

Perspective on insulin use in gestational diabetes

A phenomenological study

Gönül Düzgün^{a,*}, Gökşen Polat^b, Elif Ünsal Avdal^c

Abstract

Gestational diabetes mellitus (GDM) is characterized by carbohydrate metabolism intolerance during pregnancy in individuals with normal blood glucose levels before pregnancy. The first-line treatment for GDM is nutrition and exercise, and insulin therapy is initiated when these are insufficient. Pregnant women who are started on insulin often think that they use drugs that may be harmful to the baby. Therefore, this study aimed to examine the perspectives of women diagnosed with gestational diabetes on insulin use using a phenomenological approach. Qualitative research was conducted using phenomenological patterns. The interviews were recorded on an online/face-to-face voice recorder in a semi-structured form, and thematic content analysis was performed using MAXQDA22. Based on the inclusion criteria of the 2 hospitals specific to the study, 15 patients were included, and the study reached saturation. Three main themes and 2 subthemes were obtained from the coding. The main themes were derived from, “fear,” “baby protector,” and “last remedy” coding. Pregnant women diagnosed with GDM can define gestational diabetes because of the training provided. Because the pregnancy period is sensitive, pregnant women delay control and insulin application for the health of their babies. Moreover, they sometimes experience pain during the injection, and believe that it may harm their babies.

Abbreviation: GDM = gestational diabetes mellitus.

Keywords: gestational diabetes, insulin, pregnancy

1. Introduction

Diabetes is a complex chronic condition that requires continuous medical care with multifactorial risk-reduction strategies beyond glucose management.^[1] Gestational diabetes mellitus (GDM) is glucose intolerance first detected during pregnancy.^[2] Gestational diabetes is an important health problem owing to its prevalence and adverse effects on maternal and infant health. GDM has adverse effects on maternal health, including pre-eclampsia, cesarean delivery, and an increased risk of developing type 2 diabetes later in life. Babies born to mothers with GDM are at higher risk of developing macrosomia, childhood obesity, prediabetes, and type 2 diabetes.^[3,4] Globally, the prevalence of GDM has increased over the past few decades. According to the International Diabetes Federation, GDM occurs in approximately 14% globally, ranging from 9% in Africa, to 12.6% in North America, and 21% in Asia in 2017.^[5] In Turkey, the prevalence of GDM varies between 2.6% and 27.9% according to studies conducted across different regions.^[6–10] First, diet and exercise according to ideal body weight are recommended for pregnant women diagnosed with GDM. Medical treatment is initiated in patients with high blood glucose levels despite diet and exercise.^[11]

Insulin therapy is essential for pregnant women who have been taking insulin before pregnancy and is the next step in

achieving glycemic control in women with gestational and type 2 diabetes who do not achieve optimal glycemic control after 1 or 2 weeks of healthy lifestyle changes.^[12]

Pregnant women may be afraid of the effects of insulin on their unborn babies for many reasons. Similarly, pregnant women may be afraid to use needles for injections. Fear is a different emotion, not as severe as phobia, but it may hamper therapy in patients receiving insulin therapy. The fear of needles during pregnancy is a relatively unexplored subject in the literature.^[13]

2. Purpose of the research

This study aimed to examine the perspectives of women diagnosed with gestational diabetes on insulin use, using a phenomenological approach.

3. Methods and material

This research used a phenomenological design, which is a qualitative research method. Phenomenological research focuses on participants' experiences, how they describe them, and how these experiences affect them.

This research was conducted between December 2022 and January 2023 in the endocrine outpatient clinics and mixed

The authors have no funding and conflicts of interest to disclose.

Data sharing not applicable to this article as no datasets were generated or analyzed during the current study.

^a Health Services Vocational School First Aid and Emergency Program, Izmir Tinaztepe University, Buca/Izmir, Turkey, ^b Health Services Vocational School First Aid and Emergency Program, Izmir Tinaztepe University, Buca/Izmir, Turkey, ^c Faculty of Health Sciences, Department of Nursing, Internal Medical Nursing Izmir Katip Celebi University, Izmir, Turkey

*Correspondence: Gönül Düzgün, Health Services Vocational School First Aid and Emergency Program, Izmir Tinaztepe University, Aydogdu, 1267/1. SC. No:4, 35400 Buca/Izmir, Turkey (e-mail: gonul.duzgun@tinaztepe.edu.tr).

Copyright © 2023 the Author(s). Published by Wolters Kluwer Health, Inc. This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial License 4.0 (CCBY-NC), where it is permissible to download, share, remix, transform, and buildup the work provided it is properly cited. The work cannot be used commercially without permission from the journal.

How to cite this article: Düzgün G, Polat G, Ünsal Avdal E. Perspective on insulin use in gestational diabetes: A phenomenological study. *Medicine* 2023;102:49(e35831).

Received: 28 August 2023 / Received in final form: 5 October 2023 / Accepted: 6 October 2023

<http://dx.doi.org/10.1097/MD.00000000000035831>

services of 2 private hospitals in Turkey. Using the purposive sampling method, we aimed to identify samples that met the predetermined criteria. The sample criteria were first-time diagnosis with gestational diabetes, insulin use, acceptance of voice recording, age 18 to 35, and pregnancy during the data collection period. The research data were collected using the Individual Introduction Form and Semi-Structured Interview Form. The form included questions on age, number of pregnancies, insulin use and doses, and experience of a complication/side effect related to the previous use of insulin. In the collection of research data, a semi-structured interview form, created by the researchers by scanning the literature and evaluating the content and scope with an expert, was used. The interview form included 9 questions that were created to determine the individuals' experiences. Individual semi-structured interviews were conducted using an interview guide.

3.1. Interview questions

1. What do you know about gestational diabetes?
2. Who do you get help from during your gestational diabetes process?
3. How do you think the use of insulin during pregnancy will affect your baby?
4. Do you know how to administer insulin?
5. Do you experience fear or anxiety when using the insulin injector?
6. How does the use of insulin affect your daily life?
7. Do you know of other treatment options besides insulin in the treatment of gestational diabetes?
8. Do you know the side effects/complications of insulin therapy?
9. How does it make you feel that you have to use insulin constantly?

Data were collected through in-depth interviews. Before the interviews, the women who gave birth and met the criteria were determined, the purpose of the research was explained over the phone, and their willingness to participate was determined. Individuals who agreed to participate were interviewed via telephone. The researcher conducted interviews to increase reliability and consistency. Interviews were conducted at a time convenient for the participants and in a quiet environment, with audio recordings and an average of 15 to 18 minutes. The data collection process was continued until the saturation level was reached.

After the audio recordings of the interviews were deciphered in the data analysis, thematic content analysis was performed using MAXQDA 20, a qualitative data analysis program, and the themes and subthemes that would represent these codes were determined.

Written permission was obtained from the ethics committee (Izmir Katip Celebi University Non-Interventional Clinical Research Ethics Committee Decision Number 0504) and the hospital where the study was conducted. Women who agreed to participate were informed about the study and their verbal and written consent was obtained. The audio recordings of the interviews were only listened to by the researchers, the interviews were deciphered anonymously, and confidentiality of the information was ensured. The participants were informed that they could leave at any stage of the study.

4. Results

Fifteen participants were included in the study. The average age of the pregnant women was 30.6 years and 7 participants used dual insulin. As a result of the analysis, 3 main themes and 2 sub-themes were obtained. The main themes were determined as "fear," "baby protector," and "last remedy."

4.1. Main theme: fear

Pregnant women stated that after being diagnosed with gestational diabetes, they experienced fear of possible harm to their babies or injections. Accordingly, the main theme was divided into 2 subthemes: fear of insulin administration, and fear about the baby.

4.1.1. Sub-theme: fear of insulin administration.

In the training I received from the nurse, I know that there is a skin disorder when it is applied to the same place, and I was afraid of it. (P2,31)

I'm afraid of the insulin pen. The doctor said that your blood sugar might drop too low.

I was afraid that the insulin I took would harm my baby, but then I learned that if I don't use it, it will hurt. (P5, 28)

I have fears because I gave an injection, I apply hormones after all. (P9, 34)

I have a little difficulty holding the pen, and every time I do it, I have a little anxiety. (P10, 29)

I'm afraid of giving myself an injection, my husband does it. (P12, 32)

4.1.2. Sub-theme: baby fears.

I have a fear that the sugar will pass to the baby, and I was afraid that it would affect some of his organs. (P1, 34)

If I do not use insulin, diabetes affects the baby negatively, I have a risk of giving birth to an overweight baby at birth, there may be some abnormal conditions, and its development is adversely affected. (P4, 33)

When I first heard about it, I was afraid that something would harm my baby.

At first, I was afraid that it would harm my baby because I thought it was a drug, then I learned that it was not a drug, it was a hormone, but I was afraid again, but then my fear decreased with education. (P6, 26)

I am afraid that the use of insulin may cause harm in the future, and that it will cause problems in terms of development. (K7, 32)

I am afraid that if I do it wrong, I will harm the baby. (P8,30)

I'm afraid that insulin will harm my baby, but then I say that insulin has been used for years, and if it caused a problem, it would have been found. (P10, 29)(P13, 31)

4.2. Main theme: baby protector

I think you are protecting my baby. (P2, 31)(P11,25)

I know that it protects my baby from high sugar and protects me as well. (P3, 29)

I have no anxiety or fear, I have to do it to protect my baby. (P4, 33)

Insulin protects my baby from high sugar. (K8, 30) (K12,32)

A precaution that protects my baby from being born prematurely and from other abnormalities. (P15, 36)

Women diagnosed with gestational diabetes stated that despite their fears and concerns, this treatment protected their babies.

4.3. Main theme: last remedy

I don't know if there is a pill, the doctor said there isn't; we started with nutrition, and we switched to insulin as a last resort, because nutrition was insufficient. (P2, 31)

We started with nutritional regulation, and when that was insufficient, we switched to insulin as a last resort. (K3, 29)

No, I know that insulin is a last-line last resort. (K9, 34)

a method used as a last resort. (K15, 36)

Still, I wouldn't use it if it wasn't a last resort. (K10, 29)

Women diagnosed with gestational diabetes stated that the use of insulin is a last resort for their babies and their health.

5. Discussion

We identified 3 main themes and 2 subthemes from the coding in our study. The main themes were derived from “fear,” “baby protector,” and “last remedy” coding.

Fear was the main theme in this study, and we determined the sub-themes of injection fear and fear of harm to the baby. Fear is a consciously recognized and often-known reaction to external threats and dangers; it is an emotion caused by one’s thoughts. Since these thoughts contain “danger,” a fear reaction is given. Therefore, people who encounter the same situation may have different reactions, such as motor tension, autonomic overactivity, anxiety, anticipation, and alertness, due to different thoughts.^[14] Needle injections may not be a problem for people with diabetes. However, needle phobia in people who use insulin can create serious obstacles in maintaining health, insulin injections, and measuring blood glucose levels. The interviewed women with gestational diabetes made similar guarded statements, such as “...being careful all the time, testing blood sugar felt bad.” (P6, P9), ‘... had to see her blood sugar... “ (P11). In cases of illness or stress, reactions may develop during painful injections. Patients’ fears are based on anxiety, depression, low motivation, needlestick pain, needle phobia, lack of social support, and lack of communication with health professionals.^[15–17] The women expressed this situation as follows: “I was afraid, but my fear decreased with education.” (P6, P2).

To reduce and control fear, it is necessary to support patients’ self-confidence, especially through cooperation between diabetes nurses and consultation liaison psychiatry nurses. In particular, by controlling fear, the patient’s ability to adapt to treatment increases.^[14]

Another theme was participants’ thoughts about administering injections to save their babies’ health. Pregnant women obtain information about the injection requirements from social media, other pregnant women, their friends, and health professionals. Pregnant women have connections with their babies. If health professionals provide women with the necessary knowledge, they will be conscious of management. When prenatal attachment occurs, the mother tends towards love, affection, protection instinct, and positive health behaviors for her baby and behaves more sensitively towards her baby. These behaviors are of great importance in processes such as GDM, which can include risks and complications.^[18]

Pregnant women believe that insulin is the “last remedy” for the treatment of GDM, as explained in the last theme. Insulin remains the cornerstone of gestational diabetes treatment because of its proven safety during pregnancy, as it does not cross the placenta, and because of its glucose-lowering potential.^[19] However, pregnant women often do not want to use insulin. If there is a choice, they will never want to use the injections. If healthcare professionals provide important information about oral agents, the patients will be convinced that unlike metformin and sulfonylureas, which cross the placenta, insulin does not.^[20] Another similar effect was that women who expressed fear of insulin defined insulin as the last resort.^[21,22] Nurses, midwives, and other health personnel should adequately inform the patient about this issue and patiently answer questions, fears, and expectations.

6. Conclusion

The results of the research show that if patients are properly and adequately informed and followed up, their fears will decrease, their treatment compliance will increase, and it will be easier to keep the problems under control and have a healthy pregnancy.

Author contributions

Conceptualization: Gönül Düzgün, Gökşen Polat, Elif Ünsal Avdal.

Data curation: Gönül Düzgün, Gökşen Polat.

Formal analysis: Gökşen Polat, Elif Ünsal Avdal.

Investigation: Gönül Düzgün, Elif Ünsal Avdal.

Methodology: Elif Ünsal Avdal.

Project administration: Gönül Düzgün, Elif Ünsal Avdal.

Resources: Gönül Düzgün, Gökşen Polat.

Software: Elif Ünsal Avdal.

Supervision: Gönül Düzgün, Elif Ünsal Avdal.

Validation: Elif Ünsal Avdal.

Visualization: Gökşen Polat.

Writing – original draft: Gönül Düzgün, Gökşen Polat.

Writing – review & editing: Gönül Düzgün.

References

- [1] ElSayed NA, Aleppo G, Aroda VR, et al.; on behalf of the American Diabetes Association. Introduction and methodology: standards of care in diabetes – 2023. *Diabetes Care*. 2023;46(Suppl. 1):1–4.
- [2] Çelik Ö, Rustamova N. Diagnosis and treatment of gestational diabetes. *Klinik Tıp Bilimleri Dergisi*. 2019;3:24–7.
- [3] Abebe KZ, Scifres C, Simhan HN, et al. Comparison of two screening strategies for gestational diabetes (GDM2) trial: design and rationale. *Contemp Clin Trials*. 2017;62:43–9.
- [4] Sugiyama MS, Cash HL, Roseveare C, et al. Assessment of gestational diabetes and associated risk factors and outcomes in the Pacific Island Nation of Palau. *Matern Child Health J*. 2017;21:1961–6.
- [5] ADA Clinical Practice Recommendations. Standards of medical care. *Diabetes Care*. 2016;32(Suppl. 1):13–61.
- [6] International Diabetes Federation. Hyperglycemia in pregnancy. In: *IDF Diabetes Atlas*, 8th ed. Brussels, Belgium: International Diabetes Federation; 2017. Available at: https://diabetesatlas.org/upload/resources/previous/files/8/IDF_DA_8e-EN-final.pdf. [access date August 18, 2023].
- [7] Aktün LH, Uyan D, Yorgunlar B, et al. Gestational diabetes mellitus screening and outcomes. *J Turk Ger Gynecol Assoc*. 2015;16:25–9.
- [8] Aydın H, Gürel A, Çelik C, et al. The prevalence of gestational diabetes mellitus in Namik Kemal University Training and Research Hospital. *Yeni Tıp Dergisi*. 2013;30:252–4.
- [9] Akgöl E, Abuşoğlu S, Gün FD, et al. Prevalence of gestational diabetes mellitus according to the different criteria. *Turk J Obstet Gynecol*. 2017;14:18–22.
- [10] Balık G, Sahin F, Sahin S, et al. The prevalence of gestational diabetes mellitus in pregnant women who applied to the maternity outpatient clinic of a university hospital. *Ege Tıp Dergisi*. 2016;55:55–8.
- [11] Özyurt R, Asiçoğlu O, Gültekin T, et al. The Prevalence of Gestational Diabetes Mellitus in Pregnant Women Who were Admitted to Istanbul Teaching and Research Hospital Obstetric and Gynecology Department. *Jinekoloji Obstetrik Pediatri ve Pediatrik Cerrahi Dergisi*. 2013;5:7–12.
- [12] TEMD. *Diabetes Mellitus ve Komplikasyonlarının Tani, Tedavi Ve İzlem Kılavuzu-2020*, 14. Baskı, Ankara: BAYT Bilimsel Arastirmalar Basın Yayın ve Tanıtım Ltd. Sti. 2020.
- [13] Hone J, Jovanovic L. Approach to the patient with diabetes during pregnancy. *J Clin Endocrinol Metab*. 2010;95:3578–85.
- [14] Feitosa AC, Sampaio LN, Batista AG, et al. Frequency of fear of needles and impact of a multidisciplinary educational approach towards pregnant women with diabetes. *Rev Bras Ginecol Obstet*. 2013;35:111–6.
- [15] Çelik S, Pınar R. Insulin injection and finger sticking fear in people with diabetes. *J Psychiatr Nurs*. 2014;5:104–8.
- [16] Çelik S, Kelleci M, Satman I. Barriers on management and compliance of self-monitoring of blood glucose in type 2 diabetes on basal-bolus insulin therapy. *Bes Diy Derg*. 2017;45:20–7.
- [17] Fisher WA, Kohut T, Schachner H, et al. Understanding self-monitoring of blood glucose among individuals with type 1 and type 2 diabetes: an information-motivation-behavioral skills analysis. *Diabetes Educ*. 2011;37:85–94.
- [18] Hortensius J, Kars MC, Wierenga WS, et al. Perspectives of patients with type 1 or insulin-treated type 2 diabetes on self-monitoring of blood glucose: a qualitative study. *BMC Public Health*. 2012;12:167.
- [19] Turan Z, Kurt G, Arslan H. Effect of gravidity on social support perception and prenatal attachment. *Cukurova Med J*. 2020;45:1126–36.
- [20] Lambert K, Holt RI. The use of insulin analogs in pregnancy. *Diabetes Obes Metab*. 2013;15:888–900.
- [21] American Diabetes Association. 14 management of diabetes in pregnancy: standards of medical care in diabetes-2019. *Diabetes Care*. 2019;42(Suppl 1):165–72.
- [22] Carson LD, Henderson JN, King K, et al. American Indian diabetes beliefs and practices: anxiety, fear, and dread in pregnant women with diabetes. *Diabetes Spectr*. 2015;28:258–63.