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Association of Maternal Lactation With Diabetes and Hypertension

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ABSTRACT

Background: The association between maternal lactation and the risk of diabetes and hypertension has garnered significant attention in the literature, particularly in relation to maternal health outcomes. **Literature Review:** The foundational work by (Adefunmike Adeboyejo, 2016) underscores the critical role of breastfeeding education in enhancing maternal health outcomes, particularly for women at high risk of diabetes and pregnancy-induced hypertension. Subsequent studies, such as the systematic review by (Antonio Del Ciampo & Regina Lopes Del Ciampo, 2018), expand on this by providing evidence that breastfeeding is linked to a decrease in the risk of type 2 diabetes and improved blood pressure regulation. These findings are supported by qualitative insights from (Rita Rose Casey et al., 2019), which reveal complexities in breastfeeding practices among women with gestational diabetes, highlighting both the protective nature of breastfeeding and the challenges faced by these women. Further investigations, such as those by (P. Lima et al., 2019) and (Modesto Vicente et al., 2020), reveal that prolonged breastfeeding is associated with reduced cardiovascular risks, including coronary heart disease and type 2 diabetes. The research conducted by (Suliga et al., 2020) and (S. Hewage et al., 2021) further reinforces the notion that breastfeeding duration is inversely related to the development of metabolic syndrome and dysglycemia, particularly in women with a history of gestational diabetes. **Conclusion :** In conclusion, the reviewed literature strongly supports the assertion that maternal lactation plays a vital role in reducing the risk of diabetes and hypertension, with significant long-term health benefits for mothers. The emphasis on educational interventions, understanding the physiological mechanisms, and addressing the challenges faced by mothers with pre-existing conditions is crucial for promoting breastfeeding as a public health strategy.

Keyword: Association, Maternal Lactation, Diabetes, Hypertension

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INTRODUCTION

The association between maternal lactation and the risk of diabetes and hypertension has garnered significant attention in the literature, particularly in relation to maternal health outcomes. The body of research demonstrates a multifaceted relationship between breastfeeding practices and maternal metabolic health, emphasizing the importance of breastfeeding not only for infant nutrition but also for the long-term health of mothers.

(Adefunmike Adeboyejo, 2016) initiated this discourse by highlighting the critical role of breastfeeding education for women at high risk for diabetes and pregnancy-induced hypertension (PIH). The study underscored how enhanced breastfeeding knowledge among medical staff led to improved attitudes towards evidence-based practices, thereby fostering an environment conducive to promoting breastfeeding among vulnerable populations. This foundational work set the stage for understanding the broader implications of breastfeeding on maternal health.

(Antonio Del Ciampo & Regina Lopes Del Ciampo, 2018) expanded on this idea through a systematic review that explored the relationship between breastfeeding and maternal risk of type 2 diabetes. Their findings suggested that lactation is associated with significant long-term benefits for maternal cardio-metabolic health, including a reduction in blood pressure and a lower risk of developing diabetes. This comprehensive analysis provided a clearer understanding of the physiological changes associated with lactation that may contribute to improved maternal health outcomes.

(Rita Rose Casey et al., 2019) further delved into the implications of breastfeeding for women with a history of diabetes during pregnancy. Their qualitative study revealed that while breastfeeding may influence the risk of developing diabetes in children, the onset of lactation could be delayed in women with gestational diabetes. This insight highlights the complexities surrounding

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breastfeeding practices among women with pre-existing health conditions and their potential long-term impacts on both maternal and child health.

(P. Lima et al., 2019) investigated the association between breastfeeding duration and maternal cardiovascular risk factors in a large cohort. Their research found that prolonged breastfeeding was linked to a decreased risk of coronary heart disease and type 2 diabetes, although the connections to blood pressure and lipid profiles remained less definitive. This study emphasized the need for further exploration into how breastfeeding duration can serve as a protective factor against various cardiovascular diseases.

(Modesto Vicente et al., 2020) contributed to the understanding of the biochemical mechanisms underlying these associations by examining long-term insulin secretion in lactating mice. Their findings suggested that lactation may have enduring effects on metabolic health, reinforcing the notion that breastfeeding can positively influence maternal insulin sensitivity and glucose metabolism.

(Suliga et al., 2020) explored the prevalence of metabolic syndrome among perimenopausal women and found that lactation mobilizes fat stores accumulated during pregnancy, leading to improvements in metabolic profiles. Their study highlighted the hormonal changes during lactation, particularly the role of prolactin in regulating insulin secretion, which may have lasting effects on maternal health.

(S. Hewage et al., 2021) conducted a prospective study that focused on the relationship between breastfeeding duration and the incidence of metabolic syndrome in women with a history of gestational diabetes. Their findings suggested that extended breastfeeding could offer protective benefits against the development of type 2 diabetes, particularly in women who had experienced gestational diabetes.

(Zhou & Zhou, 2021) provided a comprehensive protocol for systematic review and meta-analysis of the metabolic effects of breastfeeding in women with prior gestational diabetes mellitus. Their work aimed to synthesize existing evidence on how lactation influences glucose and lipid metabolism, further elucidating the protective mechanisms associated with breastfeeding.

Lastly, (Wilkins et al., 2021) examined the intergenerational links of maternal nutrition to metabolic risk factors, emphasizing the significance of

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maternal health during pregnancy and lactation. Their systematic review highlighted the potential impact of maternal nutritional status on offspring's metabolic health, reinforcing the importance of breastfeeding as a component of a healthy lifestyle that can mitigate future risks of non-communicable diseases.

Collectively, these studies underscore the critical role of breastfeeding in shaping maternal health outcomes, particularly concerning diabetes and hypertension. The evidence suggests that promoting breastfeeding can yield significant benefits for mothers, thereby enhancing their long-term health and reducing the risk of chronic diseases.

LITERATURE REVIEW

The article "Breastfeeding Education for Women with Diabetes, Pregnancy-Induced Hypertension and Multiple Gestations" by (Adefunmike Adeboyejo, 2016) presents a comprehensive examination of the impact of breastfeeding education on women at high risk for diabetes and pregnancy-induced hypertension (PIH). The study highlights the critical role that informed breastfeeding practices can play in improving maternal and infant health outcomes in this vulnerable population.

Adeboyejo's project underscores the necessity of providing tailored educational interventions to women facing the dual challenges of managing diabetes and PIH during pregnancy. The article articulates how enhanced knowledge and comfort levels regarding breastfeeding among medical staff can lead to improved support for these women. This is particularly significant, as the medical community's attitudes and practices directly influence the likelihood of mothers initiating and sustaining breastfeeding. The author effectively argues that when healthcare providers are well-informed about the benefits of breastfeeding, they are more likely to advocate for it, thereby fostering a supportive environment for mothers.

The findings suggest that educational initiatives can bridge the gap between evidence-based practices and clinical application, ultimately promoting better health outcomes for both mothers and their infants. By focusing on high-risk groups, the article highlights an often-overlooked aspect of maternal health,

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emphasizing that breastfeeding can be a protective factor against the long-term consequences of diabetes and hypertension.

However, while the article provides valuable insights into the importance of breastfeeding education, it could benefit from a more detailed exploration of the specific educational strategies employed and their direct impact on breastfeeding rates among the participants. Additionally, the article would gain depth from a discussion of potential barriers that women with diabetes and PIH may face in initiating and maintaining breastfeeding, as well as how these barriers can be addressed through targeted interventions.

The article "Breastfeeding and the Benefits of Lactation for Women's Health" by (Antonio Del Ciampo & Regina Lopes Del Ciampo, 2018) provides a comprehensive examination of the relationship between maternal lactation and various health outcomes, particularly focusing on diabetes and hypertension. The authors synthesize findings from multiple studies, presenting a compelling argument for the protective effects of breastfeeding on maternal cardio-metabolic health.

One of the key insights presented in the article is the association between lactation and a reduced risk of type 2 diabetes. The authors reference a systematic review and dose-response meta-analysis that highlights a significant correlation between the duration of breastfeeding and a lower incidence of type 2 diabetes among women ((Antonio Del Ciampo & Regina Lopes Del Ciampo, 2018)). This finding is particularly relevant given the rising prevalence of diabetes globally, emphasizing the importance of promoting breastfeeding as a public health strategy.

Additionally, the article delves into the implications of breastfeeding on maternal blood pressure. It reports that lactation is associated with both short- and long-term reductions in blood pressure. The authors discuss evidence from a population-based study that indicates a relationship between breastfeeding status and maternal cardiovascular variables in the postpartum period, suggesting that women who breastfeed may experience better cardiovascular health outcomes ((Antonio Del Ciampo & Regina Lopes Del Ciampo, 2018)). This aspect of the research is critical, as hypertension is a significant risk factor for cardiovascular

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disease, and understanding the modifiable factors associated with it can lead to better health interventions.

The article also addresses the influence of parity and breastfeeding duration on maternal hypertension. The authors present data indicating that women with higher parity who engage in breastfeeding have a lower risk of developing high blood pressure ((Antonio Del Ciampo & Regina Lopes Del Ciampo, 2018)). This finding is significant as it underscores the multifaceted benefits of lactation not only for the infant but also for maternal health, particularly in managing and potentially reducing the risk of chronic conditions.

Furthermore, the discussion on the impact of breastfeeding on maternal bone health, while not directly related to diabetes and hypertension, adds another layer of understanding regarding the long-term benefits of lactation. The authors suggest that lactation contributes to greater maternal bone size and strength, which can be a crucial factor in overall health as women age ((Antonio Del Ciampo & Regina Lopes Del Ciampo, 2018)).

The article "Perspectives and experiences of collecting antenatal colostrum in women who have had diabetes during pregnancy: a North Queensland semistructured interview study" by (Rita Rose Casey et al., 2019) presents a nuanced exploration of the interplay between maternal lactation and the risk of developing diabetes. The authors delve into the experiences of women with a history of diabetes during pregnancy, specifically focusing on their perspectives regarding the collection of colostrum prior to childbirth.

One of the key insights from the study is the potential influence of breastfeeding on the long-term health outcomes of children, particularly concerning the risk of diabetes mellitus. The authors systematically review current evidence linking maternal lactation practices to the incidence of diabetes in offspring, suggesting that breastfeeding may serve as a protective factor. This connection is particularly relevant given the rising prevalence of diabetes and hypertension in both maternal and child populations.

The study also addresses the question of whether the onset of lactation is delayed in women with diabetes during pregnancy. The systematic review included

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in the article highlights various factors that may contribute to this delay, such as hormonal imbalances and the physiological challenges faced by these women. The authors argue that understanding these barriers is crucial for developing targeted interventions that promote early lactation and, by extension, improve health outcomes for both mothers and their children.

Furthermore, the qualitative data gathered from the interviews provide rich insights into the personal experiences of women navigating the complexities of lactation with a diabetes diagnosis. The emotional and psychological dimensions of their experiences are highlighted, revealing how these factors can influence their ability and motivation to engage in breastfeeding practices. This aspect of the study emphasizes the importance of supportive healthcare environments that acknowledge and address the unique challenges faced by these women.

The article "Breastfeeding and maternal cardiovascular risk factors: 1982 Pelotas Birth Cohort" by (P. Lima et al., 2019) provides valuable insights into the relationship between breastfeeding duration and maternal health outcomes, particularly concerning cardiovascular risk factors. The authors emphasize that, beyond the well-documented benefits for infants, breastfeeding may play a critical role in enhancing maternal health by potentially lowering the risks of chronic conditions such as coronary heart disease and type 2 diabetes.

The study utilizes a longitudinal design, following a cohort of women from birth, which strengthens the reliability of the findings. The authors report that longer durations of breastfeeding are linked to a reduced risk of developing metabolic risk factors associated with cardiovascular disease. This finding aligns with existing literature that suggests lactation may influence maternal health through mechanisms such as lactational amenorrhea, which contributes to increased birth spacing and possibly lower lifetime exposure to hormonal fluctuations associated with various health risks ((P. Lima et al., 2019)).

However, the article also highlights the ambiguity surrounding the associations between breastfeeding and other cardiovascular risk factors, such as blood pressure and lipid profiles. The authors note that the evidence in this area remains inconclusive, suggesting that further research is necessary to clarify these

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relationships. This point is critical as it underscores the complexity of maternal health outcomes and the multifactorial nature of cardiovascular risk, which may be influenced by a range of variables, including lifestyle and genetic predispositions.

Moreover, the authors emphasize the potential for residual confounding by socioeconomic status, particularly since many studies on this topic have been conducted in high-income countries where breastfeeding is often positively correlated with higher socioeconomic status. This consideration is essential, as it raises questions about the generalizability of findings from high-income settings to lower-income contexts, such as the one studied in Pelotas, Brazil. The authors call for more nuanced analyses that account for socioeconomic factors when evaluating the health impacts of breastfeeding.

The article titled "Long-term increase of insulin secretion in mice subjected to pregnancy and lactation" by (Modesto Vicente et al., 2020) presents significant findings regarding the relationship between maternal lactation and subsequent metabolic health, particularly in the context of diabetes and hypertension. The authors explore the implications of lactation duration on maternal cardiovascular disease risk factors and the incidence of type 2 diabetes, providing a thorough examination of how lactation may influence long-term health outcomes.

The main idea articulated by (Modesto Vicente et al., 2020) emphasizes that prolonged lactation is associated with a reduction in future diabetic risk, which is attributed to sustained improvements in insulin sensitivity following weaning. This assertion is critical as it suggests that the physiological changes induced by lactation may have lasting effects that extend beyond the breastfeeding period. The research highlights that lactation can serve as a protective factor against the development of type 2 diabetes, which is particularly pertinent given the rising prevalence of this condition among women of childbearing age.

A critical evaluation of the methodology employed in the study reveals a robust experimental design involving mice, which allows for controlled observations of metabolic changes linked to lactation. However, while animal models provide valuable insights, the translation of these findings to human populations requires caution. The biological mechanisms governing insulin

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sensitivity and metabolic health may differ between species, and thus, further research is necessary to validate these effects in human subjects.

Moreover, the authors discuss the implications of their findings in the context of public health recommendations regarding breastfeeding. By underscoring the potential long-term health benefits of lactation, the study advocates for increased support for breastfeeding initiatives, which could play a crucial role in reducing the incidence of diabetes and hypertension among women.

The article "Breastfeeding and Prevalence of Metabolic Syndrome among Perimenopausal Women" by (Suliga et al., 2020) investigates the relationship between lactation and maternal metabolic health, particularly focusing on its association with metabolic syndrome (MetS). The authors highlight the complex interplay between breastfeeding, hormonal changes, and metabolic outcomes, providing valuable insights into the potential long-term benefits of lactation for maternal health.

One of the key insights presented in the article is the role of prolactin during lactation. Prolactin is known to influence insulin secretion and glucose homeostasis, which are critical factors in the development of metabolic disorders, including type 2 diabetes. The article notes that increased prolactin levels during breastfeeding may facilitate the mobilization of fat stores accumulated during pregnancy, thereby contributing to improved metabolic profiles ((Suliga et al., 2020)). This perspective aligns with findings from previous studies that suggest prolonged lactation can lead to beneficial metabolic changes that persist even years after weaning.

The authors emphasize that lactation duration is a significant predictor of metabolic health, with a total breastfeeding duration exceeding 12 months being associated with a reduced risk of MetS in their study population. This finding underscores the importance of promoting breastfeeding, not only for the immediate health of the infant but also for the long-term metabolic health of mothers. However, the authors acknowledge several limitations in their study, including the confounding effects of co-existing health behaviors and the lack of detailed information regarding the exclusivity and intensity of breastfeeding. Despite these

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limitations, the inclusion of sociodemographic and lifestyle variables enhances the robustness of their analysis ((Suliga et al., 2020)).

Furthermore, the article posits that the metabolic health of women prior to pregnancy may influence lactation outcomes, suggesting that low lactation efficiency could serve as an indicator of future risks for maternal metabolic diseases. This notion introduces an important consideration for maternal healthcare, highlighting the need for early interventions aimed at optimizing maternal health before and during pregnancy.

The article titled "Breastfeeding Duration and Development of Dysglycemia in Women Who Had Gestational Diabetes Mellitus: Evidence from the GUSTO Cohort Study" by (S. Hewage et al., 2021) presents a comprehensive analysis of the relationship between breastfeeding duration and the risk of developing dysglycemia in women with a history of gestational diabetes mellitus (GDM). The authors effectively synthesize findings from various studies to underscore the potential long-term metabolic benefits of lactation for this demographic.

The main idea of the article revolves around the assertion that prolonged breastfeeding may serve as a protective factor against the development of metabolic disorders, particularly type 2 diabetes, in women who have experienced GDM. The authors draw on a wealth of data, including a 20-year prospective study from the CARDIA cohort, to illustrate the correlation between breastfeeding duration and the incidence of metabolic syndrome. This longitudinal approach enhances the reliability of their findings, suggesting that the duration of lactation is inversely related to the risk of dysglycemia.

Hewage et al. ((S. Hewage et al., 2021)) also delve into the biological mechanisms that may underpin this relationship. They highlight how lactation influences maternal metabolism, particularly in women with a history of GDM. The article discusses the role of breastfeeding in the regulation of insulin and glucose responses, indicating that lactation may improve beta-cell function and promote favorable changes in lipid metabolism. This is particularly relevant for women postpartum, as their metabolic health is crucial for preventing the onset of type 2 diabetes.

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Moreover, the article addresses the implications of breastfeeding intensity, noting that higher intensity breastfeeding is associated with better postpartum glucose tolerance. This nuanced perspective adds depth to the discussion, suggesting that not only the duration but also the intensity of lactation plays a significant role in maternal metabolic health.

However, while the article provides robust evidence supporting the benefits of breastfeeding, it could benefit from a more critical examination of potential confounding factors that may influence the outcomes observed. For instance, socioeconomic status, access to healthcare, and lifestyle factors could all impact both breastfeeding practices and the risk of developing metabolic disorders. Acknowledging these variables would provide a more comprehensive understanding of the relationship being studied.

The article "Effect of breastfeeding on metabolic-related outcomes in women with previous gestational diabetes mellitus: A protocol for systematic review and meta-analysis" by (Zhou & Zhou, 2021) presents a comprehensive approach to understanding the long-term metabolic implications of lactation in women who have experienced gestational diabetes mellitus (GDM). The authors aim to synthesize existing literature to elucidate the relationship between breastfeeding duration and the incidence of metabolic syndrome, particularly focusing on women of reproductive age.

Central to the authors' analysis is the assertion that breastfeeding has a long-term protective effect against the development of type 2 diabetes in women who have had GDM. This is particularly significant given the rising prevalence of diabetes among women post-pregnancy. The systematic review and meta-analysis proposed by the authors seeks to consolidate findings from various studies to provide a clearer picture of how lactation duration correlates with metabolic outcomes, including glucose and lipid metabolism.

The article outlines several key insights from previous research, emphasizing that initiation of breastfeeding is associated with a reduced incidence of diabetes not only in mothers but also in their offspring. This intergenerational aspect underscores the importance of promoting breastfeeding as a public health

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strategy to mitigate the risk of metabolic disorders. The authors highlight that lactation may influence metabolic pathways that are crucial for managing glucose levels and lipid profiles, which are often disrupted following GDM.

Moreover, the authors propose to investigate the duration of lactation as a critical variable in their analysis. They suggest that longer breastfeeding periods may be linked to more favorable metabolic outcomes, thereby reinforcing the need for targeted interventions that encourage sustained breastfeeding practices among women with a history of GDM.

The article "Maternal nutrition and its intergenerational links to non-communicable disease metabolic risk factors: a systematic review and narrative synthesis" by (Wilkins et al., 2021) provides a comprehensive examination of how maternal nutritional status during pregnancy and lactation can influence the metabolic health of offspring, particularly concerning non-communicable diseases (NCDs) such as hypertension and diabetes.

The authors systematically review existing literature to assess the intergenerational impacts of maternal nutrition, focusing on three key metabolic risk factors: elevated blood pressure, high blood lipid levels, and impaired glucose tolerance. This approach not only highlights the importance of maternal health during pregnancy but also emphasizes the potential long-term consequences for the offspring's metabolic health. The systematic review methodology employed by the authors strengthens the credibility of their findings, as it allows for a more nuanced understanding of the relationship between maternal lactation and the development of metabolic disorders in children.

One of the critical insights from the article is the recognition of the complex interplay between maternal nutrition and the subsequent health outcomes in offspring. The authors discuss how inadequate maternal nutrition during lactation can lead to adverse metabolic profiles in children, which may predispose them to conditions such as obesity, diabetes, and hypertension later in life. This is particularly relevant in the context of rising global rates of these NCDs, as it underscores the necessity for targeted nutritional interventions during pregnancy and lactation.

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Furthermore, the narrative synthesis provided by (Wilkins et al., 2021) effectively contextualizes the findings within broader public health frameworks, advocating for policies that support maternal health and nutrition. The authors argue that improving maternal nutritional status could serve as a preventive measure against the rising tide of metabolic diseases, thus highlighting the potential for interventional strategies that focus on maternal care as a means of enhancing long-term health outcomes for future generations.

CONCLUSION

The literature reviewed illustrates a significant association between maternal lactation and improved health outcomes concerning diabetes and hypertension. The studies collectively emphasize the multifaceted benefits of breastfeeding, not only for infants but also for maternal metabolic health, highlighting the importance of educational interventions for high-risk populations.

The foundational work by (Adefunmike Adeboyejo, 2016) underscores the critical role of breastfeeding education in enhancing maternal health outcomes, particularly for women at high risk of diabetes and pregnancy-induced hypertension. This study sets the groundwork for understanding the broader implications of breastfeeding on maternal health, suggesting that informed healthcare providers can significantly influence breastfeeding initiation and duration.

Subsequent studies, such as the systematic review by (Antonio Del Ciampo & Regina Lopes Del Ciampo, 2018), expand on this by providing evidence that breastfeeding is linked to a decrease in the risk of type 2 diabetes and improved blood pressure regulation. These findings are supported by qualitative insights from (Rita Rose Casey et al., 2019), which reveal complexities in breastfeeding practices among women with gestational diabetes, highlighting both the protective nature of breastfeeding and the challenges faced by these women.

Further investigations, such as those by (P. Lima et al., 2019) and (Modesto Vicente et al., 2020), reveal that prolonged breastfeeding is associated with reduced cardiovascular risks, including coronary heart disease and type 2 diabetes. These

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studies elucidate the biochemical mechanisms that may underlie these associations, suggesting that lactation may enhance insulin sensitivity and mobilize fat stores, thereby improving metabolic profiles.

The research conducted by (Suliga et al., 2020) and (S. Hewage et al., 2021) further reinforces the notion that breastfeeding duration is inversely related to the development of metabolic syndrome and dysglycemia, particularly in women with a history of gestational diabetes. The systematic review by (Zhou & Zhou, 2021) emphasizes the need for comprehensive analyses to clarify the relationship between lactation and metabolic health, advocating for public health measures that promote breastfeeding.

Lastly, the work of (Wilkins et al., 2021) highlights the intergenerational impacts of maternal nutrition and lactation on offspring's metabolic health, suggesting that maternal health during breastfeeding has long-term implications for the next generation. This reinforces the critical need for policies that support maternal health and nutrition.

In conclusion, the reviewed literature strongly supports the assertion that maternal lactation plays a vital role in reducing the risk of diabetes and hypertension, with significant long-term health benefits for mothers. The emphasis on educational interventions, understanding the physiological mechanisms, and addressing the challenges faced by mothers with pre-existing conditions is crucial for promoting breastfeeding as a public health strategy.

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REFERENCES

1. Adefunmike Adeboyejo, O., 2016. Breastfeeding Education for Women with Diabetes, Pregnancy-Induced Hypertension and Multiple Gestations. [PDF]
2. Antonio Del Ciampo, L. & Regina Lopes Del Ciampo, I., 2018. Breastfeeding and the Benefits of Lactation for Women's Health. ncbi.nlm.nih.gov
3. Rita Rose Casey, J., Louise Mogg, E., Banks, J., Braniff, K., & Heal, C., 2019. Perspectives and experiences of collecting antenatal colostrum in women who have had diabetes during pregnancy: a North Queensland semistructured interview study. ncbi.nlm.nih.gov
4. P. Lima, N., G. Bassani, D., Izze S. Magalhães, E., C. Barros, F., & L. Horta, B., 2019. Breastfeeding and maternal cardiovascular risk factors: 1982 Pelotas Birth Cohort. ncbi.nlm.nih.gov
5. Modesto Vicente, J., Carolina Santos-Silva, J., Jordão Teixeira, C., Nogueira de Souza, D., Franciesco Vettorazzi, J., Sales Furtuoso, F., Gouveia Adabo, I., Takeo Sato, F., Aurélio Ramirez Vinolo, M., Magalhães Carneiro, E., Bordin, S., & Forato Anhê, G., 2020. Long-term increase of insulin secretion in mice subjected to pregnancy and lactation. ncbi.nlm.nih.gov
6. Suliga, E., Ciesla, E., Gluszek-Osuch, M., Lysek-Gladysinska, M., Wawrzycka, I., & Gluszek, S., 2020. Breastfeeding and Prevalence of Metabolic Syndrome among Perimenopausal Women. ncbi.nlm.nih.gov
7. S. Hewage, S., Yu Hazel Koh, X., E. Soh, S., Wei Pang, W., Fok, D., Cai, S., Müller-Riemenschneider, F., Yap, F., Hian Tan, K., Chien Chua, M., Bee Lim, S., M. Godfrey, K., T. Colega, M., Chong, Y. S., Chan, S. Y., Yoong, J., & F. F. Chong, M., 2021. Breastfeeding Duration and Development of Dysglycemia in Women Who Had Gestational Diabetes Mellitus: Evidence from the GUSTO Cohort Study. ncbi.nlm.nih.gov

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8. Zhou, B. & Zhou, J., 2021. Effect of breastfeeding on metabolic-related outcomes in women with previous gestational diabetes mellitus: A protocol for systematic review and meta-analysis. ncbi.nlm.nih.gov
9. Wilkins, E., Wickramasinghe, K., Pullar, J., R. Demaio, A., Roberts, N., Perez-Blanco, K. M., Noonan, K., & Townsend, N., 2021. Maternal nutrition and its intergenerational links to non-communicable disease metabolic risk factors: a systematic review and narrative synthesis. ncbi.nlm.nih.gov

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