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# Social Support and Implications for the Psychological Well-Being of Pregnant Women at Risk of Diabetes Mellitus in Bireuen District, Aceh Province, Indonesia

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**ABSTRACT:**

**Background:** Gestational Diabetes Mellitus (GDM) poses significant physical and psychological challenges for high-risk pregnant women, often leading to anxiety, emotional distress, and reduced quality of life. Social support plays a critical role in alleviating these impacts and enhancing overall well-being**.**

**Objective:** This study aimed to explore the role of social support and its implications for the psychological well-being of pregnant women at risk of GDM in Bireuen District, Aceh Province.

**Methods:** A qualitative phenomenological approach was employed to capture the lived experiences of pregnant women identified as high risk for GDM based on criteria such as obesity, excessive gestational weight gain, family history of diabetes, or prior obstetric complications. Data were collected through in-depth interviews, focus group discussions (FGDs), and document reviews from healthcare facilities. Colaizzi's method of thematic analysis was applied, supported by NVivo software for coding and data management. Validity was ensured through triangulation techniques, while ethical standards—including informed consent and confidentiality—were strictly observed.

**Results:** The findings revealed that pregnant women experienced considerable emotional strain associated with GDM risk, compounded by physical discomfort and socioeconomic challenges. Social support from husbands, families, peers, and healthcare providers emerged as a vital protective factor, providing emotional reassurance, practical assistance, and improved adherence to medical care. Conversely, inadequate support increased vulnerability to anxiety and depression.

**Conclusion:** Social support is fundamental to safeguarding the psychological well-being of pregnant women at risk of GDM. Strengthening family involvement, health education, and access to psychosocial interventions is essential to improve maternal and neonatal outcomes.

**KEYWORDS:** Social Support, Psychological Well-Being, Pregnant Women, Gestational Diabetes Mellitus, Qualitative Study, Aceh Province.

## INTRODUCTION

Gestational Diabetes Mellitus (GDM) is a condition characterized by glucose intolerance first identified during pregnancy(Abdelhalim Yameny & Yameny, 2024; Hannah et al., 2022). It occurs due to increased insulin resistance, preventing the mother's body from maintaining optimal euglycemia(Dewi et al., 2024; Kunasegaran et al., 2021). Risk factors for GDM include advanced maternal age, obesity or being overweight, excessive weight gain during pregnancy, a family history of Diabetes Mellitus (DM), a history of GDM in previous pregnancies, stillbirth, the birth of infants with congenital abnormalities, glucosuria during pregnancy, and a history of delivering macrosomic infants (>4000 grams)(Alum et al., n.d.; Athanasiadou et al., 2025; Y. Zhang et al., 2024).

Globally, GDM is estimated to affect 1–14% of all pregnancies, while in Indonesia, the prevalence ranges from 1.9% to 3.6%(Dewi et al., 2023; Ryan et al., 2021). Alarmingly, approximately 10–25% of cases remain undiagnosed, leading to increased morbidity and mortality among both mothers and infants. According to the International Diabetes Federation (IDF) Diabetes Atlas 2025, an estimated 589 million adults aged 20–79 are living with diabetes worldwide—equivalent to 1 in 9 adults(Williams et al., 2020; P. Zhang et al., 2010). This number is projected to rise to 853 million by 2050. Diabetes accounts for approximately 3.4 million deaths annually and incurs global healthcare expenditures exceeding USD 1 trillion. Within maternal health, GDM poses serious concerns

as it increases the risk of complications such as preeclampsia, preterm delivery, macrosomia, and even maternal or neonatal mortality(Dewi et al., 2023; Iloonkashkooli et al., 2025). Prevalence rates of GDM vary widely across regions, populations, and diagnostic criteria, ranging between 1% and 28%, with a global average of around 4.4%. The IDF further reports that approximately one in six live births worldwide is affected by hyperglycemia during pregnancy, including GDM. In Indonesia, IDF data (2024) indicates thatdiabetes prevalence among adults has reached 11.3%, accounting for approximately 20.4 million cases—placing Indonesia fifth globally in terms of the highest number of people living with diabetes(Marx et al., 2023; Ong et al., 2023). Based on WHO data (2013), the prevalence of GDM in Indonesia ranges from 1.9% to 3.6%. However, local studies suggest that the actual prevalence may be considerably higher(Davies et al., 2022; Magliano et al., 2021). For instance, research conducted in Jambi Province reported a prevalence of 37.6% among patients at referral hospitals, underscoring the need for more comprehensive population-level surveillance. Similarly, in Aceh Province, the Health Office recorded 8,719 cases of pregnant women at risk of diabetes in 2022. Pidie District ranked first with 2,486 cases, followed by Banda Aceh City (1,873 cases), Aceh Besar District (1,642 cases), Aceh Utara District (1,403 cases), and Bireuen District in fifth place with 1,234 cases.

Beyond its biological implications, GDM also presents psychological and social challenges. Pregnant women with a family history of diabetes tend to experience higher levels of anxiety compared to those without such history. Physical symptoms such as nausea, dizziness, and fatigue can limit daily activities, affect domestic roles, and reduce economic contributions—particularly among women previously engaged in productive work. Psychologically, feelings of loneliness and vulnerability are often exacerbated by limited support from partners due to work commitments, while economic constraints hinder access to optimal healthcare services. Simple gestures of support—such as accompanying mothers to medical check-ups, assisting with household chores, or spending quality time together—have been shown to provide significant emotional comfort and a sense of security.

Social support from family, peers, and healthcare professionals plays a critical role in managing GDM. Such support reduces stress, enhances self-efficacy and coping skills, and improves adherence to treatment and healthy lifestyle behaviors(Craig et al., 2020; Nazarpour et al., 2024). Adequate support is also associated with better quality of life, lower risk of depression, and improved maternal decision-making regarding pregnancy and childbirth. Recent studies highlight that community-based interventions—such as peer teaching—can improve self-care behaviors(Craig et al., 2020; Lee et al., 2019; Razee et al., 2010). Furthermore, research in China found a positive correlation between higher social support and increased physical activity during pregnancy, which in turn helps regulate blood glucose levels(Ong et al., 2023). Additionally, a 2024 publication in The Lancet recommended early GDM screening—preferably before 14 weeks of gestation—to minimize maternal and neonatal complications.

This research is particularly important to support the academic vision of the Center of Excellence in Education (Sentra Unggulan Pendidikan – SUP-PK) of Poltekkes Kemenkes Aceh in the field of diabetes care. Considering the high prevalence of diabetes among pregnant women in Aceh Province, this study aims to explore in-depth the emotional experiences of expectant mothers at risk of GDM, the meaning and coping strategies they adopt, and the effects of educational and psychological interventions on anxiety and depression. Additionally, the study seeks to examine pregnant women's perceptions and attitudes toward GDM and to explore the pivotal role of family support in enhancing maternal well-being during pregnancy.

## METHODS

The research design employed in this study is qualitative with a phenomenological approach, aimed at deeply exploring the meaning of respondents' experiences from their own perspectives. This design was chosen to capture the perceptions, feelings, and subjective experiences of pregnant women at risk of diabetes mellitus (DM), which cannot be adequately explained through quantitative data alone. Sampling was carried out using a purposive sampling technique, selecting respondents based on predetermined criteria that aligned with the research focus.

These criteria included: (1) pregnant women with overweight or obesity, (2) pregnant women experiencing excessive weight gain during pregnancy, (3) pregnant women with a family history of diabetes mellitus, (4) pregnant women with a history of diabetes mellitus in a previous pregnancy, (5) pregnant women who had experienced intrauterine fetal death, (6) pregnant women who had given birth to a baby with congenital abnormalities, (7) pregnant women with glucosuria (excessive glucose in urine), and (8) pregnant women who had previously delivered a baby weighing more than 4,000 grams.

These criteria were selected as they have been scientifically proven to be strongly associated with an increased risk of gestational diabetes mellitus (GDM). The study is descriptive in nature, with data presented in the form of words, narratives, and/or images, and will be conducted in Bireun Regency from January to December 2025. The location was selected based on data from the Aceh Provincial Health Office indicating a high prevalence of DM among pregnant women, with the expectation that the findings will directly contribute to the planning of targeted interventions in the region. Data collection will involve several primary techniques: first, in-depth interviews to explore respondents' personal experiences in detail and within context; second, focus group discussions (FGDs) with small groups of pregnant women with similar characteristics, enabling the identification of shared experiences, differences in perspectives, and relevant social interactions related to social support and psychological well-being.

Interview and FGD guides will be developed based on the research objectives, featuring open-ended questions that allow

respondents to freely narrate their experiences while remaining focused on the study topics. In addition, supporting documents such as medical records, maternal health data from community health centers (puskesmas), and reports from integrated health posts (posyandu) will be utilized to strengthen field findings. Data analysis will follow a thematic approach, adopting and modifying Colaizzi's phenomenological analysis steps to suit the study context. These steps include: (1) repeatedly reading interview and FGD transcripts to gain a comprehensive understanding of the content, (2) identifying significant statements relevant to the research objectives, (3) coding statements into preliminary categories, (4) developing main themes that reflect the essential meaning of respondents' experiences, (5) compiling a comprehensive description integrating all themes, (6) validating findings through member checking, whereby respondents confirm whether the researcher's interpretations align with their experiences, and (7) producing a final report that is meaningful, well-structured, and in-depth. All data will be processed with the assistance of qualitative analysis software such as NVivo to facilitate data management, coding, and the identification of inter-theme relationships. Data validity will be ensured through source triangulation (comparing interview, FGD, and supporting document findings), methodological triangulation (using multiple data collection techniques), and maintaining an audit trail (systematic documentation of the entire research process). Ethical considerations will be strictly upheld, including obtaining approval from an ethics committee, securing informed consent from respondents, protecting participant confidentiality, and ensuring their right to withdraw at any time without negative consequences.

## RESULT

### Experiences of Pregnant Women at Risk of Diabetes Mellitus

The experiences of pregnant women at risk of diabetes mellitus in Bireuen District demonstrate considerable complexity, shaped by both familial backgrounds and psychological conditions. A family history of diabetes emerged as a critical determinant in shaping maternal perceptions of risk during pregnancy. Informants such as Putri Nazila, Meutia Shabira, Nurdiana, Anti, and Yuni reported no family history of diabetes mellitus, which provided them with a sense of reassurance, although concerns about potential risks remained. As expressed by one participant:

*"Alhamdulillah, no one in my family has diabetes, so I feel a bit relieved. But since I'm pregnant, I'm still worried. The midwife said that every pregnant woman has a chance of getting diabetes if her diet is not well controlled."*

In contrast, participants including Megawati, Hendon, and Nisaul Rahmah reported maternal family histories of diabetes mellitus, which heightened their sense of vulnerability and anxiety. Nisaul Rahmah stated:

"My mother has diabetes, and I'm very afraid that I will develop it too. Every time I go for a check-up, I always ask about my blood sugar results. Even though the doctor says they are normal, the fear remains—especially when I feel tired so easily."

An in-depth interview with another informant revealed that both of her parents were diagnosed with diabetes mellitus. Although her clinical examinations indicated normal results, she expressed persistent concern about the potential transmission of the condition to herself and her unborn child:

"*I'm grateful that my results are normal, but the fear is still there. I often remember how sick my mother was because of diabetes. Sometimes I wonder, what if my child ends up having it too?"*

In addition to familial factors, participants reported daily challenges associated with physical changes that limited their activities. Symptoms such as nausea, dizziness, fatigue, and difficulties in dietary regulation were frequently described. While seemingly minor, these symptoms significantly disrupted daily functioning. For example, one informant who was previously engaged in sewing and other income-generating activities reported being unable to continue due to frequent dizziness and fatigue:

*"I used to sew often, but now I rarely do because sitting for too long makes me dizzy. Sometimes I feel useless because I can't contribute to the family's income."*

Such restrictions often resulted in frustration, particularly among women who had previously maintained active working roles. Emotional responses included irritability, sadness, and feelings of helplessness. These findings suggest that the experience of pregnancy with a risk of diabetes mellitus extends beyond clinical concerns, encompassing psychological distress and social role disruptions. The experiences of pregnant women at risk of diabetes mellitus in Bireuen District illustrate the interplay of biological factors (family history and physical symptoms), psychological factors (fear, anxiety, frustration), and social factors (changes in household roles and reduced participation in daily or economic activities). This multidimensional interaction underscores the unique and challenging nature of their lived experiences, highlighting the importance of integrating biomedical, psychological, and social support in maternal healthcare for women at risk of diabetes mellitus.

### Challenges Faced During Pregnancy with the Risk of Diabetes Mellitus

Pregnant women at risk of diabetes mellitus in Bireuen District encounter multidimensional challenges that encompass physical, economic, healthcare access, as well as emotional and psychosocial aspects. From an economic perspective, most informants reported financial constraints that significantly influenced their choice of healthcare services. Although several women expressed a desire to consult specialist doctors for reassurance and a greater sense of security, in reality they relied more heavily on primary

health centers (*puskesmas*) due to limited financial resources. One mother explicitly stated:

*"I want to have my pregnancy checked by a specialist doctor occasionally, not only at the health center. But my husband doesn't have enough money to take me to a specialist."*

This statement illustrates the dilemma between the aspiration to obtain higher-quality healthcare and the limitations imposed by economic conditions. Financial constraints also raised concerns regarding preparedness for emergencies, such as additional costs that might arise if referral to a hospital became necessary.

On the emotional side, many women reported experiencing feelings of loneliness and heightened psychological sensitivity during pregnancy. This was particularly related to the absence of their husbands, who often worked in plantations or other distant places and sometimes had to stay overnight. Such conditions left the women feeling that they lacked adequate emotional support. One informant shared:

*"My husband is often not at home; he works in the plantation and sometimes comes back only after two or three days. If I am unwell or want company for my check-ups, I often feel sad on my own. There was even a time I cried just because my husband came home late."*

This testimony highlights that emotional changes experienced by pregnant women at risk of diabetes mellitus are not solely triggered by biological factors, but are also shaped by limited social support from their spouses.

Furthermore, emotional challenges were marked by increased sensitivity toward seemingly minor issues that previously would not have caused distress. For example, one informant described her deep disappointment and tears when her husband failed to bring home the food she craved. She explained:

*"Before pregnancy, it was normal if he didn't buy me something I wanted. But now I easily get upset and sad. I myself wonder why I have become like this."*

This account demonstrates that hormonal changes during pregnancy can exacerbate psychological vulnerability, particularly when not accompanied by sufficient emotional support from family members. The experiences of these informants reveal that the challenges of pregnancy with the risk of diabetes mellitus extend beyond medical concerns and are profoundly influenced by economic limitations, restricted access to specialist care, and complex emotional conditions arising from inadequate social support. These combined factors underscore the urgent need for a more comprehensive approach in managing pregnant women at risk of diabetes mellitus, which should integrate appropriate medical interventions, equitable access to healthcare services, and strengthened psychosocial support from both partners and families.

**The Impact of Social Support in Facing Pregnancy Challenges**

Social support is a significant factor in assisting pregnant women with a risk of diabetes mellitus to cope with the various challenges that arise throughout pregnancy. Nearly all informants in this study emphasized that the presence of social support—from husbands, parents, extended family, friends, and healthcare professionals—contributed to feelings of calmness, happiness, and optimism in navigating their pregnancies. Such support functions not only as an emotional buffer but also carries functional and instrumental dimensions that are concretely manifested in daily life.

As expressed by Nurdiana, the attention and accompaniment provided by her husband and family helped her avoid excessive stress that typically emerged due to physical and hormonal changes. She highlighted that even simple acts, such as engaging in conversation or asking about her condition, provided a profound sense of comfort. Similarly, Nisaul Rahmah emphasized the importance of practical assistance from her husband. For her, the husband's habit of offering a light massage before bedtime not only provided physical relaxation but also nurtured emotional intimacy, thereby reinforcing her confidence in facing the pregnancy. Meanwhile, Meutia Shabira reported receiving practical support in the form of childcare assistance from her family members. This, she explained, was extremely helpful because it prevented her from feeling overly exhausted in caring for her first child, allowing her to better focus on maintaining her own health and the well-being of her pregnancy.

Furthermore, the majority of participants indicated that social support was received from multiple sources. Husbands were most frequently described as offering greater attention, assisting with household chores, purchasing additional necessities such as maternal milk, and making time for their wives despite busy work schedules. One mother even shared that her husband's attention had increased significantly during pregnancy compared to before, when he tended to be less attentive. Parents were also seen as important sources of support, whether through accompanying their daughters when their husbands were away, providing advice, purchasing preferred foods, or assisting with daily household needs. Their presence was perceived as offering a sense of safety and reassurance, mitigating feelings of loneliness. From friends and extended family, support often came in the form of help with childcare or companionship during daily activities, which lightened the physical burden of pregnancy. Meanwhile, healthcare professionals offered support through education, counseling, and routine check-ups, which not only ensured physical monitoring but also enhanced maternal knowledge regarding their health conditions.The presence of such comprehensive social support illustrates that the experience of pregnancy with a risk of diabetes mellitus is not solely determined by medical or biological factors but is profoundly influenced by the extent of support available from the immediate social environment. Emotional support, in the

form of care, affection, and psychological reassurance, proved effective in reducing anxiety and feelings of isolation. At the same time, functional and instrumental support—such as assistance with household responsibilities, provision of nutritional needs, and accompaniment during antenatal care—helped mothers feel more prepared and less burdened throughout their pregnancy journey. In this regard, social support can be understood as both a protective factor against psychological distress and a vital resource for enhancing the overall well-being of pregnant women at risk of diabetes mellitus.

**Unmet Social Support Needs and Emotional Conditions of Pregnant Women at Risk of Diabetes Mellitus**

Although most pregnant women at risk of diabetes mellitus have received social support from their husbands, families, and healthcare providers, interview findings reveal that certain needs remain unmet, particularly regarding the husband's physical presence and access to more optimal healthcare services. For example, Putri Nazila expressed, *"I want my husband to be home more often, even if only for one or two nights a week. I feel calmer when he is by my side."* Similarly, Anti emphasized that her husband's support was more meaningful when it involved direct presence: *"When my husband is at home, I feel stronger. If it's only through phone calls, it feels completely different."* Yuni added, *"Sometimes I just need company, not only money transfers. My husband's presence is what makes me feel at peace."* Meanwhile, Megawati shared a different longing, namely for her late parents: *"If my parents were still alive, I think I would feel more at ease. Even though my extended family is there, it just does not feel the same."* These narratives indicate that emotional support is highly personal, and although practical support may be available, certain emotional needs cannot be fully replaced by others. In addition to emotional needs, several participants highlighted limited access to healthcare due to economic constraints. They hoped to consult specialists regularly during pregnancy, but such aspirations were difficult to realize because of high costs. One mother explained, *"If I could see a specialist, I would feel more reassured, but it's too expensive. So, I only go for regular checkups."* This underscores that the well-being of pregnant women is not solely determined by emotional and practical support, but also by financial resources that enable access to more comprehensive medical services.

With regard to emotional conditions, the interviews revealed diverse experiences. Putri Nazila admitted becoming more irritable: *"I often get angry at my husband, even though I wasn't like this before. I feel very sensitive since becoming pregnant."* Meutia Shabira shared a similar experience: *"My children often get scolded. I feel easily irritated and exhausted."* Likewise, Nisaul Rahmah reported frequent crying without clear reasons: *"Sometimes, just because my husband comes home late or doesn't bring the food I crave, I burst into tears."* Yuni added, *"When I hear bad news about pregnancy, I keep thinking about it and become anxious."* Moreover, Anti described profound loneliness: *"Sometimes I feel really alone. There was even a moment when I thought pregnancy was too heavy for me, and I didn't want to get pregnant again."* On the other hand, some participants demonstrated better emotional regulation. Hendon explained, *"Alhamdulillah, I can manage my feelings. When I'm tired, I rest. When I'm angry, I stay quiet first."* Similarly, Nurdiana reported maintaining emotional stability: *"I prefer to be patient. I don't want to be overwhelmed by emotions because I'm afraid it will affect the baby."* Overall, the findings suggest that the social support needs of pregnant women at risk of diabetes mellitus are multidimensional, encompassing emotional, instrumental, and financial aspects. The husband's physical presence, family involvement, and economic support play a crucial role in safeguarding maternal well-being. However, when these needs are not fully met, the consequences may include emotional instability, heightened anxiety, and profound loneliness. Therefore, interventions for at-risk pregnant women should not solely focus on medical aspects, but must also address psychosocial dimensions comprehensively.

**The Influence of Social Support on the Psychological Well-Being of Pregnant Women at Risk of Diabetes Mellitus**

From the perspective of healthcare professionals, cases of pregnant women at risk of diabetes mellitus (DM) are indeed found in Bireuen District, particularly among those with a family history of the disease. However, attention to this condition remains limited. Healthcare providers generally offer counseling related to diet, nutrition, and the importance of routine check-ups. Nevertheless, they face a significant challenge in the form of limited knowledge among the community, especially husbands and families, regarding the risks of DM during pregnancy. This lack of understanding often results in insufficient social support, which does not always meet the emotional or practical needs of pregnant women. Healthcare workers emphasize that women who receive strong support from their partners and families tend to be happier, more satisfied, and better able to go through pregnancy with greater ease. Therefore, health education involving both husbands and families is considered essential to enhance the effectiveness of social support.

In line with this, in-depth interviews with pregnant women at risk of DM revealed that social support functions not merely as an additional factor, but as a protective factor that significantly influences psychological well-being. Almost all informants agreed that support from husbands, families, and healthcare providers fostered a sense of safety, happiness, and appreciation. For instance, Hendon stated, *"My husband even took over all the household chores, so I truly felt cared for."* Similarly, Nisaul Rahmah compared her previous pregnancy with her current one, highlighting a remarkable difference: *"During my earlier pregnancy I often felt tired and stressed, but now I feel happier and healthier because I receive more attention from my family."* These findings underscore that social support exerts a direct influence on the emotional and psychological state of pregnant women at risk. Both instrumental support—such as assistance with household tasks—and emotional support—such as care and physical presence from a spouse—

contribute to reducing stress, enhancing calmness, and strengthening resilience in facing pregnancy risks. Thus, interventions designed for pregnant women at risk of DM should not solely focus on medical aspects but also integrate socio-psychological dimensions through the active involvement of husbands, families, and communities in the pregnancy support process.

**Expectations, Changes, and Impacts of Social Support for Pregnant Women**

The findings of this study reveal that pregnant women at risk of diabetes mellitus hold strong expectations regarding the continuity of social support, not only during pregnancy but also in the postpartum period. They emphasized the importance of sustained affection, attention, and practical assistance, particularly because the postnatal phase is often marked by psychological challenges such as *baby blues* or postpartum depression. Several informants expressed their hope that their husbands would be able to maintain a better balance between work and family responsibilities, ensuring a consistent presence at home. As one informant stated: *"I hope my husband can be at home more often, not just busy with work, so that I feel calmer and not alone."* In addition, broader access to healthcare providers, especially specialist doctors, was highlighted as a key aspiration, reflecting their need for more comprehensive and continuous maternal healthcare services. Positive changes following the receipt of social support were evident among nearly all participants. They reported feeling happier, more motivated, and more optimistic about their pregnancy. Attention and care from their partners not only enhanced maternal psychological well-being but also had reciprocal effects—boosting husbands' work motivation and sense of being valued. One informant, Nisaul Rahmah, described her contrasting experiences: *"During my previous pregnancy I often felt tired and stressed, but now I feel happier and healthier because I receive more attention from my family."* This demonstrates that social support functions not merely as a psychological buffer for pregnant women but also as a reinforcing factor for family dynamics, strengthening emotional bonds and fostering household harmony.

The forms of social support most valued by mothers included assistance with household chores such as washing, cooking, and childcare, as well as the husband's increased presence at home. Some husbands even made significant behavioral changes to enhance maternal comfort, such as reducing smoking inside the house. One informant, Anti, shared: *"My husband no longer smokes in the house, so I feel more comfortable and do not get short of breath easily."* Such seemingly simple forms of support carry substantial meaning, as they directly reduce physical burdens while simultaneously improving psychological comfort. social support serves a dual function: first, it strengthens the emotional well-being of pregnant women at risk; and second, it fosters family harmony and resilience in navigating both the pregnancy period and the postpartum transition.

**DISCUSSION**

Study findings indicate that pregnant women at risk of diabetes mellitus (DM) in Bireuen Regency face multidimensional challenges encompassing biological, psychological, and social aspects. A family history of DM plays a significant role in triggering anxiety, with women who have such a history showing higher levels of concern than those without. Biologically, physical complaints—such as nausea, dizziness, and fatigue—limit daily activities and affect domestic roles and economic contributions, particularly for mothers previously engaged in productive work. Moreover, economic constraints pose a major barrier to obtaining optimal healthcare, especially access to obstetric specialists. These limitations foster uncertainty and heighten concerns about potential pregnancy complications. Psychologically, feelings of loneliness and vulnerability often emerge due to the absence of husbands who are preoccupied with work. However, simple gestures of support—accompanying medical check-ups, helping with household chores, or simply spending more time at home—have been shown to provide significant emotional comfort and a sense of security. Social support has been proven to play a protective role in maintaining the well-being of pregnant women at risk of DM. Support from husbands, families, and healthcare providers not only increases happiness and optimism but also enhances adherence to care routines such as regular check-ups and dietary management. Furthermore, this support fosters positive behavioral changes, for instance, husbands reducing smoking habits at home for the mother's comfort. These findings align with the biopsychosocial concept, which underscores the interconnectedness of biological, psychological, and social factors in shaping health outcomes. Various studies have demonstrated that social support plays a crucial role in the management of Gestational Diabetes Mellitus (GDM), both in improving pregnant women's adherence to self-care and in maintaining their psychological well-being(Nazarpour et al., 2024). A qualitative study published in revealed that communal support, direct assistance, indirect encouragement, and the reduction of social barriers are key factors in initiating and sustaining healthy lifestyle changes among mothers with GDM(Dennison et al., 2019; Sundarapperuma et al., 2024). Another study in *Diabetes Care* by the American Diabetes Association indicated that dietary compliance and insulin administration significantly improved among pregnant women who received strong social support, with lower stress levels further strengthening this relationship(Cheong et al., 2025). A cross-sectional study in Iran also found that pregnant women with GDM reported higher perceptions of family and peer support, which negatively correlated with their anxiety levels(Baharvand et al., 2022) Meanwhile, phenomenological research in Yogyakarta highlighted the importance of family, peer, and healthcare professional support, as well as access to accurate information, in optimizing GDM management(Subarto et al., 2022). Collectively, these findings align with the biopsychosocial model, which emphasizes the interconnectedness of biological (GDM risk), psychological (anxiety, stress, motivation), and social factors (support from husbands, families, and healthcare providers) in determining maternal and neonatal health outcomes, while also demonstrating that social support

can foster positive behavioral changes, such as healthy eating, routine medical check-ups, and husbands reducing smoking at home to ensure maternal comfort

## CONCLUSION

This study demonstrates that the experiences of pregnant women at risk of Diabetes Mellitus in Bireuen Regency are influenced by interrelated biological, psychological, social, and economic factors. A family history of Diabetes Mellitus increases risk perception and heightens anxiety among pregnant women. Physical symptoms such as nausea, dizziness, and fatigue further exacerbate daily challenges, disrupt domestic roles, and reduce economic contributions, particularly among women who were previously engaged in productive activities. Social support from husbands, families, peers, and healthcare providers emerges as a key protective factor in maintaining psychological well-being. Emotional reassurance, practical assistance, and physical companionship significantly reduce anxiety, loneliness, and emotional distress while enhancing resilience and optimism. Conversely, inadequate support—especially the physical absence of husbands and limited access to specialized healthcare—can heighten emotional vulnerability and worsen psychological conditions. These findings highlight the need for an integrated maternal care approach that combines medical management with continuous psychosocial support. Health education for husbands, families, and communities must be strengthened to raise awareness of GDM risks and improve caregiving practices. Moreover, expanding access to comprehensive healthcare services, particularly for low-income families, is essential to reduce complications and improve pregnancy outcomes. Social support is not merely an additional factor but a core element in safeguarding the well-being of pregnant women at risk of Diabetes Mellitus. Sustained support—emotional, instrumental, and financial—should be optimized not only during pregnancy but also throughout the postpartum period to ensure better maternal and neonatal health outcomes.

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