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Womeńs experiences with managing advice on gestational diabetes - a qualitative interview study

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ABSTRACT

Objective: This study aims to gain insight into womeńs experiences with gestational diabetes and their strategies to cope with advice for changing lifestyle. Further, health care professionalś approach to women with gestational diabetes is discussed.
Methods: Semi-structured interviews with nine women with gestational diabetes were conducted at a university hospital, adopting a phenomenological approach.
Results: Three themes were created: 1) Experience of control, 2) personal strategies, and 3) unintended consequences. Women experienced that the monitoring at the outpatient clinic was associated with surveillance and safety and adopted different strategies to cope with gestational diabetes. Some women experienced feeling different and labelled due to the monitoring and their eating habits. Some women expressed concern for the baby and the risk of getting diabetes after birth. Womeńs experiences and how they transfer and cope with information about gestational diabetes at an outpatient obstetric clinic are brought forward, and it became evident that individual needs in gestational diabetes care are not being met in all situations.
Conclusion: Women experienced surveillance and safety while being monitored at the outpatient clinic. At the same time, self-monitoring seemed to stimulate feelings of concern about otherś reactions to the condition. In addition, we found that womeńs strategies for behaviour change included limited food intake, controlling food purchases, and being physically active. Concerning the management of gestational diabetes, some women felt that the information was not sufficiently adapted to their individual needs, thus health professionalś approach to gestational diabetes should be based on the womeńs perspective.

Introduction

The prevalence of gestational diabetes mellitus (GDM) is increasing globally by more than 30 % within the last decades [1]. A national study of the prevalence of GDM in Denmark shows that the condition has increased across all age groups over the past two decades, from 1.7 % of the total births in 2004 to 2.9 % of the total births in 2012 [2]. The major risk factors for the development of GDM in most countries are attributed to advanced maternal age in the first pregnancy, maternal obesity, GDM in an earlier pregnancy, and a family history of diabetes [2]. Women who had GDM are 8.3 (95 % CI 6.5–10.6) times more likely to develop type 2 diabetes than women with normoglycemic pregnancies [3]. Therefore attention should be paid to the increasing prevalence by preventive health services [2]. Early diagnosis and proper management of GDM and the postpartum follow-up are expected to reduce the risk of future diabetes [4]. However, according to the Danish Health Authority, preventive measures may unintentionally cause concern and medicalisation [5]. An interview study with patients receiving preventive care showed that they were exposed to certain forms of undesired control concerning their lifestyle [6]. An example of unintended consequences for women with GDM was that they experienced a loss of personal control, as they, their bodies, and pregnancies were subjected to control and surveillance by internal and external forces [7]. The women felt that their personalities were undermined as a consequence of the perceived control [7]. Another study suggested that one cause of non-participation in follow-up screening after GDM was a failure to take the women's individual needs and preferences into account during pregnancy [8]. This might negatively influence womeńs experience of the approach, and their motivation to follow recommendations on GDM might unintendedly be reduced. Communication is essential to integrate womeńs

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needs and preferences into the counselling and promote the transfer of recommendations into health-promoting behaviour in daily life [9].

In a Norwegian study, women were shocked when they were diagnosed with GDM, and they experienced an immediate need for information about the consequences and management of GDM [10]. In a Swedish study, midwives believed they were obligated to monitor and control pregnancies with GDM and, at the same time, provide empowering relationships with the women. The midwives experienced conflicting encounters providing antenatal care to pregnant women with GDM [11]. In a New Zealand study, women with GDM experienced that their relationships with healthcare professionals played a significant role in their motivation to adhere to recommendations, and the value of individually tailored advice was highlighted in the study [12]. Therefore, the present study aims to gain insight into the experiences, thoughts, and feelings of women with GDM, who are faced with advice for changing lifestyle, and use these insights to discuss the approach to the individual woman in preventive measures targeting GDM.

Methods

Participants, setting, and ethics

Fourteen pregnant women were included based on the following inclusion criteria: being diagnosed with GDM while pregnant, being more than 18 years old when diagnosed, and being able to speak and understand Danish. Five participants withdrew their initial informed consent for the following reasons: Pain in the third trimester, fatigue, and pre-eclampsia. Two of the enrolled participants did not reply when contacted by email or phone.

The study setting was a hospital with obstetric speciality within diabetes and GDM. Cooperation and coordination with the hospital management at Aalborg University Hospital, Denmark, was established before inclusion commenced. Written and oral information about the project was disseminated to management and health professionals at the outpatient obstetric clinic. The participants were recruited by an obstetrician or a midwife at Aalborg University Hospital during or after being examined at the obstetric outpatient clinic.

Regarding ethical concerns, the participants were assured of their anonymity; data obtained would be handled confidentially following good research practise in interview studies [13], and their participation was entirely voluntary. They could withdraw their consent at any time without consequences.

Furthermore, they were given detailed information about the study. Oral and written informed consent was obtained before the interviews, following ethical considerations in an interview study [13]. The womeńs ages ranged from 25 to 42 years. Six of them were first-time mothers and they all cohabitated with their partners. Four of the participants had a lower educational level (2–3 years), three had a medium educational level (3–4.5 years), and two had a higher educational level (more than 4.5 years) [Table 1].

Table 1
Participant characteristics.

Woman	Parity	Age (years)	Ethnicity	Civil status	Education level
1	Primipara	34	Caucasian	Cohabiting	Medium
2	Primipara	26	Caucasian	Cohabiting	Low
3	Multipara	36	Asian	Cohabiting	Medium
4	Primipara	25	Caucasian	Cohabiting	Medium
5	Primipara	30	Caucasian	Cohabiting	Low
6	Primipara	28	Caucasian	Cohabiting	Low
7	Primipara	29	Caucasian	Cohabiting	High
8	Multipara	42	Caucasian	Cohabiting	Low
9	Multipara	32	Caucasian	Cohabiting	High

Design

A phenomenological approach was adopted to study the lived experience, meaning to question how we immediately experience the world [14]. In this study, womeńs lived experiences with gestational diabetes were investigated to gain a deeper understanding of how they experienced GDM and being counselled. Data on the interviewees' experiences were obtained through semi-structured interviews. The interview guide was designed using Kvale and Brinkmann's approaches [13], using open-ended questions and was structured according to the following three research questions:

1) How do pregnant women with GDM experience monitoring and control of their pregnancies?
2) Which personal strategies do pregnant women with GDM use to handle recommendations in pregnancy?
3) In which situations did the course of GDM evoke concern or feelings of illness?

The first author conducted nine individual interviews, lasting 35 to 60 min. Eight of the interviews were conducted at the outpatient obstetric clinic, and one woman was interviewed at home due to long travel distance to the obstetric clinic. The interviews were recorded digitally and transcribed verbatim by student assistants who had received guided instructions on transcribing the recordings.

The women in the present study were selected through purposeful sampling, as women meeting the inclusion criteria were expected to have in-depth knowledge of the research area [15]. Sufficient information power was obtained [16], as the study aim was relatively narrow and the sample of women was specifically directed towards the aim. Furthermore, the interviewś depth and the reflective data analysis determined that the number of participants was sufficient.

Data analysis

The data were analysed using thematic analysis and the six steps proposed by Braun and Clarke [17]. Thematic analysis implies handling interview data reflectively, going back and forth several times between data and analysis, to reflect on the creation of themes and capture essential meanings about the phenomenon [18]. The transcribed interviews were imported into NVivo (QSR International Pty ltd. Version 12, 2012) [19].

In the first step, the first author listened to the recorded interviews to get familiar with them to ensure accuracy and eliminate typing errors. Secondly, a long list of codes across the data set was created [Table 2]. In the third step, we sorted codes into different sub-themes, creating overarching themes. In the fourth step, the validity of the themes was considered in relation to the whole data set; considering whether the themes reflected the meanings evident in the data set as a whole. In the fifth step of Braun and Clarke's analysis, each theme was defined, and clear definitions and names for each theme were developed. In the final step, the analysis was written, extract examples were finally chosen, and it was argued how the data extracts related to the research questions [17]. All authors were involved in step three to five of the thematic analysis. An overview of the created codes, sub-themes, and themes are shown here:

Results

Theme 1. Experience of control

Experience of external control initiated and exercised by health professionals

The women perceived the information about recommendations and the close monitoring as both positive and negative. One woman said:

Table 2
Codes, sub-themes, and themes.

Codes	Sub-themes	Themes
Recommendations perceived as prohibition and guardianship No one has decided anything on my behalf They kept me on a tight rein Information not adapted to my situation	1.1) Experience of external control initiated and exercised by health professionals	Theme 1. Experience of control
Moralising on my lifestyle Giving in to cravings to close them down	1.2) Experience of internal (self-imposed) control as a form of self-discipline	
Consuming less unhealthy food Not buying unhealthy food Postponing the need for sweets or milk Saying no to unhealthy food and drink	2.1) Strategies concerning efforts to handle and integrate recommendations about food	Theme 2. Personal strategies
Intrinsic motivation Cleaning and tidying up and attending to practical matters Back on track again	2.2) Strategies concerning efforts to handle and integrate recommendations about physical activity	
Feeling different Feelings of being labelled Feelings of guilt	3.1) Feelings of going through a different pregnancy and feelings of being labelled	Theme 3. Unintended consequences
Being concerned about the future	3.2) Feelings of guilt and being concerned about the future	

> "It reminds me of being under guardianship. Clearly, […] it resembles an irritating parent. On the other side, I think it is good for me knowing the rules" (Woman 8).

In this case, the woman referred to recommendations as "rules", which might stem from her use of the metaphor "an irritating parent", or it might have been a part of her coping strategy to perceive advice as rules. Some women expressed feelings of being under surveillance and, at the same time, they felt the need for advice and counselling. Close monitoring of the blood glucose levels made some women feel safe, stating that it was nice to be kept on a tight rein. They referred to experiences of external control with positive implications, as the feeling of safety was connected to close monitoring.

Some women expressed frustration because they experienced information being withheld solely based on their background as health professionals. One woman, being a nurse, was not referred to a dietician, and on these grounds, she felt that no one advised her about recommended food intake. Another woman, also a health professional, expressed that she needed the same information as other pregnant women. The information was not adapted for these womeńs situations. They felt discriminated against because of their professional backgrounds. The result was that these women did not experience being controlled by external forces, as they were not informed about recommendations. However, in our opinion, the health professionals seemed, consciously or unconsciously, to use control by determining which information and advice the women needed.

Experience of internal (self-imposed) control as a form of self-discipline

One woman was able to discipline herself by moralising on her lifestyle. This woman perceived control as being predominantly exercised by herself, as she obtained internal control utilising this strategy. Some women gave in to their cravings to close their thoughts about unhealthy food items down. Another woman's strategy was a 'zero' strategy; to transpose the recommendations received, she said 'No!' whenever feeling tempted to eat unhealthy food.

A precondition for the individual woman to acquire internal control is, probably, having relevant and adapted information about the concrete situation. Some women experienced a lack of information after submitting their blood glucose values. They were informed at the outpatient clinic that they would be contacted, if the blood glucose levels were not within the normal range. One woman said:

> "The only frustrating thing has been the waiting time. If I doṅt hear anything, everything is all right. I do like to get the message no matter if it is good or bad" (Woman 4).

In the same case, the information given at the outpatient clinic was not adapted to the womaṅs actual situation:

> "I have not had so much information about having a baby somewhat smaller. Because I have been informed that, when you have gestational diabetes, you must take care that your baby does not become too big" (Woman 4).

The woman expressed a lack of information about the meaning of the actual size of her baby. Another woman expressed that the information given at the outpatient clinic was not adapted to her current situation. She said:

> "I have lacked a bit of information about if it [the blood glucose] was too low. I think that they only talked about if it was too high. […]. I became somewhat uncertain if it was acceptable that it was low" (Woman 6).

In some cases, we found a lack of information related to the womaṅs status as a health professional, the clinićs procedure, or the actual course of the pregnancy. In this study, lack of information was connected to feelings of less internal control. However, it could also have been interpreted as control exercised by external forces, who determined which information and advice the women needed.

Theme 2. Personal strategies

Strategies concerning efforts to handle recommendations about food

One woman had a strategy of allowing herself small amounts of chips, as she explained that she was not overweight and had not gained too much weight. Another strategy for women with GDM to discipline themselves, in relation to food intake, was not to have unhealthy food items in the home to avoid being tempted. Women with GDM might also resort to postponing the need for sweets or milk until the afternoon, as the craving for it was more intense at that time. The personal strategies range from allowing oneself small amounts of desired food to always refusing to have items that are not recommended. One woman had a strategy of not giving in when something was not allowed as it was convenient to have a good reason. This woman experienced that her altered eating habits were socially acceptable for someone with gestational diabetes, as opposed to being on a diet which can be a taboo subject.

Another issue is how women with GDM are motivated to keep their eating habits on track. A woman said that she thought of her unborn child to do so:

> "Thoughts went down the belly, and I thought that there is a reason why I must think before eating. Actually, there is somebody in there whom I want to be healthy and well and not to be more predisposed to diabetes in the future. It is also better for me. The more physically fit I am when I must [give birth]. This makes it easier and has also motivated me" (Woman 2).

In general, we found that pregnancy and the unborn baby was an essential motivational factor for changing lifestyle.

Strategies concerning efforts to handle recommendations about physical activity

Some women explained how washing up, vacuuming or tidying up became part of their strategy concerning physical activity. Some women expressed having a bad conscience about not exercising according to recommendations, while other women reported not having a bad conscience about physical inactivity referring to limited weight gain:

> "I can see that I only have gained 9 kilos in this pregnancy. I do not think I must have a bad conscience in that case. It had been different if my weight was rising and I felt bad, then I would have acted differently. In that case, I would have been more serious about it" (Woman 4).

A woman explained how her stable blood sugar values counteracted her bad conscience as opposed to if it went wrong, she would have done more about it. These women created their personal interpretations of the condition, meaning that as the weight gain and the blood glucose was within the normal range, they downplayed the experienced seriousness of the recommendation.

Another woman talked about getting the condition under control again through physical activity to assure stable blood glucose the day after having sweets:

> "If I had more cake than usual, for instance when I attended my grandmás birthday last week, and I had more ice-cream and dessert than usual. Well, I did not measure the blood glucose at 22:30 h on my way to bed, but I planned to be more active the day after. And then catch up with it again […]. I would not name it bad conscience. It is … you know. I must have it under control again. It is, so to speak, that I must get back on track again" (Woman 5).

We found that the coping strategies concerning physical activity were predominantly transferred to practical matters in the womeńs daily lives. Some created personal explanations for parting from the recommendations about physical activity, which illustrates a lack of understanding of the physiology of GDM and long-term health consequences related to this.

Theme 3. Unintended consequences

Feelings of going through a different pregnancy and feelings of being labelled

One woman experienced blood glucose monitoring as an invasion in everyday life, and expressed that, what she named, *the illness* became apparent to people in her surroundings. Another woman also speculated that blood glucose monitoring made the condition visible to her surroundings, in this case, to her colleagues. Some women did not express feelings of illness, but they considered their pregnancies different mainly because of the altered eating habits following a pregnancy with gestational diabetes. The experience of going through a GDM-pregnancy seems to concern feelings of a different pregnancy. A woman addressed a feeling of being different in a social context related to adhering to recommendations at gestational diabetes:

> "Then, I have said to myself, […] at the party, I will allow myself to step on it. I have done that […] allowing myself to taste [the cake], and allowing myself not to feel different and experiencing people looking at you, wondering "*Why do you eat in that way*?" (Woman 4).

This woman felt controlled by her surroundings and her feelings of them thinking, curiously or condescendingly, about her eating habits. The feeling of being different in a social context might, at the same time, be a feeling of being labelled as a person whose eating habits deviated from other people. This particular woman talked explicitly about feeling labelled at work because of her eating habits:

> "At work, sometimes, I think, today I will prioritize to have a piece of cake, and no one has ever said anything or frowned on me. In a way, I feel labelled as a mother who eats cake despite having diabetes" (Woman 1).

This woman had an inner voice judging her as a bad mother and she felt controlled by her colleagues, who knew of her condition from blood glucose measuring at work.

Feelings of guilt and being concerned about the future

Some women expressed feelings of guilt; one of them reasoned that being overweight was the main reason why she had developed GDM:

> "I have thought that it is my own fault. Because I am overweight. I might not have been a gestational diabetic if I had not been overweight. My BMI was around 25 before the first pregnancy. I failed losing all of it. There was not that long between [pregnancies]. Then you think, am I to give it a lot of effort, if I soon spoil my figure again, right?" (Woman 8).

Being asked about concern because of gestational diabetes, one woman said:

> "My worry is - not the actual pregnancy. During pregnancy, I consider myself in control […]. But afterwards, I can only act on my eating habits and physical activity. I feel a bit more vulnerable and unluckier having had gestational diabetes. So, I think of gestational diabetes as one more risk factor on top of it. Thinking ahead has been the most annoying part, not thinking that much of the risk right now" (Woman 7).

This woman experienced being in control during pregnancy, but she expressed worry about her capacity to maintain lifestyle demands, referring to limited strategies after birth. Another woman shared a similar concern, worrying about the risk of falling back into old habits and, therefore, she talked about a need for more self-discipline after birth to keep the condition under control.

Discussion

To address the aim of our study, in the following, we will consider our main results concerning the experiences of women with GDM and their strategies to cope with advice for changing lifestyle. Subsequently, we will relate our findings to international research in the area.

Main results and relation of these to similar studies

Experience of counselling and control

In our study, the womeńs experiences of the counselling were, in some cases, associated with reassurance while being monitored at the outpatient clinic. The women attributed significance to obtaining self-control of eating habits and physical activity during pregnancy and after birth. We found that a few women felt that the surveillance helped them comply with the recommendations, but at the same time, they perceived recommendations at the outpatient clinic as prohibition and guardianship. In our study, some women expressed discontentment, as the counselling was not directed towards their individual needs.

Other studies showed similar results concerning the womeńs experiences, as GDM was felt to limit women's autonomy and control of their normal daily activities. The women felt a loss of personal control, as well as being controlled by external forces [7]. Another study confirmed our findings of women's feelings of being under surveillance [20]; hence, women with GDM described how they felt they were being controlled by their families and the health professionals [20]. In our study, the feeling of control stemmed from health professionals, colleagues, and womeńs social network, not their families.

Integration of advice in daily life, motivation, and individual interpretations

We found that restricted food intake was challenging to integrate into pregnant womeńs daily lives, while increased physical activity was incorporated into daily life as domestic work. In our study, the women experienced motivation based on concern for the unborn baby and their own health, which positively influenced their coping strategies. Some had personal interpretations of the condition when their blood sugar values were within a normal range. The interviewed women felt on these grounds, they could be more relaxed about following the recommendations.

A study addressing womeńs strategies when coping with recommendations related to GDM showed that the quick adaptation to dietary management presented a challenge for the women [21]. According to our findings, some women interpreted the condition as not being that serious in their cases. This was supported by a systematic review finding that some women considered the condition mild, downplaying the disease, and some women doubted the diagnosis and its seriousness [22].

Experience of social control and feelings of illness

In our study, some women felt different in settings with social eating, and some felt labelled as a bad mother or as someone deviating from ‚normal' eating habits. The feelings of illness were most evident when the women had to monitor their blood glucose while out, as the device itself made some feel ill.

In a metasynthesis, women with GDM also felt abnormal in social settings, especially when complying with a strict diet, or self-monitoring their blood glucose [23]. This study supports our findings that participating in social eating presented a challenge to coping with restricted food intake and provoked feelings of being abnormal in women with GDM.

The approach to women with gestational diabetes

To address the second part of the aim, in the following we will discuss the approach to women with GDM.

A study shows that health service information directed towards women with GDM could be a general guideline. However, women with GDM needed more personalised instructions to promote confidence in self-control [24]. The study supports our request to address the individual womaṅs needs in more explicit ways, contrary to standardised information. We argue that a more woman-centred approach would address the challenges of integrating recommendations into womeńs daily lives and offer them the opportunity to share their feelings about the condition with health professionals.

A study suggests that a smartphone app might help to support women with GDM in general, and in their blood glucose management in particular [25]. In continuation of our studýs insights, an app could, among other benefits, support a quicker and more direct response to the blood glucose values for the women from the outpatient clinic and, thereby, prevent uncertainty following a lack of response.

The counselling of women with GDM at outpatient obstetric clinics might address the womeńs experience of control more explicitly. This might legitimise the different experiences of control of GDM at an individual level. We argue that this approach could promote womeńs preparedness for the different feelings of obtaining control and being controlled, promoting the womeńs ability to cope with the condition. We further argue that a bottom-up approach to women with GDM would diminish the experience of being controlled by health professionals. According to research, focusing more on the individual patient also seems to better the experience of the encounter with the healthcare professional [26].

The information at the outpatient clinic could address potential alterations in the womaṅs perception of her pregnancy, health, and self-perception in general. We argue that this information might help the women cope with the condition, as they may experience a higher degree of preparedness to deal with psychological reactions to the condition. In some cases, women were given routine information about GDM, but the information was not adapted to their actual situation. The experienced gap between the information and the womeńs actual needs could be diminished in future preventive measures for GDM by adopting an approach that starts from the womaṅs perspective. We argue that this approach could bring the individual womaṅs needs and wishes forward in the dialogue with the health professionals. Furthermore, research has shown that good communication is essential to integrate individual needs and preferences into counselling to promote the transfer of recommendations into daily life [9].

Strengths and limitations

Performing a thematic analysis made it possible to create sub-themes and themes systematically and transparently from the interview data. A limitation was that only the first author made the initial coding. However, all authors considered the validity of the themes in relation to the data set as a whole. All authors wrote the analysis reflectively, going back and forth several times between interview data and analysis to capture essential meanings about the phenomenon. Student assistants transcribed the interviews, and they were proofread listening to the recordings, ensuring the quality of the transcriptions. Five participants withdrawing their initial consent may have influenced the results as they may have contributed to essential knowledge about GDM. All women except one were interviewed at the outpatient clinic before or after examination concerning GDM. According to Tong et al., participants might be more reserved and feel disempowered talking in a hospital setting [27].

Furthermore, the participants were not offered the opportunity to comment on the transcribed material. The transferability of our findings to other women with GDM in Denmark, and other women with GDM in an international context, is considered possible, considering the inclusion criteria and the contexts [13]. The included participants represented a diverse range of sociodemographic backgrounds concerning parity, age and level of education. However, the participants ethnicity and civil status could challenge the transferability of the results to all women. In a recent study, low health literacy and/or poor Danish language skills made ethnic minority pregnant women more challenged by the GDM diagnosis [28]. However, we consider the overall strength of the study acceptable as we had access to womeńs unique experiences through the phenomenological approach.

What this study adds

This study adds knowledge of womeńs transferral of information about lifestyle concerning GDM received at an outpatient obstetric clinic. The womeńs experience of the counselling ranged from feelings of safety to feelings of unwanted control. These findingś clinical relevance is that healthcare professionals must align their gestational diabetes care recommendations to the womeńs strategies to respect the individual womaṅs integrity when coping with recommendations at GDM.

Suggestions for further research

This study found specific individual needs in GDM care which are not being met in all situations. For further research, we suggest studying the womeńs physiological, psychological and social adaption to the condition, as women with GDM seem to be challenged in all these areas of their lives. We also suggest studying healthcare professionalś perception of their role in gestational diabetes care and their relation to the women with GDM.

Conclusion

Gaining insight into womeńs experiences with GDM and their strategies to cope with advice for changing lifestyle, we found that their strategies included restricting food intake, controlling food purchases and being physically active, including housework. Furthermore, we found that some women experienced surveillance and safety being counselled at the outpatient obstetric clinic. In some cases, women experienced that the information at the outpatient clinic was not adapted to their individual needs.

Another finding was that the women experienced being different in social contexts, as their eating habits were restricted. The self-monitoring part also influenced the womeńs perception of their general health, as using the blood glucose monitor in social contexts provoked feelings of illness. The visibility of the condition in public influenced the womeńs self-perception as they were concerned about the reactions of others to the monitoring of the condition.

Using these insights to discuss the health professionalś approach to the woman with GDM, we conclude that standardised advice on managing GDM should be replaced by an approach based on women's perspectives. Further, we expect that verbalising different coping strategies would potentially sustain the women to obtain self-control of their lifestyle using individual strategies to mitigate the effect on GDM. Also, informing the women about potential alterations in the perceptions of their pregnancies, health, and self-perception might help them cope with the condition, as they may experience a higher degree of preparedness to deal with psychological reactions to the condition.

Ethical approval

Conducting qualitative studies requires no ethical approval from the ethical committee on health research ethics according to Danish legislation. The study protocol was sent to The North Denmark Region Committee on Health Research Ethics to assess if ethical approval for the study was needed. The committee stated, in writing, that according to Health Research Ethics, cf. the Danish Act of Research Ethics Review of Health Research Projects, section 14, subsection 1, cf. section 2 subsection 1–3, the project was not to be submitted to and approved by the local committee on health research ethics. Only studies involving human biological material need permission from the committee, not studies based solely on interview data.

Author contribution

All authors have contributed to this article, and all three authors have approved the final article. LT arranged the inclusion of participants, conducted the interviews, conducted the initial data analysis, and made the first draft of the article. JHN and IJ took part in writing the analysis and discussed any inconsistencies in the results, contributed to the discussions and have equally been critically revising the manuscript.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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References

[1] Zhu Y, Zhang C. Prevalence of Gestational Diabetes and Risk of Progression to Type 2 Diabetes: a Global Perspective. Curr Diab Rep 2016;16(1):1–11.
[2] Jeppesen C, Maindal HT, Kristensen JK, Ovesen PG, Witte DR. National study of the prevalence of gestational diabetes mellitus among Danish women from 2004 to 2012. Scand J Public Health 2017;45(8):811–7.
[3] Dennison RA, Chen ES, Green ME, Legard C, Kotecha D, Farmer G, et al. The absolute and relative risk of type 2 diabetes after gestational diabetes: A systematic review and meta-analysis of 129 studies. Diabetes Res Clin Pract 2021;171:1–20.
[4] Olesen CR, Nielsen JH, Mortensen RN, Bøggild H, Torp-Pedersen C, Overgaard C. Associations between follow-up screening after gestational diabetes and early detection of diabetes - a register based study. BMC Public Health 2014;14:841.
[5] Holtug N, Kongsholm N, Lægaard S, Juul Nielsen ME. Ethics in health promotion and prevention. Albertslund: The Danish Health Authority; 2009.
[6] Dahlager L. In the room of conversation: An analysis of power based on the lifestyle related interview. University of Copenhagen; 2005.
[7] Evans MK, O'Brien B. Gestational diabetes: The meaning of an at-risk pregnancy. Qual Health Res 2005;15(1):66–81.
[8] Nielsen JH, Olesen CR, Kristiansen TM, Bak CK, Overgaard C. Reasons for women's non-participation in follow-up screening after gestational diabetes. Women Birth 2015.
[9] Gerteis M, Edgman-Levitan S, Daley J, Delbanco TL. Through the patient's eyes: understanding and promoting patient-centered care [Internet]. 1. Edition. Jossey-Bass; 1993. (JOSSEY BASS/AHA PRESS SERIES). Available from: https://books.google.dk/books?id=4kEQAQAAMAAJ.
[10] Helmersen M, Sørensen M, Lukasse M, Laine HK, Garnweidner-Holme L. Women's experience with receiving advice on diet and Self-Monitoring of blood glucose for gestational diabetes mellitus: a qualitative study. Scand J Prim Health Care [Internet]. 2021;39(1):44–50. Available from: 10.1080/02813432.2021.1882077.
[11] Persson M, Hörnsten Å, Winkvist A, Mogren I. " Mission Impossible"? Midwives' experiences counselling pregnant women with gestational diabetes mellitus. Patient Educ Couns 2011;84(1):78–83.
[12] Lawrence RL, Ward K, Wall CR, Bloomfield FH. New Zealand women's experiences of managing gestational diabetes through diet: a qualitative study. BMC Pregnancy Childbirth [Internet]. 2021;21(1):1–12. Available from: 10.1186/s12884-021-04297-0.
[13] Kvale, S and Brinkmann S. Learning the Craft of Qualitative Rearch Interviewing. 3.rd. London: SAGE Publications, Ltd.; 2014.
[14] Van Manen M. Researching Lived Experience: Human Science for an Action Sensitive Pedagogy. 2nd ed. Albaby, N.Y: State University of New York Press; 1997.
[15] Creswell JW. Qualitative Inquiry and Research Design: Choosing Among Five Approaches. SAGE Publications 2013:448 p.
[16] Malterud K, Siersma VD, Guassora AD. Sample Size in Qualitative Interview Studies: Guided by Information Power. Qual Health Res 2016;26(13).
[17] Braun, V & Clarke V. Using thematic analysis in psychology. Qual Resarch Psychol [Internet]. 2006;3(2):77–101. Available from: https://doi.org/10.1191/1478088706qp063oa.
[18] Braun V., Clarke V., Hayfield N. TG. Thematic Analysis. In: Liamputtong P, editor. Handbook of Research Methods in Health Social Sciences. Singapore: Springer; 2019. p. 843–60.
[19] International Q. NVivo 12 Pro [Internet]. QSR International Ltd; 2018. Available from: https://www.qsrinternational.com/nvivo/nvivo-products/nvivo-12-pro.
[20] Persson M, Winkvist A, Mogren I. 'From stun to gradual balance'- women's experiences of living with gestational diabetes mellitus. Scand J Caring Sci 2010;24(3):454–62.
[21] Hui AL, Sevenhuysen G, Harvey D, Salamon E. Barriers and coping strategies of women with gestational diabetes to follow dietary advice. Women and Birth [Internet]. 2014;27(4):292–7. Available from: https://doi.org/10.1016/j.wombi.2014.07.001.
[22] Craig L, Sims R, Glasziou P, Thomas R. Women's experiences of a diagnosis of gestational diabetes mellitus: A systematic review. BMC Pregnancy Childbirth 2020;20(1):1–15.
[23] Parsons J, Ismail K, Amiel S, Forbes A. Perceptions among women with gestational diabetes. Qual Health Res 2014;24(4):575–85.
[24] Hui AL, Sevenhuysen G, Harvey D, Salamon E. Food choice decision-making by women with gestational diabetes. Can J Diabetes [Internet]. 2014;38(1):26–31. Available from: 10.1016/j.jcjd.2013.08.263.
[25] Skar JB, Garnweidner-Holme LM, Lukasse M, Terragni L. Women's experiences with using a smartphone app (the Pregnant+ app) to manage gestational diabetes mellitus in a randomised controlled trial. Midwifery [Internet]. 2018;58:102–8. Available from: 10.1016/j.midw.2017.12.021.

[26] Pelzang R. Time to learn: understanding patient-centred care. Br J Nurs 2010;19 (14):912–7.
[27] Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): A 32-item checklist for interviews and focus groups. Int J Qual Heal Care 2007;19(6):349–57.
[28] Dayyani I, Terkildsen Maindal H, Rowlands G, Lou S. A qualitative study about the experiences of ethnic minority pregnant women with gestational diabetes. Scand J Caring Sci 2019;33(3):621–31.