships in midwifery practice. The midwives should be aware to initiate addressing the transition to motherhood in multiparous women themselves.

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Conflict of interests

The authors declare no competing interests.

Ethical approval

The DELIVER study was approved by the Medical Ethics Committee of the VU University Medical Centre Amsterdam (Ref. 2009/284). Privacy was guaranteed in accordance with Dutch legislation. Several measures were taken to ensure client confidentiality during video recordings (Spelten et al., 2015). To ensure the midwives' confidentiality the observers were not allowed to analyze the video recording if they were personally acquainted with the midwife. The videotapes were securely stored at the 'Communication Database' of the Netherlands Institute for Health Services Research (NIVEL).

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Clinical trial registry and registration number (if applicable)

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BOX and Tables

Topics of transition to motherhood and communication techniques that could be applied when discussing transition to motherhood during prenatal bookings according to the Dutch Guideline.

Topics	Examples
1) mother-to-infant bonding	the feelings a mother has to her unborn child
2) desirability of the pregnancy	fertility treatment , use of contraception methods
3) fantasizing about the baby	about the gender or possibility of twins
4) concerns about the baby's health	concerns for loss of pregnancy, anomalies or used medication
5) practical preparation for the arrival of the baby	following prenatal education classes or practical preparations for a healthy pregnancy as folic acid
6) experience of the ultrasound, abdominal palpation, or hearing the foetal heartbeat	feelings during or after ultrasound examination or abdominal palpation
7) support by partner, friends and family	family member who is able to babysit
Communication techniques	
a) scheduling follow-up policy	the midwife schedules an ultrasound examination
b) giving information	the midwife gives information on prenatal education classes
c) closed-ended question	the midwife asks: Do you like being pregnant
d) showing verbal empathy	midwife says that is sad for you if a woman tells her she is afraid for having a pregnancy loss
e) following woman's initiative	when a midwife listens and responds to the story or question of a woman.
f) open-ended question	the midwife asks: What are your feelings about your pregnancy?

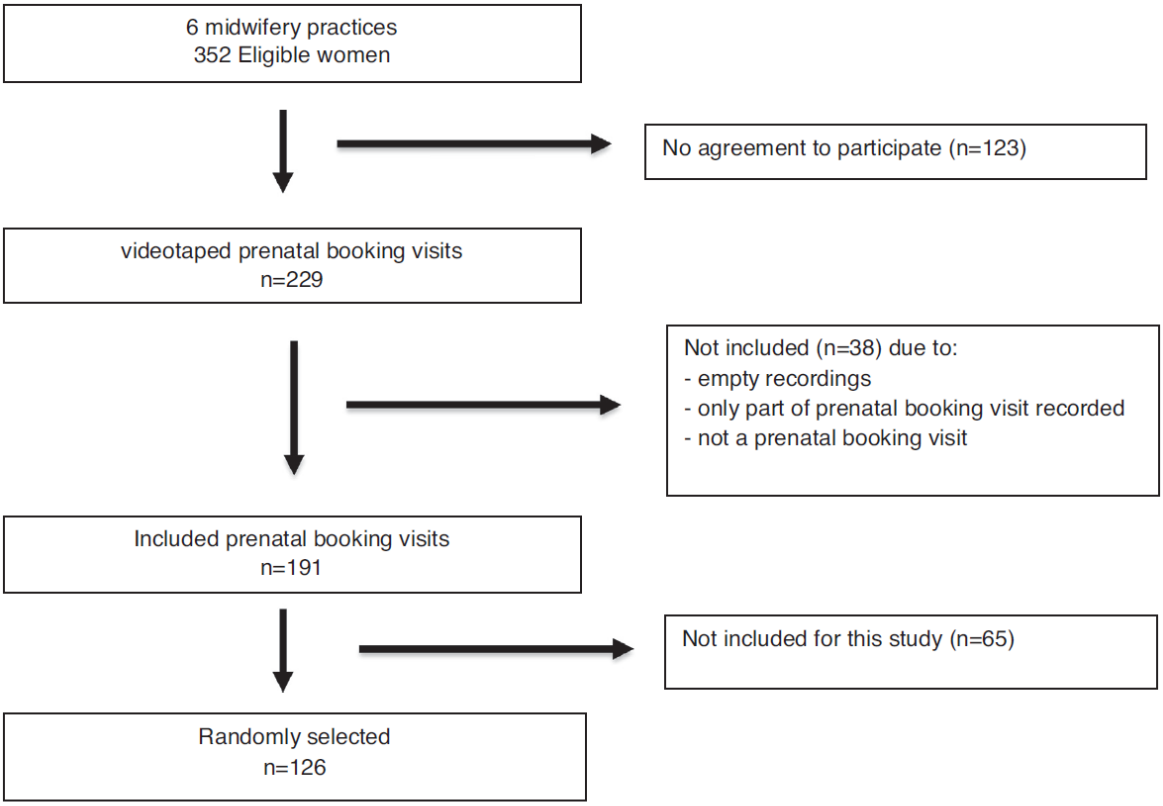

Fig. 1. Flowchart of included videotaped prenatal booking visits.

Tichelman, E., Peters, L., Oost, J., Westerhout, A., Schellevis, F.G., Burger, H., Noordman, J., Berger, M.Y., Martin, L. Addressing transition to motherhood, guideline adherence by midwives in prenatal booking visits: findings from video recordings Midwifery: 2019, 69, 76-83

Table 1
Characteristics of the pregnant women and prenatal booking visits by parity.

Characteristics	All women $n = 126$		Nulliparous $n = 58$		Multiparous $n = 68$	
	N	%	n	%	n	%
Age (years)						
≤ 25	19	15	14	24	5	8
26–30	59	47	29	50	30	44
31–35	36	29	12	21	24	35
≥36	12	9	3	5	9	13
Educational level						
Low/medium	62	52	27	48	35	56
High	57	48	29	52	28	44
missing	7		2		5	
Ethnic origin						
Dutch	109	92	53	95	56	89
Non-Dutch	10	8	3	5	7	11
missing	7		2		5	
Marital status						
Married/partner	113	95	54	96	59	94
Singlemissing	67	5	2	4	4	6
Occupation						
Employed	97	87	48	89	49	84
Unemployed	15	13	6	11	9	16
missing	14		4		10	
Duration of booking						
≤ 50 minutes	90	71	41	71	49	72
> 50 minutes	36	29	17	29	19	28
Partner present at booking						
Yes	88	70	47	81	41	60
No	38	30	11	19	27	40

Table 2
Frequency of addressing topics of the transition to motherhood and used communication techniques in prenatal booking visits by parity.

Topics of transition to motherhood	Addressed in all visits $n=126$		95% CI	Visits of nulliparous women $n=58$		Visits of multiparous women $n=68$		P-value
	n	%	%	n	%	n	%	
mother-to-infant bonding	3	2	0 - 7	1	2	2	3	NA[a]
desirability of the pregnancy	121	96	91 - 99	58	100	63	93	**0.04**
fantasizing about the baby	47	37	29 - 46	24	41	23	34	0.38
concerns about the baby's health	83	66	57 - 74	38	66	45	66	0.94
practical preparation for the arrival of the baby	125	99	96 - 100	58	100	67	99	NA[a]
experience of the echo/ abdominal palpation/hearing the foetal heartbeat	110	87	80 - 93	47	81	63	93	0.05
support by partner, friends and family	20	16	10 - 23	10	17	10	15	0.07
Communication techniques								
scheduling follow-up policy	66	52	43 - 61	27	47	39	57	0.23
giving information	126	100	97 - 100[b]	58	100	68	100	NA[a]
closed-ended question	119	94	89 - 98	56	97	63	93	0.45
showing verbal empathy	31	25	17 - 33	16	28	15	22	0.47
following woman's initiative	113	90	83 - 94	56	97	57	84	**0.02**
open-ended question	6	5	2 - 10	2	3	4	6	0.69

95% CI = exact binomial 95% confidence interval.
[a] NA = not applicable, Chi-Square tests or Fischer Exact tests where not appropriate.
[b] one-sided 97.5 CI.

Table 3
Interrater reliability of five observers' scores of addressing topics of transition to motherhood and used communication techniques in 13 video-recorded visits.

Topics of transition to motherhood	Fleiss' kappa	95%- CI
mother-to-infant bonding	0.23	0.04 – 0.42
desirability of the pregnancy	1.0	NA
fantasizing about the baby	0.49	0.30 – 0.67
concerns about the baby's health	0.52	0.33 – 0.70
practical preparation for the arrival of the baby	1.0	NA
experience of the echo/ abdominal palpation/hearing the foetal heartbeat	0.22	0.03 – 0.41
support by partner, friends and family	0.19	0.01 – 0.38
Applied communication techniques		
scheduling follow-up policy	0.03	−0.16 – 0.22
giving information	1.0	NA
closed-ended question	1.0	NA
showing verbal empathy	0.64	0.45 – 0.82
following woman's initiative	0.73	0.54 – 0.92
open-ended question	0.37	0.18 – 0.56

NA = not applicable.