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Enacting communication cycles after prediabetes: Mothers' stories of diabetes risk and seeking support

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ABSTRACT

Background: Diabetes is a family systems experience of multiple intergenerational relationships. Communicating about diabetes as a familial risk helps individuals perceive greater control over preventing diabetes. **Aim:** The present study investigates how mothers disclose their prediabetes to their family and the precipitating family communication, with the goal to interrupt the multigenerational legacy of diabetes. **Method:** Data were collected from a Family Medicine outpatient clinic. Semi-structured interviews were conducted to illicit information about mother-child communication about diabetes. Sort and Sift, Think and Shift analysis provided rich descriptions of mothers' experiences. **Results:** The sample consisted of 9 women with prediabetes, aged 42-70, who had at least one child. Eight participants described at least 2 generations of family members with a diabetes-related diagnosis (prediabetes, type 2 diabetes mellitus, and gestational diabetes). First, we present two contextual factors that preexisted the prediabetes diagnosis, which influenced the disclosure decision: general health communication approach and personal evaluation of diabetes. Second, we present the communication cycles that supported self-management. **Discussion:** Continual communication cycles with family and clinicians can support mothers with prediabetes to enact self-management behaviors and delay the onset of type 2 diabetes mellitus. **Conclusion:** Mothers need family members to respond favorably to complete a positive communication cycle that can generate continuous emotional, social, and instrumental support.

KEYWORDS

Communication cycles, disclosure, mothers, multigenerational diabetes, sort and sift, think and shift, type 2 diabetes mellitus

BIOGRAPHIES

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Introduction

Type 2 diabetes mellitus (T2DM) and its precursor prediabetes are metabolic diseases driven by both hereditary and environmental/social factors. This intersection of heredity and environment means that diabetes is experienced not in isolation but by families. Diabetes is a family systems experience of multiple intergenerational relationships (Didericksen & Das, 2019). Children of parents with diabetes are at a greater risk of developing the disease, regardless of ethnicity and sex, and children of mothers with T2DM are at an even greater risk (Karter et al., 1999). Communicating about diabetes as a familial risk helps individuals perceive greater control over preventing T2DM (Pijl et al., 2009).

Throughout the American South, particularly along the Diabetes Belt, a geographic region where counties have an 11.0% or higher prevalence of diabetes (Barker et al., 2011), individuals with a family history of diabetes have likely observed and talked with family members living with the disease experience a multigenerational legacy of diabetes (Scollan-Koliopoulos et al., 2005). When diagnosed with diabetes themselves, their perceptions and judgments of family members' diabetes influence their own illness and subsequent self-care decisions (Scollan-Koliopoulos et al., 2010; Scollan-Koliopoulos et al., 2011). Past family communication (messages heard from family while growing up) plays a part in how mothers approached their diabetes self-care. These messages are reiterated in the present by living family members (e.g., aging parents) and both inhibit and promote self-management (Fisher et al., 2020).

Research with adults with diabetes has shown how the entire family is affected by the disease (Rintala et al., 2013). When families engage in communal coping, patients have better health outcomes (Basinger, 2020). Yet, family members can feel excluded from their loved one's diabetes management when they are not included in patient education about living with diabetes and feel unprepared for emergencies that their loved ones may experience (Rintala et al., 2013).

Family communication is an important factor in managing both acute and chronic diseases (Gunn et al., 2012). A focus on mother-daughter communication and health has yielded evidence of a mutual influence on attitude and health behaviors, and highlighted the critical role of mother-daughter interaction in managing illness (Fisher, 2014; Kratzke et al., 2013; Miller-Day, 2008; Mosavel, 2012; Sinicrope et al., 2009). Additional research has pointed to conversations between mothers diagnosed with T2DM and their daughters about their personal diabetes-related experiences, fears about their daughters' risk, and maternal guilt when daughters developed T2DM (Cooke-Jackson, 2011).

For ten years, our research program has investigated the communicative actions surrounding the diagnosis of diabetes, focused on the clinical setting (Ledford et al., 2022). Through that work, we identified the specific challenges for women who live with diabetes and the role of family in management choices (Fisher et al., 2020). We also discovered how both men and women downplay a diagnosis of prediabetes (Ledford et al., 2021; Seehusen et al., 2019). Building on that work, the present study investigates how mothers disclose their prediabetes to their family and the precipitating family communication, with the goal to interrupt the multigenerational legacy of diabetes through the prevention of mothers' conversion from prediabetes to T2DM and the long-term prevention of her children's development of insulin resistance.

Methods

Design and feasibility

This study used qualitative interviews to develop a deeper understanding of the meanings mothers attach to their experiences with prediabetes and communication within the family (Green & Thorogood, 2018). Institutional Review Board approval was received. In July 2020, a feasibility test was conducted to assess the proposed method of utilizing Photovoice (Wang, 1999) for children and traditional semi-structured interviews for the mother. The children who participated in the feasibility test provided rich, relevant feedback. However, this second interview perspective was not pursued in the current study because as we recruited mothers for the study, two primary obstacles emerged. First, not all mothers had disclosed their new diagnosis to their children. Second, adult children did not live with or near mothers. In the one case of a local child who knew of the diagnosis, we were unable to establish contact.

Setting

The data were collected with patients enrolled in a Family Medicine outpatient clinic in a community hospital. The hospital is located in the northwest corner of Florida, in the Southeastern U.S., bordering the Diabetes Belt. As of 2018, 11.7% of Florida women had been told they had diabetes compared to an estimated 9.5% of women nationwide (National Diabetes Statistics Report, 2020). Similarly, 10.9% of Florida women had been told they had prediabetes (Council, 2021) compared to 9.3% of US women who met the definition of prediabetes.

Participant recruitment

Purposeful sampling allowed for information-rich cases related to diabetes risk management and communication about health. Participants in this study were actively enrolled in a study about diabetes self-management behaviors, Diabetes ROADMAP. Diabetes ROADMAP had inclusion criteria of 1) age: between 25 and 70 years old; and 2) a recent diagnosis of prediabetes present in the medical record. An A1c test value between 5.7% to 6.4% indicates prediabetes, and 6.5% or higher indicates diabetes. From the local Diabetes ROADMAP sample of 46 patients, 26 were women. In October 2020, following Institutional Review Board approval, we reviewed the women's medical record to identify women with at least 1 child (n=24).

Data collection tool

A semi-structured interview guide was developed to capture information related to the current study, mother and daughter communication about diabetes. The interview guide was piloted in the feasibility test subsequently refined for use in the present study, to include broadened language of gender inclusivity and questions asking the mother to compare how she communicates with her individual children. The first and third author met in person to debrief each interview, taking memos and notes on final impressions, major ideas, and opportunities to improve the interview guide. As a result, additional probing questions were included to elicit deeper reflection on aspects of mothers' experiences missing from the initial interview guide. Refining the guide was an iterative process, where feedback from participants and theory-driven inquiry gave us the richest data. The interviews provided a comprehensive story of mothers' experiences with prediabetes. Collecting and analyzing data concurrently (Morse et al., 2002) allowed for researcher reflection and modifications to the interview guide.

Two items from the baseline Diabetes ROADMAP survey collected race and ethnicity. One question followed the U.S. Census race categories (Patients could mark multiple categories to indicate mixed race), and a question asked the respondent to identify as Hispanic or Non-Hispanic (Spanakis & Golden, 2013). The survey included the ethnicity definition: Hispanic American refers to those of Mexican, South American, Cuban, or Puerto Rican descent born and/or residing in the U.S.

Procedure

The research associate (RA) supporting Diabetes ROADMAP telephoned each mother to invite her to participate in the present study in October 2020. She reviewed the purpose of the present study and asked if they were interested in participating in an interview with a member of the research team (LC). The RA explained that we wanted to interview mothers in-person in the family medicine clinic (or virtually at home) for about an hour, on the topic of their prediabetes and self-management behaviors. Of the 24 women eligible, 14 women did not volunteer because: 1) they were not available, 2) they were not interested, or 3) they were unreachable. Ten mothers agreed to participate. After volunteering, LC contacted each mother and scheduled an interview time of the participant's choosing. As soon as the interview was scheduled, participants were mailed 2 copies of the consent form and a small gift of a water bottle and a tote bag as a thank you for their time. They were instructed to read the consent form at home, sign, and return it in a pre-stamped envelope addressed to the RA. If they had any questions, they could email the RA or wait to ask them during the interview. After reading the informed consent, 1 mother declined the interview. LC, an experienced interviewer and qualitative expert, conducted all interviews.

In-person interviews

Participants met the interviewer at the clinic where they received primary care, between October 2020 and February 2021. Due to the COVID-19 pandemic, precautionary measures, following hospital guidelines, were taken to ensure safety of the researchers, participants, and surrounding staff. Utilizing a vacant clinic room for privacy, the interviewer reviewed the consent form and obtained a signature (if the research team had not already received a signed copy in the mail). Upon permission, an audio recorder recorded the conversation between the interviewer and participant. After the interview was completed and the recorder was turned off, the participant was thanked for their time and given a copy of the consent form for their records.

Virtual Interviews

The virtual interviews (3) were conducted in a similar fashion. The participant was emailed a reminder of the interview time and given a link to the virtual meeting. Virtual interviews were accessed through a private link and password protected to ensure privacy, safety and a distraction-free environment. We used the professional, subscription version of a popular, user-friendly video conferencing platform (ZoomPro). The virtual interviews replicated the in-person ones as much as possible (ensuring privacy, reviewing the consent form, audio recorded, thanked for their time). The virtual participants were mailed a consent form prior to the interview. The interviewer read over the consent form, answered any questions, and asked the participant to sign and mail back the consent form to the research team. Cameras were activated in all virtual interviews; however, only the audio was captured on recording.

Comparing and contrasting in person and virtual interviews

The quality of the virtual interviews, as measured by length and richness of data, was similar to in-person interviews. When using video conferencing software, technical troubles arise. On one occasion, the interviewer coached the interviewee through initial connection difficulties, which did not alter the course of the interview. In another instance, one user accidentally muted herself three times; the researcher paused the interview to explain how to unmute her microphone. Distractions are a natural part of any interview and were present in both virtual and in-person interviews. In both settings, there were instances where non-participants interrupted the interview by knocking on the door, entering the interview space, or calling the participant via cell phone.

Data analysis

After each interview, LC and CJWL met together to debrief and discuss how the interview guide performed and how the interview addressed three research questions (RQ).

> RQ1: What do mothers openly discuss with their children after a diabetes diagnosis?
>
> RQ2: What are their motivations for sharing this information?

> RQ3: What behaviors enacted by their children are perceived by mothers to be helpful/supportive or unhelpful in managing diabetes and engaging in healthier behaviors?

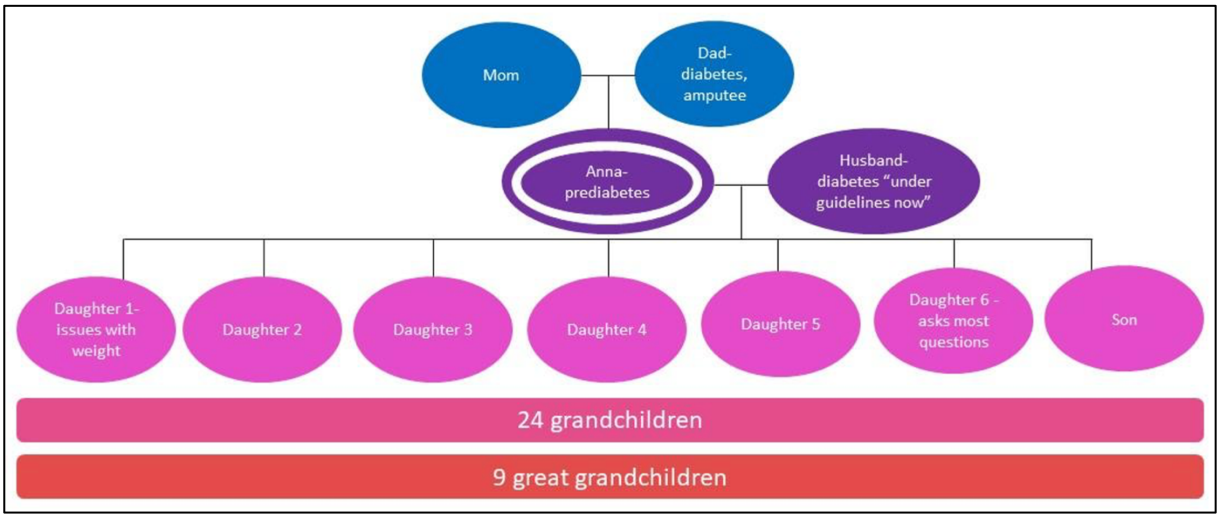
Following these meetings, LC wrote an episode profile for each participant. Memos from the interview debriefs were the starting point for codebook development. Main categories were identified through topics from the interview guide and observations from memo debriefs.

Interviews lasted between 34 minutes to 69 minutes, with an average of 55 minutes. All audio files were professionally transcribed, resulting in 193 pages of text. Any personal identifiers were removed. Content of the transcripts were reviewed by LC (the interviewer) to ensure accuracy.

Data immersion

Complete transcripts were reviewed and coded following the Sort and Sift, Think and Shift method (Maietta, 2018). This iterative process allows researchers to cycle through “diving in” the data to uncover dimensions and properties and “stepping back” to incorporate findings with existing literature. For example, during analysis, we stepped back to compare categories to communication theory. Weick’s model of organizing (Weick, 1979) emerged as a framework that aligned with mothers’ descriptions of the process of disclosure. Data immersion consisted of reviewing the interview transcript, debriefing memo, and episode profile of each case. Listening to the data, LC and CJWL diagramed each case in response to the research question. Diagrams identified salient topics for inclusion in the codebook. LC and CJWL then grouped the diagrammed topics into categories at the case level. Subsequently, LC diagrammed the multigenerational aspect of diabetes of each case. Illustrated like a genogram, this visualization helped to immerse the team into the participant’s multigenerational world (See Figure 1).

Figure 1: Sample genogram of interview participant “Anna”

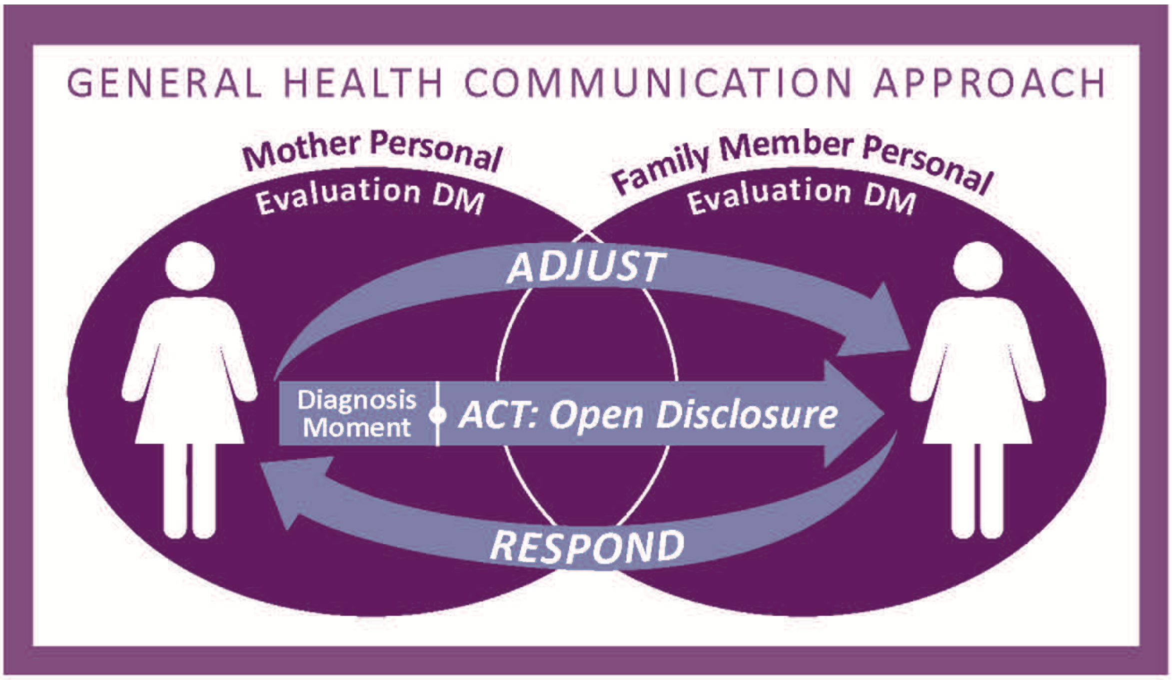


Data linking

Reading analysis notes and reviewing diagrams from subsequent cases, LC & CJWL stepped back to reflect on linkages. Similar topics grouped into higher-level categories across cases. The first codebook was developed after analyzing 2 interviews. In subsequent analysis of each interview, the codebook was further refined to include or modify existing categories. For example, we collapsed talking openly about their health and culture of openness within the family to form a higher-level code called openness. It was eventually refined into the broader topic of general health communication approach. Linkages across categories were documented in the codebook. The final version of the codebook was completed after analyzing 7 interviews.

In preparing the manuscript, LC and CJWL collaboratively created a flowchart to visualize the process among categories. Through this data visualization process, categories and linkages were refined. The final process of disclosure is depicted in Figure 2.

Figure 2. Communication cycles after prediabetes



Verification strategy

Once the codebook was finalized and all transcripts were reviewed once, LC returned to the first cases to conduct a second analysis. The second analysis was used as a verification strategy and ensured no categories were missed along the way.

Results

The sample consisted of 9 women with prediabetes, aged 42-70, who had at least one child. The majority of the mothers were married, had multiple children, and were told they met the criteria for prediabetes within 2 years of the interview. Eight participants described at least 2 generations of family members with a diabetes-related diagnosis (prediabetes, T2DM, and gestational diabetes). Personal names attached to quotes below are pseudonyms.

The resulting communication cycles (see Figure 2) explain how mothers made the decision to disclose their prediabetes diagnosis and the precipitating communication within her family (respond and adjust). First, we present two contextual factors that preexisted the prediabetes diagnosis, which influenced the disclosure decision: general health communication approach and personal evaluation of diabetes. Second, we present the communication cycles that supported self-management.

General health communication approach

Mothers described how they communicate about general health within the family environment. Mothers described a continuum of general health communication approaches that extended from open to closed. This approach reflected family norms, how the family typically communicated regarding health. Openness was limited by privacy rules and cultural stereotypes within families. Donna (59, White, non-Hispanic) described the openness in her family, "*[my daughters] know everything…because we tell them stuff. I'll tell my dad so…we don't really keep anything from them*".

General health communication included conversations about healthy behaviors and lifestyle changes. Cheryl (61, Black, non-Hispanic) described, "We talk about medications. We talk about body movement. If we have questions, we openly ask one another." The general health communication approach appeared constant, and it reflected inter- and intragenerational communication about health. Anna (58, White, non-Hispanic) explained how this open communication crossed generations in her family,

> There's pretty much nothing that we don't tell them. I mean we're pretty open with them. We tell them pretty much everything. And we have 24 grandkids and 9 great grandkids …so grandkids are involved in a lot of these discussions too.

Personal evaluation of diabetes

Even before receiving a prediabetes diagnosis, participants had developed a personal evaluation of the disease apart from themselves. Mothers' personal evaluations were informed by their observations of how diabetes was experienced by other people. Anna explained, "My dad was a diabetic and so he had actually several amputations because of his diabetes. So, diabetes is something that I took very seriously. I had all these horrible pictures in mind of becoming my dad." Beyond just good or bad, mothers evaluated diabetes as life-threatening, potentially stigmatizing, manageable, and/or unimportant/irrelevant to others.

From the moment they received the diagnosis, participants assessed information within their personal evaluations of diabetes. Betsy (64, White, non-Hispanic) explained the dissonance she experienced at diagnosis, "So I would say that that's where I was kind of shocked. I'm a pretty healthy person. I exercise. I walk every day and I think I eat pretty healthy now".

Personal evaluations of diabetes appeared as evolving and dynamic. After the diagnosis, mothers consistently reappraised their evaluation. During the interview itself, Cheryl verbally processed how the interviewer's questions changed how she thought about prediabetes:

> I just hadn't looked at it as a diagnosis. Why have I not looked at it as a diagnosis instead of a lab value? If I'm thinking in terms of a diagnosis, then I'm going to be more conscious of making daily choices to alter that diagnosis. I just hadn't really thought about discussing it with my cousins, I think it is important and really honing in on it with my daughter because we are close. And so she is right now very open to receiving information that I, as her mother, can give her.

Disclosure decision

Mothers made a decision to disclose or withhold their diagnosis within the context of general health communication approach and personal evaluation of diabetes. The act of disclosure was a purposeful announcement of their health status, rather than a passive action. Based on an assessment of their needs, mothers disclosed to specific individuals to gain support (emotional, social, or instrumental) or to warn future generations of family history. Fiona (59, White, non-Hispanic) recounted her disclosure decisions,

> I told my sister, but I don't think I told my brother. I've told a few people, especially when I go, yeah, I need to watch the sugar… because I'm prediabetic. I'll say, I really shouldn't be having that because I'm prediabetic, but I'd really like to have that.

Disclosure decisions were influenced by the knowledge that diabetes could be passed on to the next generation. Giselle (54, Black, Hispanic) explained why she was open with her son who also had prediabetes,

> I talk to him about some of the things I'm doing and not doing, like going on a walk. I'm doing some stretching and I'm just going out. And I'm honest with him so he understands… that the things he's feeling are normal in the hopes that he'll see that he can do it.

In self-reflection, Cheryl, who had not told her daughter about her prediabetes, realized the importance of informing her daughter of the multigenerational legacy of the disease.

> I should mention that to [Daughter] because she has it from both sides, my side and my husband's side, her father's side, so she has to be really diligent about the choices she makes…She has seen the consequences with my mother, her grandmother. So just to make her really, really conscious that this is real.

Anna extended this sentiment another generation, explaining,

> We have one granddaughter that we're really concerned with as far as her being possibly diabetic or becoming diabetic because of her weight and things like that. So we've tried to share a lot of the discussion with her as well. But, we always tell our kids, especially, everything that goes on with us because number one, we think it's important for them to know because of heredity, genetics.

When families did not have a normative practice of communicating about health, mothers were more likely to withhold their prediabetes diagnosis. Esther (42, Asian, non-Hispanic) questioned why her family or coworkers would need to know about her prediabetes, saying,

> I'm not saying that withholding information is good. I'm just saying there's really no withholding. There's just no organic way to talk about it. Plus, you got all the other things that you're thinking about in your day-to-day life. So the thought of any kind of health problems that might have been passed on to my daughter or whatever just doesn't really come up...it's not because I'm trying to hide anything. It's just, why bring it up. It doesn't seem like something that affects anybody else's life.

Mothers were more likely to withhold if their personal evaluation of prediabetes was that it was a condition that they could handle alone. Some thought that the condition was not serious; others thought that it was manageable. Holly (64, White, non-Hispanic), who had not disclosed her diagnosis, explained,

> I can pretty easily control it with diet if I watch what I'm doing, [but] I'm getting to the point where I think I'm going to have to say, okay, doc, we need to do something here, I'm getting to the point where I'm not controlling it.

Mothers also cited reasons to withhold information, including relationship quality, family member age, and desire to keep it private. Mothers specifically explained that they do not talk about diabetes with their grandchildren because of their age. Iris (70, chose not to report race, Hispanic) explained, "Believe me, they're not interested…they're still young."

Communication cycles

Upon disclosure, mothers described a communication cycle (act-respond-adjust) similar to those described by Weick's model of organizing (Weick, 1979). When the mother purposefully disclosed her diagnosis (act), the message receiver's response (respond) influenced how the mother continued to engage in communication with the receiver (adjust). In this process, the message receiver also had a unique personal evaluation of diabetes prior to hearing about the mother's diagnosis. The receiver's personal evaluation impacted how the receiver responded. When the receiver was supportive (respond), the communication cycle became continuous, cyclical social support. If the receiver's response was a pushback (respond), it arrested the communication cycle. Mothers then had to initiate a new communication cycle by disclosing to another family member (adjust-act) or health supportive other.

When family members responded to a disclosure with interest and engagement, it strengthened mothers' personal evaluation. Giselle described how her daughter's immediate reaction reflected their family's history of the complications surrounding diabetes. Her daughter's own personal evaluation of diabetes as a serious illness prompted Giselle to reassess how she thought about the diagnosis. Giselle recounted,

> And so I think when she first knew that my numbers were elevated, her first thought was probably immediately of her grandmother, because her grandmother is on insulin every day. And I think she sees me as older and so she feels like she has to know everything. I'm glad she knows because it helps now with my son.

Holly described how the cycle was continuous, providing social and instrumental support. She told her son about her prediabetes, explaining, "I'm afraid he's gonna get diabetes...He listens, we talk about it...he says, mom, you're not supposed to have that [pie]." Cheryl also described these continuous conversations with her daughter,

> We do have conversations about long-term consequences, making the investment of being active some way, somehow…I think right now [my daughter has] taken that cue and really run with it…I don't know if that's necessarily a result of our conversations or if it's a seed that was planted, and now she's coming to realize that she has opportunity to do better, feel better physically.

When the mother and the receiver had a shared personal evaluation of diabetes, the cycle continued with increasing support from the receiver. Giselle recounted telling her daughter about her prediabetes,

> She came back and she's like this is serious, mom... so we went through and looked up different things on the Internet and we were like putting together the things I should never have and that sort of stuff. She was like you're gonna have to do this, but I will come home every weekend so that I can make sure that you're walking and buying groceries.

Conversely, when a receiver's response produced doubt, it weakened the mother's personal evaluation of diabetes. Iris explained, "I came out prediabetes. And [my daughter] said, oh, what? You don't eat that much sugar or anything like that. And I said, I don't know." This minimizing response arrested the cycle; the mother stopped communicating with the family member.

Fiona similarly described how she disclosed her prediabetes to her sister-in-law, seeking informational support and assistance since her sister had expert knowledge as the mother of a child diagnosed with type 1 diabetes. Fiona explained how sister rebuffed the request,

> [I don't talk to Sister-in-Law] a whole lot because sometimes she doesn't want… she gets upset because my family would always go to her, and she'd say I'm not a doctor, I'm not a doctor, I don't know all this stuff.

With this response, the communication cycle arrested, and Fiona was forced to initiate a communication cycle with a different receiver.

Mothers described two external factors that affected communication cycles: shared place and technology. Communication cycles were facilitated when family members regularly interacted with one another, which was enabled by close geographic proximity. Donna, whose daughters lived in the same and nearby town said, "Now [my doctor's] telling me I got this all the sudden so I told our daughters right away. It was straight away." Some families overcame geographical distance with communication technology. Anna described how technology enables more open health communication with her wider family,

> We usually send [health information] as a group text...Or some of them, we might telephone if they don't have one capability or minutes on their phone or whatever. We usually do it as a group message so everybody pretty much gets it at the same time.

Discussion

Mothers enact communication cycles after a prediabetes diagnosis as they assess diabetes risk and seek support. The communication cycles process extends previous literature past the moment of disclosure to the communication cycles that can increase emotional, social, and instrumental support for mothers. Results here demonstrate that disclosure alone does not inherently garner support for mothers. Mothers need family members to respond favorably to complete a positive communication cycle that can become a continuous support cycle. When family members do not respond favorably, and mothers experience repeated arrest of communication cycles, it can be difficult for mothers to achieve their self-management and behavior change goals as they experience their disease in isolation.

In previous research, personal perceptions of stigma associated with diabetes (Della et al., 2016; Kato et al., 2016; Ledford et al., 2022; Shiyanbola et al., 2018) or worry about shame and judgment by others (Della et al., 2020; Edwards et al., 2013; Pistulka et al., 2012; Winkley et al., 2015) prompted selective disclosure of a diabetes diagnosis. Results here expand what we know about personal perceptions that influence disclosure decisions. Personal evaluation of diabetes includes preexisting experiences and knowledge about the disease, not only worries about stigma and judgment.

The communication cycles after prediabetes that emerged here extend the disclosure decision making model (DD-MM) (Greene et al., 2012), which focuses on the disclosure decision alone. The DD-MM explicates the process of a patient's decision to disclose a personal diagnosis of illness based on three assessments: five qualities of the diagnosis itself (perceived stigma, prognosis, symptoms, expectation of the diagnosis, relevance of the diagnosis to others); the quality of the relationship with and anticipated reaction of the receiver of the disclosure; and the patient's perceived skills and confidence to share the information (disclosure efficacy). DD-MM focuses on the predictors of health-related disclosure. Our data broadens the predictors of disclosure to a wider context of individual's general health communication approach and the precipitating family communication.

The role of the receiver's response in the disclosure process may explain Cooke-Jackson's previous findings that daughters are not aware that how they talked to their mother during conversations about diabetes contributed to mothers feeling teased, which in turn, negatively affected mothers' disease management (Cooke-Jackson, 2006). The perception of teasing and the arrest of the communication cycle may be connected to the mother's and daughter's misaligned personal evaluations of diabetes.

Practice implications and future work

Findings have implications in clinical practice. Clinicians should consider the mothers' motivation to disclose to interrupt the multigenerational legacy of diabetes. Mothers could be receptive to encouragement to inform their family members about familial susceptibility to T2DM and preventive options (Van Ryswyk et al., 2014), similar to interventions of patient-mediated cascade screening for familial hypercholesterolaemia (Hallowell et al., 2011). Previous research shows that adult children of patients living with T2DM are open to receiving information from family members about reducing their own risk of T2DM onset (Pierce et al., 2000; Whitford et al., 2009).

In addition to encouraging mothers to disclose their diagnosis, clinicians and diabetes educators need to provide clear support to mothers until they are through the precipitating communication that follows a diagnosis disclosure. Mothers who experience repeated arrest of communication cycles likely need extra attention clinically to support their self-management and behavior change goals.

Future studies should extend inquiry past the next generation when exploring the multigenerational legacy of diabetes. Mothers, in this sample, described not including grandchildren in conversations about diabetes risk due to their age. Yet, they also described how their children's grandparents influenced their children's personal evaluation of diabetes. It is unclear what age is appropriate to begin talking about diabetes; however, encouraging healthy behaviors can begin early on.

Future studies should also call attention to one subsample we identified here but were unable to saturate. For mothers who experienced gestational diabetes, more work is needed to educate women about the long-term sequelae of gestational diabetes and the need for not only their own screening but that of their children (Van Ryswyk et al., 2014). This education should encourage focused communication with children of mothers with gestational diabetes to enable cascade screening. Without intergenerational conversations, an adult child, who does not know about her or his mother's gestational diabetes, cannot provide that information to her or his own physician to include in screening decisions.

Limitations

Results should be interpreted within the context of the purposeful sample. The disclosure process created is not intended to be generalizable to all patients with prediabetes; rather it is an inquiry focused on the experiences of mothers. Results should also be interpreted within the context of regional culture. The sample is situated within a geographic area with a higher than US average prevalence of prediabetes and T2DM. How mothers disclose and live their diabetes experience should be considered within that cultural context.

All participants in this current study were part of an initial study that contained a clinician intervention about supporting patients with prediabetes and T2DM (Ledford et al., 2022; Ledford, Fisher, et al., 2020; Ledford, Seehusen, et al., 2020). Our sample could have received additional targeted care for prediabetes than a typical patient.

The process of investigating this research question also identified important lessons relevant to qualitative method design in the topic area of prediabetes. The initial plan to use photovoice with children was altered because at the time of the study, the mothers had not told their children about their diagnosis. This change in approach limited findings to the mother's perspective alone. Future studies can further explore the child's perspective.

Conclusions

Mothers' stories of diabetes risk and seeking support illustrate the communication cycles they enact after a prediabetes diagnosis. Disclosure alone does not inherently garner support for mothers. Mothers need family members to respond favorably to complete a positive communication cycle that can generate continuous emotional, social, and instrumental support.

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Conflict of interest

The authors have no conflicts of interest to declare.

Disclaimer

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Appendix A.

Enacting communication cycles after prediabetes: Mothers' stories of diabetes risk and seeking support

Interview Guide

DIAGNOSIS

1. Tell me about when you were diagnosed with pre-diabetes.
2. What was your reaction when the doctor had a conversation with you?

DISCLOSURE

1. How and when did you share this diagnosis with your family?
2. What were these conversations like? What did you tell them? What did you not tell them?
3. What was your motivation for talking to your daughter(s) (or sons) about your diagnosis? How was your motivation different for talking to daughters and sons?

SOCIAL SUPPORT

1. How was your family supportive after finding about your diagnosis?
2. What role do your children play (if any) in your ability to manage your disease?

QUALITATIVE HEALTH COMMUNICATION

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