Promotion of health behavior in pregnant women in vulnerable circumstances by Dutch birth care professionals: A cross-sectional survey study

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ABSTRACT

INTRODUCTION This study aimed to explore how birth care professionals promote health behavior for pregnant women in vulnerable circumstances.

METHODS A questionnaire was distributed online from February to June 2023 among all primary care midwifery practices (n=144) and obstetric units (n=15) in the West and Southwest regions of the Netherlands. Descriptive statistics were used to present the results.

RESULTS The questionnaire was completed by 106 birth care professionals (67%). Almost all respondents (95%) found it important to discuss health behavior with pregnant women in vulnerable circumstances, and 89% reported doing so with all or the majority of women in vulnerable circumstances. Discussing partners' health behavior with the partners themselves was less frequently reported as important (84%), and only 40% of respondents reported discussing this with all or most partners. Most respondents reported they provided personalized information about smoking, alcohol intake, drug use, healthy diet, folic acid, use of medication, and being overweight. Only 32% reported providing information about chronic stress. Most respondents agreed that it is important to give attention to the identity of pregnant women in vulnerable circumstances (83%) and to their autonomy (91%) when discussing health behavior, but lack of time is a barrier to discussing this. Only 30% of the respondents found it difficult to discuss health behavior with pregnant women in vulnerable circumstances. Still, 57% of the respondents indicated that they (might) need additional knowledge, and 53% indicated that they did not have sufficient education in this area.

CONCLUSIONS Birth care professionals recognize the importance of discussing health behaviors with pregnant women in vulnerable circumstances. However, future research should explore how birth care professionals can be better educated to discuss health behavior, including chronic stress, with pregnant women and their partners in a time-efficient manner.

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INTRODUCTION

Health risk behavior of pregnant women, such as smoking, poor nutrition, alcohol consumption, and low physical activity, is associated with adverse pregnancy outcomes for both mother and child, including stillbirth, low birth weight, preterm birth, and cesarean delivery[1-4]. Women with multiple health risk behaviors face an even higher risk of adverse pregnancy outcomes[5]. Although health risk behavior is less prevalent in pregnant women than in the general population, the prevalence of health risk behavior in pregnant women is still high[6], especially in women living in deprived neighborhoods[7], those with a lower socio-economic status, or those without a partner[8].

Providing information about health risk behavior during pregnancy and implementing interventions to motivate pregnant women to change this behavior are tasks of birth care professionals[9]. Such information is especially important for pregnant women in vulnerable circumstances, since they have the highest odds for adverse pregnancy outcomes[10,11]. 'Women in vulnerable circumstances' is a broad concept, often described as a combination

of different physical, psychological, cognitive and/or social risk factors in combination with lack of adequate support and/or adequate coping skills[12,13].

Birth care professionals can implement various interventions to promote health behavior changes, such as counseling and providing information on smoking cessation, a healthy diet, or alcohol abstinence. However, the effectiveness of such interventions can vary[14], and providing information is often more challenging when working with women in vulnerable circumstances[15].

Aspects that enable health behavior change include the mother`s intrinsic decision to change this behavior and the social support available to her, especially from her partner[16]. In behavior change interventions, it is important to adopt an approach that focuses on who the pregnant woman is – and who she wants to become – both as an individual and as a mother. This is often referred to as an identity-based approach[17,18]. Systematic reviews and meta-analyses highlight the importance of identity ('who I am') in health behavior change, including behaviors such as alcohol use, smoking, and physical activity in the general population[19,20]. In addition to recognizing the role of identity, the importance of women's autonomy – their freedom of choice and personal ownership – is also emphasized. Autonomous motivation is an important predictor of successful health behavior change, as individuals are more likely to succeed when they feel autonomous and experience a sense of freedom and ownership in their decisions. This can, for example, be achieved by discussing with pregnant women which behavior they want to improve, how much support they need, and from whom they want to receive that support[21,22]. Pregnant women and mothers themselves emphasize that identity and autonomy are important for enabling and sustaining health behavior change[16].

However, although the importance of health behavior during pregnancy is well known and various interventions are available, there is still room for improvement. Identifying potential areas for improvement requires insight into the current practices of birth care professionals. Although several studies have examined barriers and facilitators to health promotion[15], the current practice of Dutch birth care professionals promoting health behavior, especially for vulnerable pregnant women, is currently unknown. Therefore, this study aimed to explore how birth care professionals promote health behavior for pregnant women in vulnerable circumstances, specifically concerning: 1) their daily practices, 2) the tools they use to support health behavior change, 3) their communication techniques, and 4) their perspectives on autonomy- and identity-based approaches.

METHODS

Design

A cross-sectional study design was employed, using a digital questionnaire that was distributed to birth care organizations in the Netherlands between February and June 2023. This survey was conducted as part of the WE-STUDY, a research project in which an autonomy- and identity-based approach is developed with, and for, women in vulnerable circumstances before and during pregnancy with the aim to promote health behavior change. The WE-STUDY aims to cocreate and evaluate a training for healthcare providers, equipping them to better support (pre)pregnant women in vulnerable circumstances and help reduce health risk behaviors. To ensure that the training and the intervention components align with the needs of professionals, it is important to first gain insight into their current practices and beliefs.

Participants

The questionnaire was sent to all independent primary care midwifery practices (n=144) and all obstetric units of the public hospitals (n=15) in the West and Southwest regions of the Netherlands, reaching from Leiden in the North to Zeeland in the South. Birth care professionals of these organizations were asked to complete the questionnaire. Eligible professionals were primary care midwives, clinical midwives, obstetricians, and obstetric nurses. In order to get a representative sample, minimize self-selection bias, and enhance participation at the organizational level, we asked one birth care professional per organization to complete the questionnaire – specifically, the one whose birthday was coming up next.

Data collection

As no validated questionnaires addressing the topic of this study could be found in the literature, a new questionnaire was developed specifically for this study. Items and constructs from several existing questionnaires served as inspiration, including the Dutch '*Persoonsgerichte zorg*' questionnaire (English: 'person-centered care') designed for healthcare professionals[23] and the Health Care Climate Questionnaire (HCCQ)[24]. The development process followed the methods outlined by Hicks[25], which included, among others, defining the topic and aim of the questionnaire and conducting several feedback rounds with: 1) the co-authors of this article, 2) three colleague researchers, and 3) the WE-STUDY advisory board, and 4) three birth care professionals. Feedback from these stakeholders was incorporated into the final version of the questionnaire.

In the final questionnaire, the term 'healthy lifestyle' was used instead of 'health behavior' because 'lifestyle' is more commonly used by Dutch birth care professionals. Examples of an unhealthy lifestyle (smoking, alcohol consumption, unhealthy diet, insufficient physical activity, overweight/obesity, and chronic stress) were provided, along with a definition of 'pregnant women in vulnerable circumstances' at the beginning of the questionnaire.

The questionnaire was divided into five parts:

1. Respondents' baseline characteristics [age, gender, job description, and job experience (years)];
2. Vignettes, hypothetical case descriptions of women in more or less vulnerable situations (results will be described elsewhere);
3. Discussing health behavior (respondents' views on discussing health behavior, the tools or protocols used,

and which aspects of health behavior are discussed);
4. Communication techniques, most of which are based on autonomy- and identity-based approaches. This section started with definitions of 'identity' and 'autonomy', and included questions about the importance and use of the communication techniques; and
5. Knowledge and education, inviting respondents to indicate whether they felt they had sufficient knowledge and education to promote health behavior for pregnant women in vulnerable circumstances.

This online questionnaire was distributed via the LimeSurvey survey tool in February 2023. Email addresses for the organizations were available online or upon request by telephone. The research group sent reminders to all non-responders at two and six weeks after the first e-mail invitation. Approximately three months after the first invitation, non-responders were contacted by telephone to encourage participation. The questionnaire is available in the Supplementary file.

Ethics

Ethical approval was granted by the ethics committee of Rotterdam University of Applied Sciences (20221202_1). Respondents received an information letter describing the aim of the questionnaire and were assured that data would be treated confidentially. Data were saved at a secure location maintained by Rotterdam University of Applied Sciences, accessible only by the authors JS, MF and HV-T, and will be archived for 10 years. All respondents provided a written informed consent before completing the questionnaire.

Statistical analysis

Descriptive statistics were used to analyze all variables. Normally distributed interval data are presented as means and standard deviations (SD); non-normally distributed interval data are presented as medians and IQRs. Categorical data are presented as frequencies and percentages. Some participants dropped out without completing the questionnaire. All available information is analyzed, and the dropout rate is described in the tables. All analyses were performed using IBM SPSS version 28 (SPSS Inc., Chicago, IL, USA).

RESULTS

Respondents

The questionnaire was sent to 159 birth care organizations, including independent primary care midwifery practices and hospital obstetric units. In total, 116 birth care professionals (73%) returned the questionnaire. Ten questionnaires were excluded from analysis for the following reasons: only the informed consent question was completed (n=4), the respondent was not a birth care professional (n=2), the same respondent completed the questionnaire twice (n=1), or the questionnaires contained only baseline characteristics (n=3). After these exclusions, 106 questionnaires were included in the analysis, resulting in a response rate of 66.7%.

Respondents had a mean age of 37.8 years (SD=9.8). The majority were primary care midwives (n=99; 93.4%), followed by obstetricians (n=4; 3.8%), one clinical midwife (0.9%), one obstetric nurse (0.9%), and one respondent

Table 1. Birth care professionals' attitude on discussing healthy behavior with pregnant women in vulnerable circumstances (N=104)*

	Very important n (%)	*Somewhat important n (%)*	*Not important/ Not unimportant n (%)*	*Somewhat unimportant n (%)*	*Very unimportant n (%)*
Discussing health behavior with a pregnant woman in vulnerable circumstances is …	78 (75.0)	21 (20.2)	1 (1.0)	1 (1.0)	3 (2.9)
Discussing health behavior of the partner (with the partner) is …	31 (29.8)	56 (53.8)	13 (12.5)	3 (2.9)	1 (1.0
	All n (%)	*Majority n (%)*	*Half n (%)*	*Minority n (%)*	*None n (%)*
I discuss this with … of the pregnant women in vulnerable circumstances	49 (47.1)	44 (42.3)	7 (6.7)	4 (3.8)	
I discuss this with … of the partners	12 (11.5)	30 (28.8)	22 (21.2)	38 (36.5)	2 (1.9)
	Very difficult n (%)	*Fairly difficult n (%)*	*Neutral n (%)*	*Fairly easy n (%)*	*Very easy n (%)*
I find this mostly … to discuss with the pregnant women in vulnerable circumstances	1 (1.0)	30 (28.8)	31 (29.8)	40 (38.5)	2 (1.9)
I find this mostly … to discuss with the partner	3 (2.9)	33 (31.7)	37 (35.6)	29 (27.9)	2 (1.9)

*Two respondents did not answer these questions.

Table 2. Birth care professionals' self-reported behavior regarding discussing health behavior with pregnant women in vulnerable circumstances (N=100)*

Behavior§	*n*
Smoking	99
Alcohol intake	97
Drug use	97
Healthy diet	94
Folic Acid	93
Use of medication (e.g. sleep medication)	82
Overweight	81
Toxoplasmosis	74
Physical activity	59
Underweight	67
Listeria	66
Vitamin A	52
Chronic stress	32

*Six respondents did not complete this question. § Multiple answers possible.

who did not provide a job description. The mean working experience was 13.1 years (SD=8.8).

Daily practice

More than 95% of the respondents reported that they found it important to discuss health behavior with pregnant women in vulnerable circumstances (very important 75.0%, somewhat important 20.2%) (Table 1). However, lower importance was reported for discussing partners' health behaviors with the partners themselves. Nearly half of the respondents reported discussing health behavior with all pregnant women in vulnerable circumstances, and more than 40% with the majority of pregnant women in vulnerable circumstances. Less than 20% of respondents reported discussing health behavior with all partners, and less than 30% with the majority of partners (Table 1). Their perceptions of the difficulty of discussing health behavior varied, but the variation appears similar when discussing this topic with pregnant women in vulnerable circumstances and with their partners (Table 1). When asked to explicate their responses, various factors that influenced their perceptions of difficulty came to the fore, such as the women's willingness to change behavior, the multitude of subjects that need to be discussed with pregnant women in vulnerable circumstances leaving little time to promote health behavior, and some indicated that while discussing health behavior is quite easy, effecting change in health behavior is challenging. Respondents also described that not all partners are present during consultations, and that the information provided to partners mainly focuses on smoking and drug abuse.

Regarding the topics that were discussed with pregnant women in vulnerable circumstances, most respondents (>80.0%) selected smoking, alcohol intake, drug use, healthy diet, folic acid, use of medication, and being overweight. Only 32.0% of the respondents indicated that they discuss chronic stress (Table 2).

Most of the 99 respondents who answered the question about tailoring the information about health behavior (n=71; 71.7% of the respondents) indicated that they indeed tailored this instead of discussing it in a standard manner. Respondents described taking into account the pregnant women's current health behavior, their financial situation, and their level of understanding when tailoring information.

Tools and education

Most respondents (75.0%) used a protocol or guideline, ranging from local hospital protocols to regional protocols from obstetric collaborations and national protocols addressing specific topics, such as smoking. Less than one-third of the respondents (28.0%) indicated using (online) tools to initiate or maintain a change in health behavior. Almost all tools mentioned by the respondents were related to promoting smoking cessation.

When asked about knowledge and education, 38 respondents (42.7%) indicated that they did not need additional knowledge about promoting health behavior for pregnant women in vulnerable circumstances. However, more than half of respondents reported needing or potentially needing additional knowledge (33.7% and 23.6%, respectively). Furthermore, 43 (47.3%) respondents stated that they had sufficient education to promote health behaviors among pregnant women in vulnerable circumstances, whereas 48 (52.7%) indicated that they did not.

Communication techniques

The questionnaire provided respondents with a list of possible communication techniques. The respondents reported widely using most techniques when discussing health behavior with pregnant women in vulnerable circumstances (Table 3). Communication techniques that were most frequently reported to be important were: 1) trying to understand why changing behavior is difficult for their patient, 2) giving information about harmful effects of their unhealthy behavior, 3) giving confidence to pregnant women in vulnerable circumstances that they can adapt in their lifestyle, and 4) asking pregnant women in vulnerable circumstances how they would like to change their lifestyles.

Perspective on autonomy- and identity-based approaches

More than 80% of the respondents fully or somewhat agreed (n=51; 54.8% and n=26; 28.0% respectively) with the statement that paying attention to the identity of the pregnant women in vulnerable circumstances helps promote health behavior. This was almost the same concerning autonomy (n=59; 63.4% totally agreed and n=26; 28.0% somewhat agreed).

When asked about barriers to discuss identity and autonomy when promoting health behavior, lack of time was reported most frequently (n=47; 50.0% for identity and

Table 3. Birth care professionals' rated importance and self-reported use of identity- and autonomy-related communication techniques*

	Important n (%)	*Not important/ Not unimportant n (%)*	*Unimportant n (%)*	*Everyone n (%)*	*Majority n (%)*	*About half n (%)*	*Minority n (%)*	*Nobody n (%)*
Trying to understand why pregnant women in vulnerable circumstances behave the way they do, before trying to change it	83 (91.2)	2 (2.2)	6 (6.6)	24 (28.2)	43 (50.6)	15 (17.6)	3 (3.5)	0 (0)
Discussing different options, also not changing the current lifestyle	73 (80.2)	9 (9.9)	9 (9.9)	23 (27.4)	35 (41.7)	15 (17.9)	8 (9.5)	0 (0)
Discussing how a healthy lifestyle fits the identity of the pregnant women in vulnerable circumstances	73 (81.1)	9 (10.0)	8 (8.9)	18 (21.7)	27 (32.5)	13 (15.7)	21 (25.3)	4 (4.8)
Setting goals for a healthy lifestyle based on the identity of the pregnant women in vulnerable circumstances	69 (77.5)	12 (13.5)	8 (9.0)	16 (19.3)	25 (30.1)	24 (28.9)	14 (16.9)	4 (4.8)
Giving confidence to pregnant women in vulnerable circumstances so that they can adapt their lifestyle	80 (88.9)	2 (2.2)	8 (8.9)	29 (34.5)	37 (44)	13 (15.5)	4 (4.8)	1 (1.2)
Asking pregnant women in vulnerable circumstances how they would like to change their lifestyles	80 (88.9)	2 (2.2)	8 (8.9)	25 (30.1)	40 (48.2)	13 (15.7)	5 (6.0)	0 (0)
Stimulate pregnant women in vulnerable circumstances to ask questions about their lifestyles and potential consequences	73 (81.1)	11 (12.2)	6 (6.7)	17 (20.2)	34 (40.5)	17 (20.2)	11 (13.1)	5 (6.0)
Giving information about the harmful effects of unhealthy lifestyles	82 (91.1)	0 (0)	8 (8.9)	45 (53.6)	32 (38.1)	4 (4.8)	3 (3.6)	0 (0)

*n differs between questions, due to missing data, ranging from 89–91 respondents for the questions about the importance and ranging from 83–85 respondents for the questions about the amount. The table contains valid percentage.

n=34; 36.2% for autonomy), although some respondents indicated no barriers at all (n=34; 36.2% for identity and n=49; 52.1% for autonomy).

DISCUSSION

In this study, almost all Dutch birth care professionals who participated indicated that it was important to discuss health behavior with pregnant women in vulnerable circumstances, with attention to the identity and autonomy of the pregnant women. However, lack of time was reported as an important barrier. Health behavior of the partner was less frequently indicated to be important, and is discussed less often. Almost all respondents reported providing personalized information about smoking, alcohol intake, drug use, healthy diet, folic acid, use of medication, and being overweight, but only one-third indicated providing information about chronic stress. More than a quarter of the respondents indicated that they found it difficult to discuss health behavior, and about half the respondents indicated that they (might) need additional knowledge and did not have sufficient education to discuss health behaviors.

Birth care professionals find it important to discuss pregnant women's health behavior, but the partner's health behavior is less frequently discussed. Literature about the daily practices of midwives and obstetricians concerning information about alcohol consumption also indicates that a minority of midwives involve their partners when giving this information[26]. Research shows, however, that social support is important to change and maintain health behavior – and that consequently it is important to involve the partner in the changes of health behavior[27,28].

Although many health behavior topics were often

discussed by birth care professionals, only one-third of the respondents indicated discussing chronic stress. This finding is consistent with a study describing that 45% of health care professionals rarely or never discussed stress management with their clients, and that more than half of the respondents lacked confidence in their ability to counsel patients about stress, while almost all believed that stress management was effective in improving health outcomes[29]. Chronic stress has been found to be associated with an increased risk of preterm birth, low birth weight, and maternal obesity[30]. These increased risks were especially relevant for pregnant women in vulnerable circumstances and their partners, as chronic stress is at play among vulnerable groups[31]. Furthermore, chronic stress has been found to impede pregnant women's health behavior[32]. For future research, it might be worthwhile to explore possible reasons why birth care professionals do or do not discuss chronic stress, and to explore, together with birth care professionals, feasible ways for birth care professionals to discuss stress. Possibly together with professionals of the social domain, because their expertise is important for this topic.

To our knowledge, this is the first study to explore birth care professionals' perceptions of identity- and autonomy-based approaches in supporting health behavior change in pregnant women in vulnerable circumstances. This study shows that birth care professionals find it important to discuss identity and autonomy. However, professionals identified a lack of time as an important barrier, which is consistent with previous literature describing barriers to (effectively) discussing health behavior[15,33-35]. As midwives need to discuss many topics with pregnant women, lack of time is often perceived as a barrier for properly discussing healthy behavior and for addressing possible interventions for behavior change. For future research and health policy, it is important to explore care methods that are less time-consuming or to consider the provision of financial resources to facilitate midwives' time investment to properly discuss healthy behavior. Online tools, such as screening lists or tools to initiate or maintain behavior changes, might be an option[36]. Further research is needed to investigate which tools could be beneficial for birth care professionals for both screening and intervention.

Another barrier to properly discussing healthy behavior, as described in the literature, is a lack of knowledge and difficulty in accessing appropriate training[15,33-35]. In our study, only about 30% of respondents indicated that they found it difficult to discuss health behavior with pregnant women in vulnerable circumstances. However, about half of them indicated that they need more knowledge, which suggests that education for (future) birth care professionals should center more on this topic.

Strengths and limitations

Our request that only one professional per organization should complete the questionnaire – based on the high workload of birth care professionals in the Netherlands – could be seen as both a strength and a limitation of the study. Its strength was the resultant high response rate (66.7%). Furthermore, to reduce selection bias, we stipulated that the questionnaire should be completed by the professional whose birthday was coming up first. But its limitation was that we did not invite every birth care provider. Another limitation of the study is the low number of obstetricians and clinical midwives who could be included. This sample included only four obstetricians, making the results especially generalizable for independent primary care midwives. All midwifery practices and obstetric units in the selected region were invited, but there are far more midwifery practices than obstetric units in the Netherlands. In the Netherlands, uncomplicated pregnancies and births are usually supervised by primary care midwives. When medical problems arise, or the woman is at higher risk of medical complications, care will be provided and supervised by an obstetrician or a clinical midwife under the supervision of an obstetrician. Because both settings are different and include different population characteristics, further research should include more obstetricians and should focus on possible differences between the two settings.

A further limitation is that not all respondents fully completed the questionnaire. When the questionnaire progressed, the number of missing values increased, indicating that respondents dropped out. We do not have reasons for the respondents to stop the questionnaire, so we cannot conclude if the missing data were random or influenced the results. However, the dropout rate was very low, and the number of dropouts was described in all tables.

Lastly, it is possible that participants gave socially desirable answers. We tried to minimize socially desirable answers by defining answer options on a 5-point scale, e.g. ranging from strongly agree/very important to strongly disagree/very unimportant. Further interview studies among birth care professionals could be meaningful to study whether socially desirable answers were given.

CONCLUSIONS

This study showed that the participating Dutch birth care professionals find it important to discuss health behavior with pregnant women in vulnerable circumstances. However, more insight is needed into how birth care professionals can be supported to effectively discuss health behavior with pregnant women in vulnerable circumstances in such a way that it includes both the pregnant woman and her partner, with information about all relevant topics for a healthy start, including chronic stress, and with attention to time investment.

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CONFLICTS OF INTEREST

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ETHICAL APPROVAL AND INFORMED CONSENT

Ethical approval was obtained from The Research Ethics Committee (REC) of the Rotterdam University of Applied Sciences (20221202-1) on 7 December 2022.

DATA AVAILABILITY

The data supporting this research are available from the authors on reasonable request.

PROVENANCE AND PEER REVIEW

Not commissioned; externally peer reviewed.