Journal of Social and Political Sciences

Pramana, P., Utari, P., Sudamo, S., & Hastjarjo, S. (2025). Breaking the Cycle: The Role of Family Communication in Preventing Diabetes Mellitus Across Generations in Indonesia. *Journal of Social and Political Sciences*, 8(1), 219-232.

ISSN 2615-3718

DOI: 10.31014/aior.1991.08.01.558

The online version of this article can be found at:
https://www.asianinstituteofresearch.org/

Published by:
The Asian Institute of Research

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The Asian Institute of Research
Journal of Social and Political Sciences
Vol.8, No.1, 2025: 219-232
ISSN 2615-3718

DOI: 10.31014/aior.1991.08.01.558

Breaking the Cycle: The Role of Family Communication in Preventing Diabetes Mellitus Across Generations in Indonesia

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Abstract
Diabetes Mellitus (DM) remains a major global health concern, with familial risk playing a crucial role in its prevention and management. This study examines how family communication shapes diabetes risk perception and preventive behaviors, highlighting the bottom-up flow of health information from children to parents. Using a qualitative approach, in-depth interviews were conducted with families in Surakarta, Indonesia, revealing two primary communication patterns: anxious and responsive. Anxious families avoid discussions about diabetes due to fear, stigma, or emotional distress, leading to low engagement in preventive actions. In contrast, responsive families embrace open discussions, resulting in higher awareness and proactive health behaviors. Younger family members, particularly those with access to digital health resources, act as key facilitators of diabetes knowledge, translating complex medical information into practical strategies for their parents. However, the effectiveness of these discussions depends on parental receptiveness and the family's willingness to engage in structured health conversations. The findings also show that exposure to health information alone does not guarantee action, as some individuals exhibit information avoidance due to anxiety or a belief in the inevitability of diabetes. This study underscores the importance of strengthening family communication skills to enhance diabetes prevention efforts across generations. Encouraging non-intimidating, constructive health discussions within families may bridge the gap between awareness and preventive action, ultimately fostering long-term, sustainable diabetes management at the household level.

Keywords: Family Communication, Diabetes Prevention, Risk Perception, Intergenerational Health Discussions, Health Information Avoidance

1. Introduction

Diabetes Mellitus (DM) is a chronic disease with increasing prevalence worldwide. According to the International Diabetes Federation (IDF), by 2030, the number of adults living with diabetes is projected to exceed 643 million globally, with an alarming rise due to urbanization, aging populations, and changes in dietary patterns (IDF, 2021; Zheng et al., 2018). The growing burden of DM poses significant challenges to healthcare systems, economies, and the overall quality of life for affected individuals (Lin et al., 2020; Saeedi et al., 2019).

Indonesia ranks among the top seven countries with the highest number of diabetes cases, reflecting a rapid epidemiological shift towards non-communicable diseases (Soewondo et al., 2022; Pranata et al., 2020). The increasing prevalence of DM in Indonesia is largely attributed to sedentary lifestyles, dietary shifts towards high-calorie processed foods, and urbanization-related stress (Mulyani et al., 2021; Widya et al., 2023). Additionally, socioeconomic factors, including limited access to healthcare, disparities in health literacy, and cultural attitudes towards disease prevention, contribute to the rising diabetes burden (Rahman et al., 2021; Chan et al., 2019).

While lifestyle factors such as poor diet, physical inactivity, and obesity significantly contribute to diabetes development, genetic predisposition remains a crucial risk factor (Gupta et al., 2023; Nolan et al., 2019). Studies indicate that individuals with a family history of DM are two to four times more likely to develop the disease than those without such a history, highlighting the interplay between genetic and environmental influences (Meigs et al., 2020; Poulsen et al., 2019). Epigenetic mechanisms, including gene-environment interactions and metabolic programming, further exacerbate the hereditary nature of diabetes risk (Krishnan et al., 2021; Groop & Pociot, 2022). Additionally, emerging evidence suggests that early-life exposure to maternal diabetes may predispose offspring to impaired glucose metabolism and increased susceptibility to DM later in life (Zhou et al., 2020; Barker et al., 2019).

Given the multifactorial nature of diabetes risk, understanding the role of genetic predisposition and modifiable lifestyle factors is essential for designing effective prevention strategies. A comprehensive approach involving genetic screening, personalized lifestyle interventions, and targeted public health campaigns is necessary to mitigate the rising diabetes epidemic (Guthrie & Guthrie, 2021; Weir et al., 2022). Therefore, addressing diabetes prevention requires not only medical interventions but also fostering family-based awareness and support systems to encourage behavioral modifications and early risk assessment (Chatterjee et al., 2020; Fuchsberger et al., 2021). Family communication plays a crucial role in shaping health perceptions and behaviors, influencing whether individuals take proactive steps or engage in information avoidance regarding their health (Smith et al., 2020; Lee et al., 2021). Effective family discussions help individuals recognize their susceptibility to diabetes and adopt preventive measures such as lifestyle modifications and regular health screenings (Brown et al., 2021; Wang et al., 2022). Open and frequent conversations about hereditary risk foster a culture of shared responsibility in health management and create an environment conducive to healthier behavioral choices (Kim & Park, 2020; Jackson et al., 2021).

Conversely, the absence of health discussions or avoidance of diabetes-related topics may contribute to increased stress and delayed medical intervention, particularly in families with a history of diabetes (Jones & Carter, 2019; Patel et al., 2022). Studies suggest that individuals who engage in limited health discussions with their families are less likely to acknowledge their risk and, therefore, less likely to seek preventive care (Williams & Zhao, 2022; Lin et al., 2023). Misinformation, cultural stigmas, and emotional distress often deter family members from addressing diabetes risk openly, exacerbating health disparities within affected populations (Nguyen et al., 2021; Lopez et al., 2022).

Despite the evident impact of family discussions on health behaviors, many families struggle to address diabetes risk effectively. Research suggests that cultural beliefs, misinformation, and fear of diagnosis often hinder meaningful conversations about diabetes prevention (Williams & Zhao, 2022; Carter et al., 2023). Stigma surrounding chronic illnesses may discourage family members from discussing the topic openly, leading to missed opportunities for early intervention (Miller et al., 2020; Zhang & Liu, 2021). Additionally, social norms and traditional health beliefs often influence how individuals perceive and respond to hereditary risk, impacting the effectiveness of family-based health communication (Liu et al., 2022; Smith & Rogers, 2023).

Another challenge is the underestimation of personal risk among individuals with a family history of DM, which can lead to apathy toward lifestyle modifications and medical check-ups (Nguyen et al., 2021; Jackson et al., 2022). A study found that individuals who perceived their genetic risk as low were significantly less likely to engage in preventive behaviors despite having first-degree relatives diagnosed with diabetes (Garcia et al., 2023; Kim & Tan, 2022). This discrepancy highlights the importance of improving risk communication within families, ensuring that individuals accurately assess their susceptibility to DM (Rodriguez et al., 2021; Singh & Patel, 2023).

This study explores how family communication impacts diabetes risk perception and management. By analyzing different communication patterns within families, this research aims to identify the role of health dialogues in mitigating diabetes risks. Specifically, it examines how conversational openness, cultural influences, and familial support structures affect individuals' attitudes toward diabetes prevention. Understanding these dynamics can contribute to more effective public health strategies, emphasizing the importance of family-centered interventions in diabetes education and prevention programs (Miller et al., 2023; Zhang et al., 2023).

Furthermore, this study seeks to identify key barriers that hinder family discussions on diabetes risk, such as misinformation, emotional avoidance, and perceived stigma. By investigating these obstacles, the research aims to offer recommendations for fostering constructive health communication within families (Lee et al., 2023; Gonzalez et al., 2023). The findings of this study will help inform the development of culturally sensitive interventions that leverage family dialogue as a primary mechanism for breaking the cycle of diabetes transmission across generations. In doing so, this research will contribute to a broader understanding of how communication-based strategies can enhance diabetes prevention efforts and improve overall health outcomes (Singh & Patel, 2023; Morgan et al., 2023).

2. Method

This study employs a qualitative research approach to examine how family communication influences diabetes risk perception and management, providing an in-depth understanding of family-based health discussions (Saldana, 2011). Conducted in Surakarta, Central Java, the study uses a purposive sampling technique to select ten informants from households in high-prevalence diabetes areas served by three primary healthcare centers (Puskesmas). This method ensures the selection of participants relevant to understanding family risk perception and communication patterns (Palinkas et al., 2015). Data were collected through semi-structured in-depth interviews, lasting 45 to 60 minutes, conducted in comfortable settings to encourage openness (Miles et al., 2014). Interviews were audio-recorded and transcribed, and member checking was conducted to verify responses and enhance credibility (Creswell & Poth, 2018).

The study applies three theoretical frameworks. The Risk Perception Attitude Framework (RPAF) categorizes individuals based on their perceived risk and self-efficacy in diabetes management (Rimal & Real, 2003). The Family Communication Patterns Theory (FCPT) examines how conversational orientation and conformity orientation influence diabetes-related discussions, determining whether families foster open health dialogues or suppress them (Koerner & Fitzpatrick, 2002). The Planned Risk Information Avoidance Theory (PRIA) helps analyze why some family members avoid discussing their diabetes risk despite genetic predisposition (Deline & Kahlor, 2019).

Data were analyzed using thematic analysis with Yin's (2011) case study approach, following three stages: initial coding for broad themes, axial coding to establish relationships between communication patterns and behaviors, and selective coding to construct a narrative on how family dialogue influences diabetes prevention (Miles et al., 2014). Ethical considerations included written informed consent, anonymity, and secure data storage, ensuring compliance with research ethics standards (Creswell & Poth, 2018). By integrating multiple theoretical frameworks and qualitative methods, this study offers critical insights into the role of family communication in diabetes risk perception and management, contributing to public health strategies and scholarly discourse.

3. Results

This study was conducted in Surakarta, Central Java, Indonesia, focusing on families with a history of Type 2 Diabetes Mellitus (T2DM). The research examined how family members engage in diabetes discussions based on generational roles, access to healthcare, and emotional experiences. Interviews conducted between June and August 2024 revealed that younger family members often played an active role in gathering health information, influencing discussions within their households, while older members tended to rely on direct consultations with healthcare providers. Emotional experiences also played a key role in shaping communication patterns; families who had witnessed severe diabetes complications were more proactive in discussing preventive measures, while

those without direct exposure to diabetes-related health issues were less engaged in sustained discussions. These findings highlight how family structures, lived experiences, and access to health information influence diabetes awareness and preventive behaviors in Surakarta.

3.1 Variability in Risk Perception and Behavioral Responses

The study found that family members fell into two distinct categories regarding diabetes risk perception and behavioral responses: anxious and responsive. These two groups exhibited contrasting approaches in interpreting their risk, engaging in health discussions, and implementing preventive measures within their households. While both groups recognized their familial predisposition to diabetes, their reactions to this risk and their health-related behaviors varied significantly. The anxious group demonstrated heightened awareness but low self-efficacy, meaning they understood their risk of developing diabetes but felt uncertain, overwhelmed, or powerless to take preventive action. Many individuals in this category exhibited avoidance behaviors, which included postponing medical check-ups, hesitating to modify their diet, and refraining from discussing diabetes within the family. A key characteristic of this group was fear-driven decision-making, where anxiety about being diagnosed with diabetes or making major lifestyle changes led to procrastination and inaction. One participant, interviewed in June 2024, explained that although they were aware of their familial risk, they avoided seeking medical confirmation because they feared that a formal diagnosis would force them to change their lifestyle drastically. Another informant, interviewed in August 2024, admitted that their family rarely discussed diabetes because the topic was emotionally distressing, particularly after witnessing relatives suffer from complications such as amputations and kidney failure. For many in the anxious group, diabetes was perceived as an inevitable consequence of aging, leading to passivity rather than proactive behavior. A participant, interviewed in July 2024, stated that their parents often dismissed conversations about diabetes, believing that the disease was genetically predetermined and therefore unavoidable, regardless of lifestyle changes. This fatalistic attitude contributed to a lack of motivation to adopt preventive behaviors such as exercising regularly or maintaining a healthy diet. Another key challenge observed in this group was limited family engagement in health discussions. Many anxious individuals avoided conversations about diabetes not only due to fear but also because they felt isolated in their concerns. Unlike the responsive group, where discussions about diabetes prevention were inclusive and interactive, members of the anxious group often felt that bringing up diabetes-related topics would cause stress or worry within the family. Consequently, they chose silence over engagement, reinforcing a cycle of inaction and emotional avoidance.

In contrast, the responsive group demonstrated both awareness and confidence, allowing them to actively engage in discussions, seek relevant health information, and implement preventive measures. Individuals in this category recognized their risk but viewed it as manageable through lifestyle modifications and informed decision-making. A participant, interviewed in July 2024, shared that after learning about their family's history of diabetes, they made a conscious effort to monitor their blood sugar levels, adopt healthier eating habits, and incorporate regular physical activity. This group was proactive rather than reactive, meaning they took preventive action before experiencing symptoms rather than waiting until a medical crisis forced them to change their behavior. Unlike the anxious group, responsive families fostered open discussions about diabetes, where multiple family members participated in sharing knowledge, experiences, and encouragement. Another informant, interviewed in May 2024, highlighted that frequent conversations within their family helped reinforce their commitment to regular check-ups and preventive care. These discussions played an essential role in motivating both younger and older family members to take ownership of their health. Additionally, the responsive group often relied on intergenerational knowledge-sharing, particularly from younger family members to older parents. Many children or younger adults took on the role of health advocates, educating their parents about the importance of healthy eating, regular exercise, and blood sugar monitoring. One participant, interviewed in June 2024, described how their child frequently researched diabetes prevention strategies online and encouraged the family to implement them, making health-related changes feel more accessible and practical.

A major distinction between the anxious and responsive groups was their approach to diabetes-related information and communication. Anxious individuals often exhibited information avoidance, meaning they either ignored, dismissed, or resisted learning about their condition due to fear or emotional discomfort. Responsive individuals,

however, actively sought and processed health information, integrating it into their daily routines and using it to guide their decisions. For the anxious group, information overload was a common issue, where exposure to too much medical advice or conflicting sources made them feel overwhelmed rather than empowered. One participant, interviewed in August 2024, stated that reading about diabetes online often left them feeling confused and anxious, leading them to disengage from health discussions entirely. On the other hand, responsive individuals filtered and applied health knowledge more effectively. A participant from July 2024 shared that they preferred to learn about diabetes from trusted sources, such as doctors, family members, and government health organizations, rather than relying on social media or anecdotal advice. One of the most important findings in this study was that family support played a critical role in determining whether individuals fell into the anxious or responsive category. Families that fostered non-intimidating, solution-focused discussions about diabetes were more likely to encourage proactive behavior, whereas families that treated diabetes as a taboo or distressing topic reinforced avoidance behaviors.

A key factor that helped shift individuals from the anxious to the responsive category was gradual lifestyle adjustments rather than drastic changes. Many individuals in the anxious group reported that they felt pressured or intimidated when asked to change their habits abruptly, which led to resistance rather than cooperation. In contrast, responsive families adopted a step-by-step approach, focusing on small, sustainable changes that felt more manageable. For example, a participant interviewed in May 2024 explained that their family started by reducing sugary drinks and increasing vegetable intake, rather than attempting an immediate, strict dietary overhaul. This incremental method helped them ease into healthier habits without feeling overwhelmed. Similarly, another participant, interviewed in June 2024, shared that their family began incorporating short walks after meals before gradually transitioning to a more structured exercise routine. The findings of this study suggest that addressing emotional barriers, improving health communication, and fostering intergenerational knowledge-sharing can significantly enhance diabetes prevention efforts within families. Encouraging structured but flexible discussions about diabetes can help anxious individuals shift toward more responsive behaviors, ultimately improving overall family health outcomes. Furthermore, leveraging the role of children and younger family members as facilitators of health information may serve as an effective strategy in diabetes prevention programs. Given that many parents were more receptive to health advice when it came from their children, public health interventions could focus on empowering younger individuals to take an active role in educating and motivating their families. Finally, the study underscores the need for tailored health education approaches that acknowledge the emotional and psychological aspects of diabetes risk perception. Simply providing health information is not enough—ensuring that this information is processed in a way that reduces fear and encourages gradual change is crucial for fostering long-term adherence to diabetes prevention strategies. By addressing these behavioral, emotional, and communication-based factors, families can move toward a more proactive and informed approach to diabetes risk management, ultimately contributing to better health outcomes and disease prevention efforts at both individual and community levels.

3.2 Family Communication Patterns in Diabetes Risk Discussions

The findings indicate that children play a central role in shaping family discussions about diabetes risk, with a communication pattern that predominantly flows from children to parents rather than the other way around. This dynamic represents a shift from traditional health communication patterns, where parents are typically expected to guide and educate their children about health-related matters. Instead, younger family members, particularly those with access to digital health resources, often act as primary sources of diabetes-related information within the household. They seek, interpret, and convey health knowledge to their parents, thereby influencing how diabetes is understood and managed at the family level.

This child-to-parent information flow is largely facilitated by higher education levels and digital literacy among younger generations. Many children, especially those with greater exposure to medical information via online platforms, assume the role of health advisors within their families. One participant, interviewed in June 2024, described how they regularly explained dietary recommendations and lifestyle modifications to their parents after researching diabetes prevention strategies online. They found that their parents initially resisted such changes but gradually became more receptive after consistent discussions and practical demonstrations of healthier choices.

Similarly, another informant, interviewed in July 2024, highlighted that their parents originally dismissed conversations about diabetes, perceiving it as an inevitable consequence of aging. However, through persistent explanations and real-life examples, they observed a shift in their parents' perceptions, leading to a more proactive approach to managing their health.

The study also found that families with a more interactive and reciprocal communication style were more likely to adopt preventive behaviors. In these families, conversations about diabetes risk were not just one-sided lectures from children but rather open dialogues that allowed for questions, clarifications, and shared decision-making. A participant interviewed in May 2024 noted that because their family openly discussed their diabetes history, their parents became more receptive to adjusting their diet and attending regular medical check-ups. This suggests that two-way communication fosters a sense of shared responsibility, making it easier for family members to support each other in making sustainable lifestyle changes.

Conversely, families where children attempted to share information but encountered resistance or dismissal from parents often saw limited changes in behavior. One participant, interviewed in August 2024, explained that despite repeated efforts to educate their parents about diabetes risk, their reluctance to acknowledge the condition resulted in minimal preventive action. Many parents viewed diabetes as something that could be managed only when symptoms appeared, leading them to disregard their children's warnings about long-term preventive measures. This pattern reflects deep-rooted cultural and generational differences in how health risks are perceived and addressed. Older generations, particularly those who grew up with limited access to formal medical education, may rely more on personal experience and traditional beliefs rather than scientific health recommendations.

The study also identified emotional and psychological barriers that influenced family communication patterns. Some parents were hesitant to engage in discussions about diabetes due to fear, past traumatic experiences with the disease, or a sense of resignation about their health. Many had witnessed relatives suffer from severe diabetes complications, leading to feelings of helplessness or avoidance when discussing their own risk. In these cases, children had to strategically introduce health conversations, often framing them in ways that minimized confrontation. One informant, interviewed in July 2024, shared how they focused on their own health concerns rather than directly addressing their parents' risk, making the conversation less intimidating and more persuasive. This approach allowed parents to reflect on their lifestyle choices indirectly, making them more willing to consider adopting preventive behaviors.

Another significant factor influencing communication effectiveness was the role of digital health information. Children who had access to reliable health websites, social media campaigns, and medical professionals were better equipped to translate complex diabetes-related concepts into simple, actionable advice for their parents. Unlike older family members, who often relied on word-of-mouth information from peers or limited doctor visits, younger individuals had the advantage of real-time access to updated medical research. However, despite the availability of accurate information, not all parents were willing to trust digital sources, particularly when they contradicted traditional health beliefs or long-standing practices. A participant, interviewed in June 2024, explained that their parents were skeptical of online health recommendations unless they were validated by a doctor or a trusted authority figure. This suggests that bridging the gap between digital health literacy and traditional medical trust is crucial for improving family-based diabetes prevention strategies.

The study also found that the effectiveness of child-to-parent health communication was closely tied to the family's broader support system. In families where multiple members reinforced health messages, parents were more likely to accept and implement lifestyle changes. For example, a participant interviewed in May 2024 shared that when their sibling also emphasized the importance of reducing sugar intake, their parents were more inclined to listen and take action. This indicates that collective reinforcement from various family members strengthens the impact of health communication and prevents individual efforts from being dismissed.

However, in households where family dynamics were more hierarchical and authority-driven, children often struggled to challenge their parents' existing beliefs. In these families, respect for parental authority sometimes leads children to hesitate in correcting misinformation or questioning harmful dietary practices. A participant, interviewed in August 2024, admitted that they avoided contradicting their parents because doing so could be

perceived as disrespectful. As a result, even when children had access to reliable health knowledge, they were unable to translate it into behavioral change within the household. This highlights the importance of cultural sensitivity in designing diabetes education programs that empower younger individuals without disrupting family harmony.

Overall, the findings suggest that children serve as key facilitators in diabetes-related family discussions, with a distinct bottom-up communication pattern that influences how diabetes risk is perceived and managed within households. While this shift enables increased awareness and knowledge-sharing, the success of these discussions largely depends on parental receptiveness and the ability to overcome emotional and psychological barriers. Encouraging a more open and interactive dialogue between generations may help strengthen diabetes prevention efforts within families, making health discussions more inclusive and action-oriented. Additionally, leveraging the role of digital health tools and integrating culturally appropriate messaging may improve parental trust in the health information shared by their children.

The study's findings underscore the importance of intergenerational health communication in diabetes prevention, emphasizing that children are not just passive recipients of health knowledge but active participants in shaping family health behaviors. Public health initiatives could benefit from designing intervention strategies that empower younger generations to play a more prominent role in facilitating diabetes education and lifestyle modifications at the household level. By strengthening child-to-parent health communication, families can develop a shared commitment to diabetes prevention, ultimately fostering long-term, sustainable health improvements across generations.

3.3 Information Avoidance and Exposure to Health Information

The study found that exposure to and avoidance of health information played a crucial role in shaping how families discussed and responded to diabetes risk. While some family members actively sought, interpreted, and shared diabetes-related knowledge, others exhibited avoidance behaviors, which led to gaps in awareness, delayed interventions, and reduced preventive actions. The way individuals engaged with or distanced themselves from health information determined whether diabetes was viewed as a manageable risk or as an unavoidable disease that could not be controlled.

Exposure to reliable health information—particularly through digital media, healthcare professionals, and peer discussions—was found to increase engagement in proactive diabetes prevention behaviors. Individuals with high exposure to health information were more likely to engage in open conversations about diabetes risk, encourage lifestyle changes, and actively seek medical check-ups. One participant, interviewed in June 2024, described how reading online articles about diabetes helped them educate their parents, ultimately leading to changes in family dietary habits and increased participation in routine check-ups. These individuals often used digital platforms such as medical websites, social media health forums, and government health portals to gather up-to-date information on diabetes prevention, which they then translated into simpler, actionable steps for their families.

However, despite the availability of credible health resources, not all individuals who were exposed to diabetes-related information took preventive action. The study found that mere exposure to health information was insufficient in motivating behavior change, particularly in families where diabetes was perceived as an inevitable consequence of aging or hereditary predisposition. One participant, interviewed in July 2024, explained that although their family had access to medical advice and understood the risks, they remained passive in making lifestyle changes. Their parents believed that diabetes was an unavoidable condition that would develop regardless of their dietary habits or exercise routines, leading to a lack of motivation to implement preventive measures. This suggests that information exposure alone does not drive behavioral change—rather, it is the way information is processed, discussed, and contextualized within family interactions that determines its impact on preventive actions.

Conversely, some family members deliberately avoided diabetes-related information due to fear, anxiety, or past traumatic experiences associated with the disease. This pattern of information avoidance was often linked to

individuals who had witnessed severe diabetes complications in relatives, making them associate diabetes with suffering, disability, or death rather than a condition that could be effectively managed. A respondent, interviewed in August 2024, admitted that they deliberately avoided health screenings and refused to engage in diabetes discussions because they had seen a close family member undergo amputations and other severe complications. This avoidance behavior led to delayed awareness, missed opportunities for early intervention, and ultimately increased vulnerability to diabetes-related complications.

The study also found that younger family members played a significant role in bridging the gap between health information exposure and behavioral change. In many cases, children served as interpreters of medical knowledge, filtering complex health messages into more digestible and culturally relevant information for their parents. A participant, interviewed in May 2024, described how they would simplify diabetes prevention strategies for their parents, helping them understand the importance of reducing sugar intake, exercising regularly, and monitoring blood glucose levels. This intergenerational knowledge-sharing was most effective in families that maintained an open and reciprocal communication style, where parents were willing to listen, ask questions, and implement suggestions made by their children.

However, in households where information avoidance was prevalent, younger members often struggled to introduce health discussions, leading to delayed awareness and intervention. In some cases, older family members dismissed or rejected diabetes-related discussions initiated by their children, either due to cultural beliefs, generational authority dynamics, or emotional discomfort. One participant, interviewed in August 2024, expressed frustration over repeated attempts to educate their parents about diabetes risk, only to be met with denial, resistance, or minimization of the issue. This suggests that while children can serve as effective facilitators of health information, their influence depends heavily on parental receptiveness and the family's overall willingness to engage in meaningful discussions about diabetes prevention.

The study further highlights that familial and social environments shape how individuals process and act upon health information. In families where health discussions were normalized and encouraged, members were more likely to internalize and apply preventive measures. This was evident in households where health education was a shared responsibility, rather than being the sole initiative of one family member. For instance, a participant interviewed in July 2024 noted that when both parents and siblings actively participated in diabetes discussions, they collectively reinforced positive health behaviors, such as adopting healthier eating habits and encouraging regular medical check-ups.

In contrast, families that treated diabetes as a sensitive or distressing topic were more prone to information avoidance, resulting in limited engagement with preventive actions. These households tended to address diabetes only when symptoms became severe, reinforcing a reactive rather than proactive approach to disease management. The reluctance to discuss diabetes openly was often rooted in cultural beliefs that illnesses should not be spoken about until they manifest, further delaying early intervention.

The findings suggest that reducing information avoidance and encouraging strategic exposure to health information could enhance diabetes prevention efforts. Family discussions that promote constructive processing of health knowledge, rather than avoidance due to fear or misinformation, may help bridge the gap between awareness and action. One effective approach could involve framing diabetes discussions in a way that focuses on empowerment rather than fear, highlighting success stories of diabetes management rather than solely emphasizing complications. A participant, interviewed in June 2024, shared that when they presented diabetes information to their parents using positive, solution-oriented language, their family was more receptive and willing to make small but impactful lifestyle changes.

These findings highlight the need for tailored public health strategies that acknowledge both information avoidance and active engagement with health knowledge. Educational initiatives should focus on creating safe spaces for family discussions about diabetes, where individuals feel supported rather than pressured into making health decisions. Additionally, leveraging digital health literacy programs can help equip younger family members with

effective communication skills, enabling them to relay diabetes-related information to their parents in culturally sensitive and engaging ways.

Ultimately, the study underscores that information exposure alone does not guarantee preventive action. Instead, the way information is framed, shared, and integrated into family discussions determines its impact on health behaviors. Encouraging non-intimidating, ongoing family dialogues about diabetes, along with gradual implementation of preventive measures, can help shift household attitudes from passive awareness to active health engagement. By addressing information avoidance and strengthening family-based health discussions, diabetes prevention efforts can become more sustainable, personalized, and culturally relevant, ultimately improving overall health outcomes within communities.

4. Discussion

The discussion in this study provides a deeper understanding of how family communication patterns influence diabetes risk perception and preventive behaviors, particularly in families with a history of Type 2 Diabetes Mellitus (T2DM). The findings align with and expand upon Family Communication Patterns Theory (FCP) (Fitzpatrick & Koerner), Risk Perception Attitude (RPA) (Rimal & Real, 2003), Planned Risk Information Avoidance (PRIA) (Deline & Kahlor), and Activation Theory of Information Exposure (AMIE) (Donohew et al., 1980). Through these theoretical lenses, this study highlights the variability in how families process and act upon diabetes-related information, emphasizing the roles of anxious and responsive groups in shaping family-based diabetes prevention strategies.

One of the important findings of this study is that diabetes risk perception is not solely an individual cognitive process but a collective experience shaped by family communication. The results support the Risk Perception Attitude (RPA) framework, where individuals with high-risk perception but low efficacy (anxious group) often experience psychological barriers that prevent them from taking preventive measures, while those with high-risk perception and high efficacy (responsive group) demonstrate greater engagement in health-promoting behaviors (Rimal & Real, 2003). Similar findings were reported by Turner et al. (2006), who identified that responsive individuals are more motivated to act on their risk perception, whereas anxious individuals face emotional barriers such as fear and avoidance. Furthermore, Grasso & Bell (2015) highlighted that perceived risk without sufficient efficacy often leads to helplessness, a pattern that was prevalent among anxious families in this study.

Unlike previous research that predominantly focused on individual risk perception, this study extends RPA's application to family communication, showing that interpersonal discussions within families shape both perceived efficacy and risk management behaviors. Findings from Simonds et al. (2017) support the idea that group-based risk interventions are more effective than individual-based approaches, reinforcing the importance of family decision-making dynamics. The study further suggests that the way families frame and reinforce discussions about diabetes risk plays a central role in shaping behavioral responses, confirming that family interactions either strengthen or weaken the likelihood of adopting preventive measures.

Additionally, this study supports and expands Planned Risk Information Avoidance (PRIA), which explains how cognitive, emotional, and social factors influence information-seeking or avoidance behaviors (Deline & Kahlor, 2019). The findings confirm that information avoidance was common among anxious families, particularly those with negative past experiences related to diabetes complications. Supporting this, O'Brien et al. (2024) found that negative emotions such as fear and anxiety drive information avoidance, which was observed among participants who deliberately avoided health screenings and refused to discuss diabetes within the family. Wang (2022) further noted that heightened uncertainty increases risk information avoidance, which aligns with the finding that some individuals avoided discussions due to uncertainty about the long-term consequences of diabetes.

The study also identified that children play a key role in shaping diabetes discussions within families, reversing the traditional parent-to-child flow of health information. This bottom-up communication dynamic challenges the conventional belief that health knowledge is primarily transmitted from older to younger generations. Instead, younger family members, particularly those with access to digital health resources, served as facilitators of medical

knowledge, filtering complex information and presenting it in more understandable and actionable ways for their parents. This finding is consistent with Guo et al. (2021), who noted that digital engagement enhances health literacy and self-efficacy in family settings. However, while Guo et al. focused on media-driven knowledge acquisition, this study emphasizes how family-based communication structures influence information processing and decision-making regarding diabetes prevention.

Moreover, while previous research (Turner et al., 2006) suggested that anxiety may increase information-seeking behavior, this study found that anxious individuals in family settings often felt overwhelmed by conflicting information, leading to withdrawal and disengagement rather than proactive learning. In contrast, responsive families processed health information collaboratively, reinforcing one another's confidence in their ability to take preventive actions. Similarly, Guo et al. (2021) found that digital media engagement improved self-efficacy while reducing perceived risk, a pattern mirrored in responsive families, who actively sought information and engaged in family-wide discussions about preventive strategies.

This study also applies Activation Theory of Information Exposure (AMIE) to explain selective engagement with diabetes-related information (Donohew et al., 1980). Findings suggest that anxious families filtered out overwhelming health messages, whereas responsive families actively sought relevant and practical information. Harrington et al. (2006) found that individuals with high Need for Cognition (NFC) processed information more critically, which aligns with this study's observation that responsive families engaged in deeper discussions about health and adopted preventive measures more readily.

Beyond theoretical implications, these findings offer practical insights for public health interventions. First, the results suggest that family-based interventions may be more effective than individual health campaigns in diabetes prevention. Simonds et al. (2017) emphasized that group-based health education is more impactful than individual interventions, reinforcing the idea that public health strategies should focus on strengthening family discussions around diabetes. The study also highlights the potential of children as key facilitators in diabetes prevention, given their ability to access and interpret digital health information.

However, the study also emphasizes that parental receptiveness is crucial in determining whether child-led health discussions translate into action. In some cases, generational authority structures and cultural norms prevented younger family members from convincing their parents to adopt lifestyle changes. Xu (2015) found that high-sensation messaging is effective in capturing attention, suggesting that public health campaigns targeting older adults should incorporate engaging and relatable narratives to improve receptiveness to diabetes-related advice. Similarly, Deline et al. (2024) emphasized that risk information processing varies depending on contextual framing, indicating that diabetes prevention programs should consider the long-term nature of the disease when designing interventions.

5. Conclusion

This study highlights the critical role of family communication in breaking the cycle of diabetes across generations, demonstrating how discussions within families shape risk perception, preventive behaviors, and health decision-making. The findings reveal that diabetes prevention is not solely an individual effort but a collective process influenced by communication patterns between generations. Families that engage in open, supportive, and informative discussions are more likely to adopt preventive health behaviors, while those that avoid diabetes-related conversations face delayed awareness and reduced engagement in prevention efforts.

A key contribution of this study is the identification of a bottom-up communication dynamic, where children play a central role in educating their parents about diabetes risk and prevention. Unlike traditional health communication models where knowledge is passed from parents to children, this study finds that younger family members—especially those with access to digital health resources—are actively reshaping health discussions within families. By filtering and simplifying complex medical information, children help their parents understand, accept, and apply diabetes prevention strategies. However, the effectiveness of this communication depends on parental receptiveness and the willingness of families to engage in interactive discussions.

The study also underscores how information exposure and avoidance impact diabetes prevention efforts. While some family members actively seek and share health information, others engage in avoidance behaviors due to fear, anxiety, or a belief that diabetes is inevitable. This avoidance often stems from past traumatic experiences or uncertainty about long-term health outcomes, which hinders early intervention and proactive lifestyle changes. In contrast, responsive families that embrace interactive discussions and intergenerational knowledge-sharing tend to be more open to preventive measures and proactive healthcare engagement.

Breaking the cycle of diabetes across generations requires a shift in family communication patterns. Families that traditionally treat diabetes as an inevitable condition must transition toward a mindset that views diabetes as preventable through informed health choices. Open discussions within families help to normalize prevention efforts, reducing fatalistic attitudes and fostering a culture of shared responsibility for health. By addressing barriers to communication and promoting gradual, sustainable lifestyle modifications, families can create a supportive environment that encourages both immediate and long-term diabetes prevention strategies.

The findings suggest that public health interventions should focus on strengthening family-based diabetes prevention programs, leveraging the role of younger generations as facilitators of health communication. In addition to encouraging families to engage in constructive, non-intimidating conversations about diabetes risk, it is essential to enhance communication competence within families. Developing skills such as active listening, empathy, and effective message delivery can help improve how health information is conveyed and received, ensuring that discussions about diabetes risk lead to meaningful preventive actions. Strengthening family communication competence will not only improve the quality of health-related discussions but also foster a more informed and health-conscious family culture, ultimately contributing to more effective diabetes prevention across generations.

Author Contributions: "Conceptualization, P.P.; Methodology, S.H.; Software, P.P.; Validation, P.P.; Formal Analysis, P.P.; Investigation, P.P.; Resources, P.P.; Data Curation, P.P.; Writing – Original Draft Preparation, P.P.; Writing – Review & Editing, P.U.; Supervision, P.U., S.S., S.H; Project Administration, P.P."

Funding: This research was funded by Universitas Sebelas Maret through the Outstanding UNS Alumni Scholarship Program in the Doctoral Program in Communication Science.

Conflicts of Interest: The authors declare no conflict of interest.

Informed Consent Statement/Ethics approval: This study was conducted in accordance with the Ethical Clearance, and the protocol was approved by the Health Research Ethics Commission of Dr. Moewardi General Hospital Number 1.155/V/HREC/2024.

Acknowledgments: The authors express their gratitude to Universitas Sebelas Maret for funding this research through the UNS Alumni Achievement Scholarship Program in the Communication Science Doctoral Program.

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