

Healthcare Professionals' Perspectives on the Cross-sectoral Treatment Pathway for Women with Gestational Diabetes During and After Pregnancy – A Qualitative Study

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Abstract

Background: Gestational diabetes increases the risk of complications during and after pregnancy, including a long-term risk of type 2 diabetes. Women with gestational diabetes have to navigate a complex treatment pathway during pregnancy, which they often experience as incoherent. These women also report a lack of preventive care after pregnancy. The objective of this study is to investigate healthcare professionals' views on the cross-sectoral treatment pathway for women with gestational diabetes – under and after pregnancy.

Methods: Nine healthcare professionals handling women with gestational diabetes before and after pregnancy in Denmark were interviewed (two general practitioners, four midwives, two obstetricians and one diabetes nurse). Further, eight health visitors participated in focus group discussions. The data material was analysed using systematic text condensation.

Results: Three major themes emerged: 1) *professional identity* which varied across the healthcare professionals and consequently shaped care practices; 2) *lack of priority in the area of gestational diabetes* contributed to uncertainty of tasks and responsibilities across the treatment pathway; and 3) *cross-sectoral collaboration* relied heavily on knowledge transfer between hospitals, general practitioners, and the local municipality.

Conclusion: Knowledge transfer was fragmented as guidelines for treatment in the postpartum period were unclear to healthcare professionals outside the hospital. More awareness should be given to structures that ease clear and transparent guidelines and tailored communication strategies for healthcare professionals who provide care to women with gestational diabetes under and after pregnancy.

1 Background

Gestational diabetes mellitus (GDM) is a transient condition affecting 2-4% of deliveries in Denmark [1, 2] and is associated with an increased risk of several complications affecting both mother and offspring during pregnancy and delivery [3]. Due to the 'acuteness' of the condition, women with GDM are closely monitored by multiple healthcare professionals (HCPs) in pregnancy here among midwives, obstetricians, endocrinologists, general practitioners (GP's) and dieticians (See Figure 1). After delivery, most women with prior GDM return to a normoglycemic stage, but remain at high risk of developing type 2 diabetes [4]. Regular follow-up and glucose testing are therefore recommended, and the 'care' paradigm thus shifts to a more long-term, non-acute prevention focus. According to Danish national guidelines, the GP has the primary responsibility for regular glucose testing and counselling on healthy lifestyle choices following a GDM-affected pregnancy [5, 6]. However, studies indicate that this follow-up does not occur extensively; that care is not always tailored to individual needs and preferences; and that coordination of services and responsibility is unclear or lacking [7–9]. Also, women with prior GDM find information on risks and

recommendations from the GP inadequate and often do not follow lifestyle recommendations after delivery [10, 11].

This study investigates HCP's views on the treatment pathway for women with GDM during and after pregnancy.

2 Methods

The aim of this study is to identify how interprofessional and cross-sectoral collaboration can be optimised to improve both short- and long-term care for women with GDM.

2.1 Study Design and Setting

This qualitative study used exploratory focus group discussions and individual semi-structured interviews. Focus group discussions were used exploratively to gain background knowledge on experiences with treatment of GDM and stimulate new research hypotheses [12]. Themes identified in the focus group discussions acted as context and support for the semi-structured interviews that subsequently took place with other types of HCPs.

We held two focus group discussions with health visitors to explore their knowledge and experience with women with prior GDM. Two focus group discussions, each containing four health visitors, were carried out in Herlev municipality in the Greater Copenhagen area, Denmark. The focus group discussions relied on open-ended questions, as this allows for multiple responses and inspires different interpretations [13]. The questions concerned the health visitors' experiences with women and families with prior GDM: "What do you think is important to discuss with families where the mother had gestational diabetes?", "What can be done to optimise care for this group with the current resources?" and "How should the postpartum care for women with prior gestational diabetes be?"

The questions in the semi-structured interviews were inspired by Spradley whereby descriptive and structural questions were assessed before every new interview because the profession and setting changed [14]. The interview guide focused on organisational settings, cross-sectoral collaboration, and possibilities for intervention in the postpartum period (See Appendix 1). For example, questions relating to the HCP's interest and motivation for interprofessional coordination were addressed: "Which healthcare professionals are you planning the follow-ups after pregnancy with?" and "How would you like the collaboration to be?". The approach was explorative, and the interview guide was adapted throughout the study to allow for new themes to arise.

2.2 Participants

Health visitors provide care to all Danish families during the postpartum period and were invited to participate in focus group discussions. The semi-structured interviews were conducted with HCPs who

delivered care to women with GDM during and/or after pregnancy. Initial informants were invited by email, introducing the study aim and proposing interview dates. We recruited further HCPs using a snowball method. A total of nine HCPs; four midwives, two obstetricians, two GPs, one diabetes nurse and one physiotherapist from the cities of Aarhus and Copenhagen agreed to participate. The study participants represent professions from general practice, obstetric departments and health care services provided by the municipalities. The characteristics of the participants are presented in Table 1.

Table 1
Background characteristics of included healthcare professionals

Method	IP	Occupation	Seniority	Location
Focus group 1	A	Health visitor	16 years	Copenhagen area
	B		14 years	
	C		3 years	
	D		Student	
Focus group 2	E		18 years	Copenhagen area
	F		6 years	
	G		3 years	
	H		3 years	
In-depth interview	I	Midwife	18 years	Aarhus area
	J		14 years	Aarhus area
	K		15 years	Copenhagen area
	L		9 years	Copenhagen area
	N	Obstetrician	8 years	Copenhagen area
	O		10 years	Copenhagen area
	P	General practitioner	>10 years	Odense area
	Q		>10 years	Aarhus area
	S		Diabetes nurse	17 years

2.3 Analysis

We analysed the text by content analysis guided by systematic text condensation [15], which ensures a structured, transparent analysis. The method is rooted in phenomenological analysis and is inspired by iterative processes of 'decontextualisation' and 'recontextualisation'. STC is a method rather than a theory

even though the method is founded within the social constructivist epistemology [15]. The purpose of STC is to understand the informants' experiences and perspective remaining data-driven in approach. STC further advances the analysis by enabling identification of core themes and essential characteristics of the focus group discussions. The semi-structured interviews were analysed in depth in five steps (chaos to themes, sorting meanings, condensation, synthesising and sequencing) [15]. Transcripts from the interviews were coded into categories and eventually themes in a iterative process comparing interview themes until data saturation was reached [16]. Focus group discussions and interviews were audio recorded and afterwards transcribed verbatim. The process entailed a thorough linking of occurring themes and relationships, repeating the steps according to STC until major themes were reached. Nvivo 11 (QSR International Pty Ltd Loncaster, Australia) was used to assist the coding and analysis of the transcripts.

3 Results

Three major themes arose during the analysis: 1) professional identity, 2) lack of priority in the area of GDM and 3) cross-sectoral collaboration.

3.1 Professional Roles and Responsibilities

The HCPs had different tasks and assignments in their interaction with women with GDM. Obstetricians were first and foremost responsible for treating short-term consequences associated with a GDM-affected pregnancy, and thereafter responsible for counselling women with GDM about the excess risk of type 2 diabetes after pregnancy. It was important for the obstetricians to communicate the potential consequences in the limited time available in the consultation.

"I also tell them that there is already a risk related to their children becoming overweight and developing metabolic disturbances in childhood, and emphasise the importance of thinking about diet and exercise for their children" (Obstetrician, N)

The diabetes nurse also perceived their time with the pregnant women with GDM to be very time-restricted. The diabetes nurse viewed their profession as critical in disseminating knowledge about the implications of GDM on the body and more practically how to measure blood sugar levels making it difficult to integrate other conversation topics within the available consultation time.

"They receive a basic knowledge about what happens in the body to make them well-informed. Also, that it is important to keep an eye on their blood sugars in pregnancy and we teach them how to do blood sugar measurements." (Diabetes Nurse, S)

The obstetricians and diabetes nurse underlined the importance of reinforcing dietary restrictions during pregnancy to ensure that the health of the baby was prioritised. Furthermore, although they were aware of

the emotional burden women might feel about the GDM regime, it was not a primary focus in the consultations.

The midwives reported focusing on the health of the fetus, but also attending to the health of the mother in a more general sense. The conversation between the mother and the midwife comprised each woman presenting her narrative about her pregnancy. A midwife pointed out how it helped to motivate the women to make healthy decisions during pregnancy.

"So, I always make them reflect on both what it is that makes them overweight, but also so I can help and motivate them as well. In terms of where there is something they can work with." (Midwife, I)

The midwives' felt inclined to support the women to cope with the pregnancy affected by GDM. One midwife even used the term 'pregnancy prison' to illustrate the strict regimen women with GDM had to follow during pregnancy.

"So, they [women with GDM] feel that they are in a rather pregnancy prison-like state. And when they get rid of all the controls they have during pregnancy, [they feel like] "they can live their lives completely free again." Then they really forget what the motivation was to hold on to the good habits." (Midwife, K)

Health visitors manage the well-being of the baby and encouraging a healthy family dynamic. They perceive themselves as having a close relationship with mothers after a GDM-affected pregnancy as they interact with the woman outside the hospital setting. Still, the health visitors noted they had limited knowledge about GDM. This was revealed when they explained how they comforted the women by telling them that developing GDM was out of their control. However, as stated in the background, this is not the case.

"We try to hold on to the fact that it's because of genes for the most part. And they can't do anything about that. Not that we want to take the responsibility away from them, but it brings no good that you walk around feeling guilty" (Health visitor, A)

GPs are in contact with women with GDM both during pregnancy and after birth. After pregnancy, the GPs stated they would let it be up to the women to decide what to discuss during the consultations as they did not want to burden the women with the risks associated with having had GDM.

"Whether we start talking about what it may have meant during pregnancy or that the child has an increased risk? No, I do not think so. [...] It is the pregnant women who sets the agenda. So, sitting and giving long speeches - we don't do that. If she is worried then we will talk about it, but there is a lot to be done in the consultation that does not necessarily relate to gestational diabetes." (GP, P)

Thus, while the GPs, midwives, and health visitors described difficulties addressing health behaviours as diet and physical activity relevant to a GDM diagnosis, the obstetricians and diabetes nurse were more likely to talk about risk as they perceived this to be their main task and prioritised it within the limited time available. The midwives did not want to blame the women by addressing the GDM-related health risks for

the child as they were already provided overwhelming amounts of information in pregnancy. Often, health visitors did not know about the implications of a GDM-related pregnancy, which made them avoid conversations about diabetes risk or the need to prioritise health behaviours after birth. The GPs focused on addressing other relevant topics making the women's risk unlikely to be included in the consultation. Thus, health behaviour (and long-term prevention) was rarely discussed as it depended on whether the women brought it up herself, and whether it was deemed appropriate and relevant by the individual HCP to prioritise it in the consultation.

3.2 Lack of priority in the area of GDM

A concern that was widely addressed by HCPs was the lack of importance given to GDM by other caregivers and hospital management by not providing training on the special needs of this group. The HCPs reported that the lack of resources allocated to GDM reduced their flexibility in working with GDM-affected women. It created a feeling that the management was not supportive of HCPs working with GDM and there was consequently a shortage of HCPs specialising in caring for women with prior GDM.

"I'm not sure it's that prestigious to work with it [GDM]. It is when they are pregnant, but afterwards I don't think it's that prestigious. I just think we don't have enough focus on it. I don't think it's prioritised enough." (Obstetrician, O)

The HCPs reported that women with GDM were likely to be consulted by several different midwives, which the midwives perceived to be due to the lack of resources allocated to GDM. The midwives felt it could lead to information loss and create an inconsistent care pathway for women with GDM. Further, they perceived the lack of information flow between HCPs as a serious challenge as much time was spent catching up on the woman's special needs in the consultation. Thus, important information on the woman's medical and social circumstances was lost in the knowledge transfer between providers. The HCPs wanted to ensure good practice but noted that more resources were needed to allow flexible schedules and personalised treatment.

"In fact, the midwives who sit in the consultations with women with GDM must actually have some further training or some courses. I think that something is missing here in terms of resources" (Midwife, I)

According to the HCPs, the limited follow-up of women with prior GDM reduced the possibility of upholding a supportive treatment system, particularly when the possibilities for visits by HCPs after delivery were limited to one follow up visit. The GPs reported that after delivery the primary focus of care shifts from the woman with GDM to the baby. They believed this shift to be partly due to a lack of guidelines on how to communicate the risk of prior GDM to postpartum women.

" These women with gestational diabetes they disappear a little alongside so many other things. There is a lot of focus during pregnancy, but after pregnancy, it disappears into the wellbeing of the baby and illness and so on" (GP, P)

“I think a precise to-do list for gestational diabetes is missing. We should focus on how we most appropriately can follow these women. ‘Here was a gestational diabetes case, but what then?’ It becomes forgotten”. (GP, Q)

The HCPs described a lack of priority given to the area of GDM after delivery as women ‘lost’ their GDM diagnosis. The HCPs who attended women in the hospital (obstetrician, diabetes nurse and midwives) expressed a frustration with the lack of additional care in the period after birth. They saw it as conflicting with their role as caregivers, when they could not support women with GDM with additional care after pregnancy. Further, the midwives argued that women with GDM should gain a special status in the health system, during and after delivery allowing extra training for HCPs to be prepared to handle complex needs. The GPs confirmed that the diagnosis of GDM was forgotten after pregnancy and called for clear guidelines on how to address GDM after the delivery.

3.3 Cross-sectoral Collaboration

The HCPs’ collaboration was described as often being unstructured due to unclear responsibilities in information transfer between providers, particularly when information about women with GDM needed to travel across sectors e.g. from the obstetric departments to GPs or health visitors. Barriers for cross-sectoral collaboration included: working in other hospital departments with no natural day-to-day interaction and not finding information from the other HCPs relevant to their own practice. The midwives specified that interactions with other HCPs benefited collaboration by reducing repetition and losing important knowledge in the consultation. Yet, only a few of the midwives collaborated closely with the outpatient clinic and none of the HCPs worked in physical proximity to the GPs.

“Since we’re placed in two geographically different places, it is hard to have a close collaboration. Of course, we read each other’s notes, but I know that the pregnant women experience that we, as healthcare professionals, say different things. Since I visit the hospital regularly, I don’t think that I communicate that differently from the professionals over there [obstetricians, dieticians, endocrinologists]. [...] Because I go there [to the ambulatory] and have the possibility to talk to them [HCPs at the ambulatory]” (Midwife, K)

“Yes, I think you distance yourself from what you don’t know that much about. Then you think: “they [the ambulatory] take care of that over there,” and I take care of mine according to what I usually do.” (Midwife, J)

Divergent messages from dieticians and obstetricians on health risk caused women with GDM to neglect their elevated risk after pregnancy. The HCPs explained how the quality of the information transfer between HCPs largely depended on individual reporting practices as well as the geographical placement of departments. For example, health visitors reported lacking information on whether the woman had GDM in her latest pregnancy as the obstetric departments sometimes did not include it in the correspondence letter. Interacting with other HCPs encouraged coherent communication and awareness

of other HCPs' assignments. The diabetes nurse, midwives, and health visitors explicitly stated that they were unsatisfied with their communication with the GPs.

"My own doctor just said I have to avoid putting sugar in the coffee" [referring to a woman with GDM]. There is a big difference between what they get to know at their GP and what we do. So, we find that there are many practitioners who neglect that young fertile women may develop type 2 diabetes" (Diabetes Nurse, S)

"You have to keep the doctors in general practices' on their toes. So, they [women with prior GDM] know what they have to go through. Then, the women would tell their doctors: "Excuse me, but I haven't received information about a glucose tolerance test", or something like that" (Health visitor, C)

The lack of information would sometimes become clear to the GPs and health visitors in the consultations and during home visits after pregnancy, respectively, where the women often had to be the one to tell the GP and health visitor about their prior GDM diagnosis. However, GPs were not always provided with adequate information from the hospital about the latest pregnancy to better support and guide the women after a GDM diagnosis. Their understanding of how GDM affected new mothers was also reported to be poor compared to the other types of HCPs, suggesting that further education may be needed.

"I think what I need is a clearer handover of what the task is. What has been said in the diabetes or obstetric departments to these women? And then an early indication of how they should look after themselves and what is the appropriate way to follow up on that" (GP, Q)

It was essential for HCPs in the hospital to inform women about their future risk of diabetes. However, different communication forms across professions could cause the women to perceive their GDM diagnosis as either demanding a lot of changes in everyday life or amenable with just a few changes. For women with GDM who did not perceive the diagnosis to be of great importance, the diabetes nurse and obstetricians felt a need to change the woman's perspective to ensure that the diagnosis was taken seriously. Various communication strategies across sectors and limited information flow between HCPs to secure optimal follow-up resulted in poor cross-sectoral collaboration. GPs reported that they were not provided with extensive guidance about how to address a woman's GDM diagnosis after birth while health visitors experienced that women were uncertain about their future contact with the healthcare system. In particular, the health visitors who visited the women after delivery missed the opportunity to include GPs in re-structuring and aligning cross-sectoral communication practices.

4 Discussion

Our study provides an overview of HCPs' perspectives on the treatment pathway and identify possibilities for improvement of cross-sectoral collaboration for women with GDM during and after pregnancy. The three themes revealed in this study were: 1) professional identity, 2) lack of priority in the area of GDM and 3) cross-sectoral collaboration. Women with GDM interact with several types of HCPs, each with

specific roles and responsibilities, demanding strong collaboration between HCPs to secure a coherent treatment pathway. In consultations with women with GDM, the topics of risk and healthy lifestyle were not always addressed for different reasons. Obstetricians and the diabetes nurse were limited on time to prioritise health behaviour in their consultations. Midwives and health visitors were concerned about potentially compromising the relationship to the women with GDM by addressing risks associated with an unhealthy lifestyle. The GPs had other agendas in the consultation than risk and healthy lifestyle relying on the woman to take up the subject of risk herself. The HCPs working in the hospitals reported that GDM was not given priority in the healthcare system and that postpartum care was limited. The HCPs communicated risk differently to GDM-affected women and there was no consensus on how implications of GDM should travel across sectors, which led to inconsistencies in the handling of women with GDM, i.e. from the obstetric departments to the GP and health visitors. Taken together our results suggest that HCPs find it challenging to provide a coherent care pathway for women with current and prior GDM in Denmark.

4.1 The Issue of Communicating Risk after Delivery

GDM is a complex condition, which demands interprofessional collaboration to provide a coherent care pathway to ensure that long-term health promotion is prioritised. The need for extended postpartum care for women with prior GDM has been underlined by many studies [21] and emphasized by the women themselves [11, 22]. Thus, there seems to be a lost opportunity to support and facilitate healthy lifestyles after a GDM-affected pregnancy.

In a qualitative study from Sweden, midwives focused on the delivery and transition to parenthood when handling women with GDM, distancing them from complications related to pregnancy [23]. Obstetricians and diabetes nurses tried to uphold the motivation for women with GDM to stay healthy during pregnancy; however, this motivation did not seem to be sustained after delivery due to a lack of time for GPs and a lack of awareness by health visitors. Qualitative studies suggest that a reduced risk perception among women with prior GDM is a barrier to engaging in healthy activities postpartum [24, 25]. Thus, GPs and health visitors attending women with prior GDM after delivery, should intensify their communication strategies aimed at increasing risk perception to motivate health promoting behaviours. However, GPs may not challenge patients' evaluation of their own lifestyle adequately to change health behaviours [26]. In a study of Danish GPs, it was found that addressing health-related issues, such as smoking and obesity, can lead to mistrust of the GP's authority, creating less incentive and motivation for the patient to uptake health recommendations [27]. Thus, even though GPs may value and want to integrate preventive care in their practices, they face challenges in providing preventative care. In Denmark, health visitors are responsible for family health promotion postpartum, which may be another reason why GPs do not consider themselves responsible for preventive practices [6].

The GDM care pathway continues to be fragmented between hospitals and general practice and does not systematically involve health visitors. In contrast, health visitors have one of the most central health

promoting roles in the Danish healthcare system as they attempt to meet complex healthcare needs in their outreach to families. Time constraints and a structural displacement from both municipalities and the hospitals make it difficult for GPs to ensure a coherent transfer of information across health sectors. Health visitors may be better suited to optimise health promotion practice for women with prior GDM. A systematic review of collaboration between health visitors and midwives found that a big advantage of collaboration was the positive effect on attending to families with more complex needs [28]. Ensuring that midwives deliver the information about a GDM-affected pregnancy to health visitors may enable them to address the risk and secure a more coherent care pathway.

4.2 Strengths and weaknesses of the study

The study had several strengths. First, the study included HCPs from all sectors providing care to women with GDM during and after pregnancy. This approach was key in the recruitment of participants to ensure a broad variety of perceptions and views of the GDM care pathway. For example, it allowed us to identify limited managerial acknowledgement and resource allocation in the area of GDM by several providers, which has not similarly been identified in the literature. Second, the STC enabled the identification of core themes and essential characteristics of the interview data, which allowed for a deeper analysis of the cross-sectoral collaboration offered by caregivers from obstetric departments, general practice and municipalities. Third, *focus group discussions structured the interview guides by exploiting group dynamics and investigating sensitive subjects such as risk* [18]. In the semi-structured interviews, the interview guide was adapted throughout the study to allow for new themes to arise and for HCPs to provide suggestions for changes in care [19]. We applied a qualitative approach to capture the provider perspectives of GDM care. No other Danish study has involved providers that engage with women with GDM pre- and post- delivery to investigate the prevention potential for this group. The findings of this study pinpoint the direction for future practice changes and suggest how HCPs could be involved in advancing care in the postpartum period through better communication practices and/or restructuring the care pathway for women with GDM entirely.

The recruitment of informants was based on the snowball method, which may have introduced less variation in subjects. The HCPs who agreed to take part may have been more prone to emphasise the need for extended care in the postpartum period for women with prior GDM compared to other HCPs. By including HCPs from different professions, we were able to encourage discussions on topics that the participants had in common [12].

The HCPs were recruited from both Copenhagen and Aarhus, making the findings more generalisable in hospitals where multiple HCPs are involved in GDM care. However, generalising the results outside Denmark is questionable, especially considering that Denmark has a universal tax-funded health care system [20]. While we included HCPs from all sectors, we lack input from two specialist groups, endocrinologists, and dieticians, who also work closely with this group. Including their views as well might have led to other perspectives on how GDM care is structured and followed up.

4.3 A need to reorganise care for women with prior GDM

Our findings show that the responsibility to ensure a coherent preventive-treatment pathway across sectors, for women with GDM, does not lie with one specific HCP in the Danish healthcare system. Therefore, good cross-sectoral communication and transparency is crucial. Unfortunately, the findings from our study highlight that collaborations between various providers across sectors is incoherent which leads women to be inadequately supported after a GDM-affected pregnancy. A potential strategy to redeem this may be by introducing case managers or assigning midwives or health visitors tasks to coordinate and integrate an increased prevention focus in the care pathway after birth. This approach could help ensure the coherence in hospital settings and across sectors for women with prior GDM. This is highly relevant as restructuring the healthcare system is likely to reframe professions and create new incentive structures and reward systems for collaboration [29]. Another alternative to reorganisation is to raise awareness about boundaries between HCPs to change the focus from a treating healthcare system to a health promoting one [30].

5 Conclusion

In this study, we investigated how HCPs perceived the care pathway for women with GDM during and after pregnancy. Our main result is that strong cross-sectoral collaboration is needed for GDM care as it is handled by multiple HCPs with different agendas during and after pregnancy. We suggest rethinking the treatment pathway of women with GDM by ensuring better reporting and collaboration between HCPs after delivery. The diabetes prevention potential for this group is great and should be sought through systemic practice changes to incorporate a long-term prevention perspective in the period after pregnancy. More attention should be directed towards structures that ease cross-sectoral communication, transparent guidelines and tailored communication strategies for HCPs that treat women with current and prior GDM.

List Of Abbreviations

GDM: Gestational diabetes mellitus

GP: General Practitioner

HCP: Healthcare professional

STC: Systematic text condensation

Declarations

Ethical Considerations

As the study relies on qualitative methodologies, it is exempt from ethical approval according to the regulations of The Danish National Committee on Health Research Ethics. Oral consent was collected from participants in the interviews. In accordance with Danish regulations, ethical approval for non-invasive medical research is not required [31]. Throughout the interviews, unintentional consequences of the interviews and focus group discussions were considered [17].

Consent for publication

Oral informed consent and permission to audio record were collected from all informants prior to the interviews. Further, the participants were guaranteed anonymity.

Availability of data and material

The data that support the findings of this study are available from the corresponding author, but restrictions apply to the availability of these data, which were used under license for the current study, and so are not publicly available. Data are however available from the authors upon reasonable request and with permission of the participants in the study.

Competing interests

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Authors' contributions

AT conceived the study idea and objectives with support from KKN, UC and HTM. AT carried out the data collection. AT analysed the data with supervision from KKN, UC and HTM and wrote the first draft of the manuscript. All authors critically revised the manuscript and approved the final version.

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References

1. Jeppesen C, Maindal HT, Kristensen JK, Ovesen PG, Witte DR (2017) National study of the prevalence of gestational diabetes mellitus among Danish women from 2004 to 2012. *Scand J Public Health* 45:811–817
2. Ovesen PG, Fuglsang J, Andersen MB, Wolff C, Petersen OB, David McIntyre H (2018) Temporal Trends in Gestational Diabetes Prevalence, Treatment, and Outcomes at Aarhus University Hospital, Skejby, between 2004 and 2016. *J Diabetes Res*. <https://doi.org/10.1155/2018/5937059>
3. Catalano PM, McIntyre HD, Cruickshank JK, et al (2012) The Hyperglycemia and Adverse Pregnancy Outcome Study: Associations of GDM and obesity with pregnancy outcomes. *Diabetes Care* 35:780–786
4. Bellamy L, Casas J-P, Hingorani AD, Williams D (2009) Type 2 diabetes mellitus after gestational diabetes: a systematic review and meta-analysis. *The Lancet* 373:1773–1779
5. Damm P, Ovesen P, Andersen L, Møller M, Fischer L, Mathiesen E (2010) Clinical guidelines for gestational diabetes mellitus (GDM). Screening, diagnosis criteria, treatment and control and follow-up after birth. The Danish Health Authority, board of Diabetes Management
6. Danish Health Authority (2013) Recommendations for maternity care [Anbefalinger for svangreomsorgen].
7. Draffin CR, Alderdice FA, McCance DR, Maresh M, Harper, MD (Consultant Physician) R, McSorley O, Holmes VA (2016) Exploring the needs, concerns and knowledge of women diagnosed with gestational diabetes: A qualitative study. *Midwifery* 40:141–147
8. Nielsen JH, Olesen CR, Kristiansen TM, Bak CK, Overgaard C (2015) Reasons for women's non-participation in follow-up screening after gestational diabetes. *Women Birth J Aust Coll Midwives* 28:e157-163
9. Olesen C, Nielsen J, Mortensen R, Bøggild H, Torp-Pedersen C, Overgaard C (2014) Associations between follow-up screening after gestational diabetes and early detection of diabetes - a register based study. *BMC Public Health* 14:841
10. Stage E, Ronneby H, Damm P (2004) Lifestyle change after gestational diabetes. *Diabetes Res Clin Pract* 63:67–72
11. Svensson L, Kragelund Nielsen K, Terkildsen Maindal H (2017) What is the postpartum experience of Danish women following gestational diabetes? A qualitative exploration. *Scand. J. Caring Sci*.
12. Christensen U (2008) The qualitative research interview. In: *Res. Methods Public Health*. Munksgaard, pp 63–90

13. O'Reilly K (2012) Ethnographic Returning, Qualitative Longitudinal Research and the Reflexive Analysis of Social Practice. *Sociol Rev* 60:518–536
14. Spradley J (1979) Asking descriptive questions. *Ethnogr Interview* 1:44–61
15. Malterud K (2012) Systematic text condensation: a strategy for qualitative analysis. *Scand J Soc Med* 40:795–805
16. Fusch PI, Ness LR (2015) Are we there yet? Data saturation in qualitative research. *Qual Rep* 20:1408
17. Kvale S, Brinkmann S (2015) The qualitative research interview as a tool. Hans Reitzels Forlag
18. Crossley ML (2002) "Could you please pass one of those health leaflets along?": exploring health, morality and resistance through focus groups. *Soc Sci Med* 1982 55:1471–1483
19. Carolan M (2013) Diabetes nurse educators' experiences of providing care for women, with gestational diabetes mellitus, from disadvantaged backgrounds. *J Clin Nurs* 23:1374–1384
20. Schmidt M, Schmidt SAJ, Adelborg K, Sundbøll J, Laugesen K, Ehrenstein V, Sørensen HT (2019) The Danish health care system and epidemiological research: from health care contacts to database records. *Clin Epidemiol* 11:563–591
21. Kragelund Nielsen K, Groth Grunnet L, Terkildsen Maindal H, Danish Diabetes Academy Workshop and Workshop Speakers (2018) Prevention of Type 2 diabetes after gestational diabetes directed at the family context: a narrative review from the Danish Diabetes Academy symposium. *Diabet Med J Br Diabet Assoc* 35:714–720
22. Dayyani I, Terkildsen Maindal H, Rowlands G, Lou S (2019) A qualitative study about the experiences of ethnic minority pregnant women with gestational diabetes. *Scand J Caring Sci* 33:621–631
23. Persson M, Hörnsten \AAasa, Winkvist A, Mogren I (2011) "Mission Impossible"? Midwives' experiences counseling pregnant women with gestational diabetes mellitus. *Patient Educ Couns* 84:78–83
24. Pennington AVR, O'Reilly SL, Young D, Dunbar JA (2017) Improving follow-up care for women with a history of gestational diabetes: perspectives of GPs and patients. *Aust J Prim Health* 23:66
25. Zera CA, Nicklas JM, Levkoff SE, Seely EW (2013) Diabetes risk perception in women with recent gestational diabetes: delivery to the postpartum visit. *J Matern-Fetal Neonatal Med Off J Eur Assoc Perinat Med Fed Asia Ocean Perinat Soc Int Soc Perinat Obstet* 26:691–696
26. Guassora AD, Nielsen SB, Reventlow S (2015) Deciding if lifestyle is a problem: GP risk assessments or patient evaluations? A conversation analytic study of preventive consultations in general practice. *Scand J Prim Health Care* 33:191–198
27. Broholm-Jørgensen M, Guassora AD, Reventlow S, Dalton SO, Tjørnhøj-Thomsen T (2017) Balancing trust and power: a qualitative study of GPs perceptions and strategies for retaining patients in preventive health checks. *Scand J Prim Health Care* 35:89–97
28. Aquino MRJR, Olander EK, Needle JJ, Bryar RM (2016) Midwives' and health visitors' collaborative relationships: A systematic review of qualitative and quantitative studies. *Int J Nurs Stud* 62:193–206

29. O’Flynn J, Buick F, Blackman D, Halligan J (2011) You win some, you lose some: Experiments with joined-up government. *Int J Public Adm* 34:244–254
30. Holt DH, Carey G, Rod MH (2018) Time to dismiss the idea of a structural fix within government? An analysis of intersectoral action for health in Danish municipalities. *Scand J Public Health* 46:48–57
31. Ministry of Health (2011) Legal Information on Scientific Ethical Treatment of Health research. <https://www.retsinformation.dk/eli/lta/2011/593>. Accessed 8 Sep 2020

Figures

	Non-GDM affected pregnancy		GDM affected pregnancy	
	Pregnancy	After birth	Pregnancy	After birth
General practitioner	3 consultations	2 consultations	3 consultations	3 consultations
Diabetes nurse	-	-	3-5 consultations	0-1** consultations
Endocrinologist*	-	-		
Obstetrician	3-5 consultations	-	3-5 consultations	-
Dietician	-	-	3 consultations	0-1*** consultations
Midwife	3-5 consultations	-	4-6 consultations	-
Health visitor	-	5 home visits	0-1 home visit****	5 home visits
Total visits	9-13 consultations	7 consultations	16-21 consultations	8-10 consultations
Extra GDM consultations			7-12 consultations	1-3 consultations

*The endocrinologist is only involved if the woman needs insulin to balance blood sugar levels

**At some hospitals, the diabetes nurse has the responsibility to conduct the follow-up oral glucose tolerance test instead of the general practitioner

***At some hospitals, an additional dietary consultation is offered to women with prior GDM

****The woman with GDM can be offered a home visit by the health visitor if the woman is diagnosed with GDM in pregnancy

Figure 1

Trajectory for Danish GDM care during and after pregnancy compared to the basic offer for non-GDM women

Supplementary Files

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- [Appendix1.docx](#)