measure

HIGHLIGHTING LIVED EXPERIENCES OF PEOPLE LIVING WITH PRE-DIABETES & TYPE 2 DIABETES

A lived-experience data Black Paper

April Viverette, Ph.D
Alesandra Baca-Vazquez, BSI

OCTOBER 2025

Acknowledgement
We would like to thank Linda Harris, LMSW, of Stephen F. Austin State University, for time dedicated to this study.

measure

CONTENTS

OCTOBER 2025

EXECUTIVE SUMMARY

Diabetes and pre-diabetes have reached crisis levels in Texas, particularly in rural areas with limited access to care. Diabetes is the seventh leading cause of death in the United States (U.S.) and is a major contributor to other chronic conditions, such as vision loss, vascular disease, kidney disease, heart disease, and other diseases, that can lead to premature death and reduced life expectancy.[1,2,3] Pre-diabetes is a precursor of type 2 diabetes as some people who experience pre-diabetes will be diagnosed with type 2 diabetes type.[2,3]

Over the past decade, Texas has been leading the way with an increase of over 40% of persons living with this condition.[4,5] Previous research has shown different factors associated with these conditions, such as level of education, income, race and ethnicity as well as readiness to change behaviors.[6,7,8,9,10,11]. This Black Paper captures the lived experiences of rural Texans navigating diabetes to identify barriers and opportunities for equitable care. Partners described systemic barriers to affordable care, personal challenges in sustaining healthy behaviors, and the need for culturally responsive education. These findings guide policy, program, and provider recommendations that center rural Texans' voices in building equitable health systems.

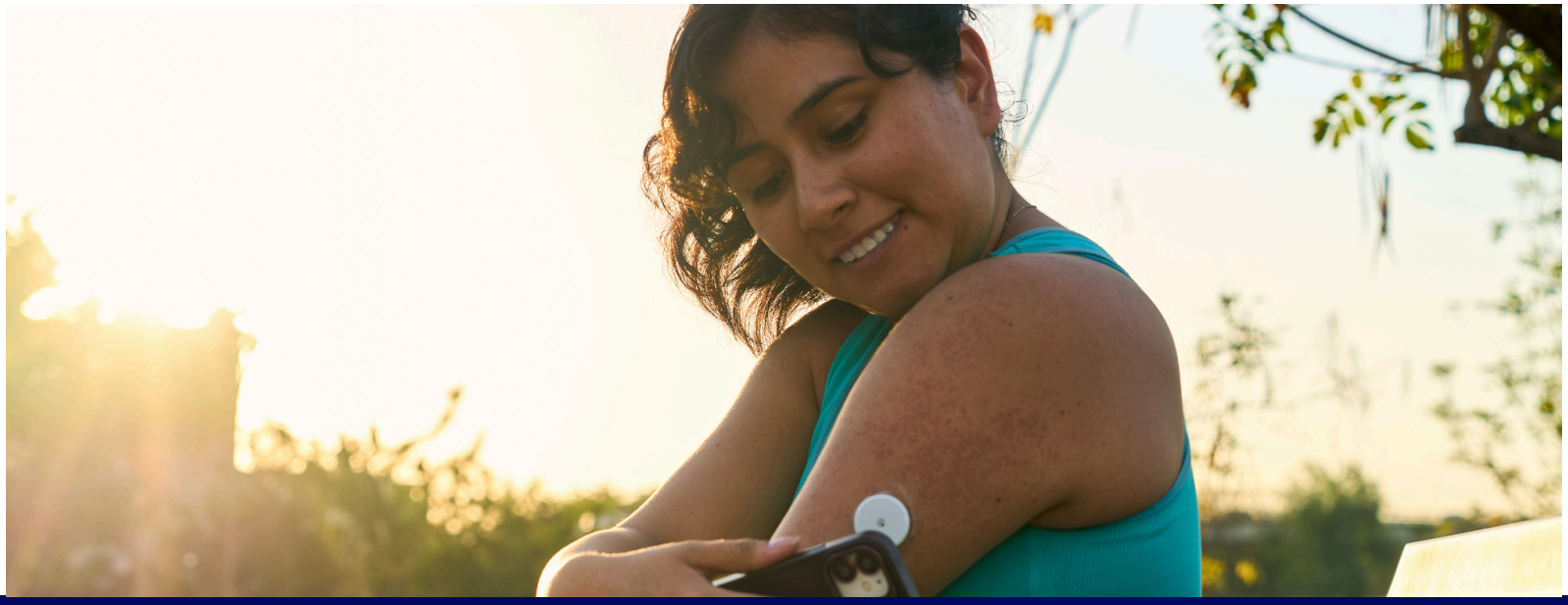
Sources

1. Tancredi, M., Rosengren, A., Svensson, A.-M., Kosiborod, M., Pivodic, A., Gudbjörnsdottir, S., Wedel, H., Clements, M., Dahlqvist, S., & Lind, M. (2015). Excess mortality among persons with Type 2 Diabetes. The New England Journal of Medicine, 373(18), 1720–1732. https://doi.org/10.1056/NEJMoa1504347
2. Teoh, K. W., Ng, C. M., Chong, C. W., Bell, S., 2.Cheong, W. L., & Lee, S. W. H. (2023). Knowledge, attitude, and practice toward pre-diabetes among the public, patients with pre-diabetes and healthcare professionals: a systematic review. BMJ Open Diabetes Research & Care, 11(1), e003203.
3.American Diabetes Association (2021). Classification and diagnosis of diabetes: Standards of medical care in diabetes-2021. Diabetes Care, 44(Suppl 1), S15–S33. https://doi.org/10.2337/dc21-S002
4. Duan, D., Kengne, A. P., & Echouffo-Tcheugui, J. B. (2021). Screening for diabetes and prediabetes. Endocrinology and Metabolism clinics of North America, 50(3), 369–385. https://doi.org/10.1016/j.ecl.2021.05.002
5.Texas Health Data (n.d.). Behavioral risk factor surveillance system (BRFSS). https://healthdata.dshs.texas.gov/dashboard/surveys-and-profiles/behavioral-risk-factor-surveillance-system
6. Texas Health Data (n.d.).
7.U.S. Centers for Disease Control and Prevention (n.d.). United States diabetes surveillance system: An interactive web application of the most comprehensive compilation of diabetes data and trends at national, state, and county levels. https://gis.cdc.gov/grasp/diabetes/DiabetesAtlas.html
8.CDC. (2024, May 15). National diabetes prevention program: Key national DPP milestones. https://www.cdc.gov/diabetes-prevention/programs/milestones.html
9.CDC (2024, May 15). National diabetes statistics report. https://www.cdc.gov/diabetes/php/data-research/?
10.CDC_AAref_Val=https://www.cdc.gov/diabetes/pdfs/data/statistics/national-diabetes-statistics-report.pdf
11.CDC (2024, July 11). Health & economic benefits of diabetes interventions. https://www.cdc.gov/nccdphp/priorities/diabetes-interventions.html

Building on prior research, this study deepened understanding by co-creating focus group questions with community partners whose lived experiences informed the process. It acknowledges participants perceived role in addressing the complexities of diabetes management, and it demands change through social policy and healthcare provider accountability. Evaluators utilized equitable power sharing approach centered on "community partners," who are the participants in this study. We refer to the participants as "partners" meaning they were co-designers of the study by providing expertise through their voices. Collective meaning from partner voices is emphasized and researcher power and privilege are acknowledged through reflexivity by the dismantling of assumptions based on prevailing systemic narratives, such as: diabetes management is a matter of personal choice or lifestyle failure; rural communities need experts help to fix their problems; and systems and their expertise reign over people living with diabetes as their own experts.

METHODOLOGICAL OVERVIEW

Our team conducted a critical analysis, informed by a community participatory research framework, where rurally located Texas community partners provided their truths about living with these chronic conditions. Quantitative and qualitative data were collected through six completed focus groups. Three were held onsite in communities, specifically communities located in Brazos, Nacogdoches, and Bastrop counties, and three focus groups were hosted online using Zoom. Previous studies, and the current data, demanded an understanding of the experiences from those affected by co-creating focus group questions and solutions with partners whose perspectives are credibly valuable.



During data collection, inconsistencies in participant eligibility emerged. The team refined recruitment criteria to ensure participants accurately represented rural Texas residents.

RESULTS OVERVIEW

Quantitative analyses confirmed relationships between education, employment, and diabetes education participation, while qualitative insights revealed the personal and structural barriers that explain these patterns. There is a clear need for more diabetic education and support with diet, as well as more community-building strategies. Findings demonstrated the pervasive disparities associated with living with pre-diabetes and type 2 diabetes. Additionally, this paper provides, and expands upon, key findings and solutions to partner identified problems. These findings are further contextualized through a historical timeline that situates participants' experiences within the broader evolution of diabetes awareness and care.

KEY FINDINGS

Results indicated that 60.2% of partners reported having completed at least one diabetes education course in the past. However, 8% had never completed a diabetes education course. Partners who were employed tended to have completed diabetes education. Additionally, education level was a key factor: the more education they finished, the more likely they were to have engaged in diabetes education. These quantitative patterns were echoed in the qualitative findings, in which partners described the personal and structural challenges underlying these statistical relationships.

Partners voiced that diet, exercise, and education are key when managing diabetes. Many partners described their challenges with each of these and proposed ways the community could address them to advance diabetes prevention further.

RECOMMENDATIONS

These recommendations were co-created with community members and reflect solutions grounded in lived experience, cultural understanding, and shared accountability for health equity. Recommendations were developed as shared ideas between researchers and people living with diabetes; therefore, they exude community-identified concerns as multifaceted and rooted in policy reform needs, institutional accountability, cultural humility, not cultural competence, and financial resource and time investment. Furthermore, these shared ideas were developed from the perspective of partners being their own experts. These suggestions are policy-centered, rooted in concerns that emerged from qualitative results, specifically three themes and six subthemes, that justly address systemic harms identified by rural persons living with diabetes in these communities as a result of experiences with the healthcare system, education, and cultural obstacles. They also address personal challenges specific to partners' diets, activity levels, and motivation to change; the need to be consistent and sustain any changes made; and the need for more robust community support in diabetes management. Below, recommendations are grouped by topic:

POLICY AND SYSTEMS CHANGE

Community partners recommended expanding access to certified diabetes educators in rural clinics to improve follow-up participation. They emphasized the need to develop solutions to address out-of-pocket expenses associated with diabetes management, medications, and treatment.

EDUCATION

Partners suggested that bilingual educational materials in Spanish and English are needed in rural communities and expressed interest in information on the use of culturally relevant foods in recipe examples.

CULTURAL RESPONSIVENESS

Partners suggested ongoing cultural humility training for healthcare providers to strengthen trust and communication.

COMMUNITY CAPACITY AND SUPPORT

Partners suggested peer support would be invaluable to keep them motivated and accountable to managing their diagnosis.

RESEARCH STRENGTHS & LIMITATIONS

First, findings present a limitation to generalizability. Our team used a non-probability sampling method, snowball sampling, to recruit partners. Each community can have different experiences and perspectives about inequities in diabetes management. Despite this limitation, we primarily recruited participants through support and referrals from local community members, resulting in an adequate, community-participatory, purposeful sample size. This study method championed voices of partners who identified their own priorities, and had the opportunity to lead the way throughout most elements of this research, and it advanced validity. Finally, partners' voices could have been affected by groupthink, and more vocal focus group partners. There was no anonymity in participation; therefore, the confidential nature of involvement may also have influenced the findings.

Recruitment strategies required revision after the second focus group, as that group in particular may have included partners who posed a threat to validity. This data was included in the aggregated study findings, although there were unverified concerns about some partners in this focus group being located in rural Texas.

ABOUT MEASURE

Measure, an Austin-based nonprofit, works to support people impacted by social disparities and the accompanying narrative. Measure believes that, when used strategically, data provides a common language upon which community members can meet and increase their knowledge about the causes and work together to create equitable change and increase awareness.[12] Measure has a mission to mobilize communities that are furthest from the opportunity to fight against systematic disparities in health, economics, criminalization, and education through the Measure CARE Model and other anti-racist evaluation tools.[12] The organization's vision is for powerful Black, Brown, and Indigenous communities to have access to information that will support them to self-advocate toward an antiracist and equitable future.

ABOUT EPISCOPAL HEALTH FOUNDATION

Rooted in faith and active in hope, Episcopal Health Foundation (EHF) believes in giving access to a healthy life to all Texans, especially to those with the least resources and those who face the most obstacles to health. EHF is dedicated to improving health, not just health care, in Texas.[13]

EHF has changed the conversation to reshape the debate around health care to focus on addressing the non-medical drivers of health: factors and conditions outside the health care system that significantly influence a person's overall health and well-being. From the beginning, EHF has had a long-term commitment to invest in and promote organizations, communities, and initiatives to accelerate a bold vision that all Texans have a just opportunity to live their healthiest lives.

Episcopal Health Foundation is based in Houston and was founded in 2013 by the Episcopal Diocese of Texas upon the transfer of St. Luke's Episcopal Health System. EHF chose to focus on improving community health, rather than just health care, because the opportunity for good health starts long before you need to see a doctor. Health systems need scalable solutions to address non-medical drivers of health like access to healthy foods, having safe places to exercise, affordable health insurance coverage, and much more.
EHF was created as a community-based philanthropy to spark transformative change within the diocese's 81-county service area that now serves more than 15 million Texans.[13]

For more information, please see:
12. About - WE MEASURE. Accessed September 27, 2025. https://wemeasure.org/about/
13. About - Episcopal Health Foundation. Accessed September 27, 2025. https://www.episcopalhealth.org/about/

THE PROBLEM

Pre-diabetes and type 2 diabetes continue to disproportionately affect rural Texans, reflecting long-standing gaps in access to healthcare, education, and economic stability. These are issues of health equity requiring ongoing healthcare globally, nationally, and in Texas, despite their preventability [14,15]. These chronic conditions can lead to mortality and morbidity that can negatively impact quality of life, with diabetes mortality increasing from 2018 to 2021 [16,17]. Global healthcare expenditures are projected to reach 1,054 billion by 2045 [18]. The United States (U.S.) population has the highest prevalence of this disease compared with populations in other developed countries.[19] With U.S. adults aged 18 and older diagnosed and undiagnosed with diabetes, the prevalence was 38.1 million (11.6%) in 2021 [20]. A 2024 study showed that during August 2021-2023, 15.8% of Americans were diagnosed with type 2 diabetes, with there being gender differences, as there was a higher prevalence among men (18%) who were diagnosed and undiagnosed compared to women (13.7%) [21]. During that same time, 41% of men and 30% were diagnosed with pre-diabetes [22]. Individuals with college degrees tend to have lower prevalence for these conditions than those who have a high school education or less, as well as those who are employed doing specific jobs, such as shift work or working shifts aside from daytime work hours [23]. Moreover, with increasing age, the prevalence of diagnosis tends to rise [24]. This demonstrates the significance of diabetes management challenges.

SOURCES

14. Centers for Disease Control (2024, May 19). National diabetes statistics report. https://www.cdc.gov/diabetes/php/data-research/index.html
15 Stafford, L. K., Cruz, J. A., Aali, A., Abate, M. D., Abd ElHafeez, S., Adane, T. D., Adekanmbi, V., Agudelo-Botero, M., Ahmadi, A., Akinyemi, R. O., Al Hamad, H., Alvis-Guzman, N., Amusa, G. A., Anyasodor, A. E., Areda, D., Armocida, B., Arumugam, A., Aryan, Z., Badawi, A., ... Zhang, Z.-J. (2023). Global, regional, and national burden of diabetes from 1990 to 2021, with projections of prevalence to 2050: a systematic analysis for the Global Burden of Disease Study 2021. The Lancet , 402(10397), 203–234. https://doi.org/10.1016/S0140-6736(23)01301-6
16. Ahmed, M., Zulfiqar, E., Shafiq, A., Shahzad, M., Hashmi, T. M., Ahmed, R., Rana, J. S., Sidney, S., Greene, S. J., Mentz, R. J., Fudim, M., & Fonarow, G. C. (2025). Type 2 Diabetes Mellitus-Related Mortality in the United States, 1999 to 2023. JACC. Advances, 4(7), 101882. https://doi.org/10.1016/j.jacadv.2025.101882
17 Rowley, W. R., Bezold, C., Arikan, Y., Byrne, E., & Krohe, S. (2017). Diabetes 2030: Insights from Yesterday, Today, and Future Trends. Population health management, 20(1), 6–12. https://doi.org/10.1089/pop.2015.0181
18. Hossain, M. J., Al-Mamun, M., & Islam, M. R. (2024). Diabetes mellitus, the fastest growing global public health concern: Early detection should be focused. Health Science Reports, 7(3), e2004. https://doi.org/10.1002/hsr2.2004
19. Gwira, J. A., & National Center for Health Statistics. (2024). Prevalence of total, diagnosed, and undiagnosed diabetes in adults: United States, August 2021-August 2023. U.S. Department of Health & Human Services, Centers for Disease Control and 9. Prevention, National Center for Health Statistics.
20. Hossain, M. J., Al-Mamun, M., & Islam, M. R. (2024).
21. Hossain, M. J., Al-Mamun, M., & Islam, M. R. (2024).
22. Hossain, M. J., Al-Mamun, M., & Islam, M. R. (2024).
23. Gwira, J. A., & National Center for Health Statistics. (2024).
24. Hossain, M. J., Al-Mamun, M., & Islam, M. R. (2024).

THE PROBLEM CONTINUED

Specific to Texas, In 2019 12.9% of people living in Texas were living with diabetes compared to the national diabetes prevalence of 10.9%. [25,26] East Texas in particular had the highest prevalence, and rural areas (ie., Rusk (13%), Nacagdoches (12.7%), and Wichita (12.3%) counties), compared to other areas, namely North Texas, West Texas, the Panhandle, and parts of Central Texas.[27,28] The highest prevalence rates were most notable among Native Americans (14.7%), Hispanics (12.5%), and Non-Hispanic Blacks (11.7%) as well as people without a college education (11.7%).[29]

Additionally, food insecurity, a persistent healthy food access problem, is a factor that can significantly affect successful diabetes management.[30] Food insecurity is linked to income and a diet low in vegetables and high in foods that can negatively affect blood sugars.[31] Moreover, stress, income, and employment can influence food insecurity thereby impacting this management of blood glucose levels.[32].

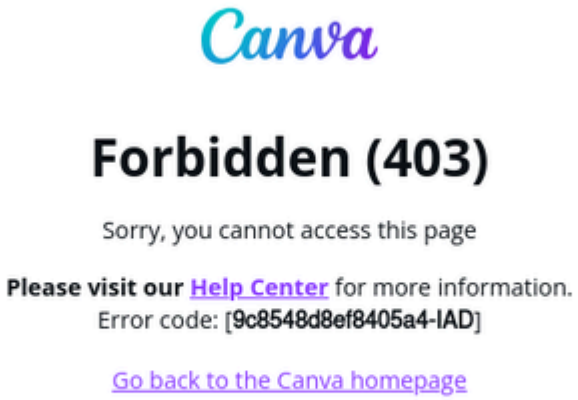
Diabetes education deserts may play a role [33,34]. These “deserts” exist in Texas where there is a high prevalence of diabetes in Texas and thus a high demand for diabetes education [35]. This study found high diabetes prevalence in counties in North Texas, East Texas, and they showed 10 counties with no diabetes education [36]. A study of individuals in San Antonio found that most people (68.9%) reported they had an active risk of diagnosis of diabetes, and most (81.3%) felt this chronic condition was preventable by healthy eating (90.1%), weight management (71.4%), and exercise routine (89.1%) [37,38]. A delayed diagnoses and difficulty accessing consistent care, illustrates how structural barriers shape real health outcomes among people in Texas, cost, complications, and rural location were shown to be associated with increased costs [39].

SOURCES

25. Duan, D., Kengne, A. P., & Echouffo-Tcheugui, J. B. (2021).
26. Texas Health Data (n.d.).
27. Duan, D., Kengne, A. P., & Echouffo-Tcheugui, J. B. (2021).
28. Texas Health Data (n.d.).
29. Duan, D., Kengne, A. P., & Echouffo-Tcheugui, J. B. (2021).
30. Berkowitz, S. A., Seligman, H. K., & Palakshappa, D. (2023). Understanding food insecurity risk in the United States: A longitudinal analysis. SSM - population health, 25, 101569. https://doi.org/10.1016/j.ssmph.2023.101569
31. Berkowitz, S. A., Seligman, H. K., & Palakshappa, D. (2023).
21. Berkowitz, S. A., Seligman, H. K., & Palakshappa, D. (2023).
33. Baek, J., Cheon, O., Lee, S., & Nwana, N. (2021). Diabetes Education Desert: Regional Disparity Between Diabetes Prevalence and Diabetes Self-Management Education Programs in Texas. Population Health Management, 24(2), 266–274. https://doi.org/10.1089/pop.2020.0006
34. Han, G., Spencer, M. S., Ahn, S., Smith, M. L., Zhong, L., Andreyeva, E., Carpenter, K., Towne, S. D., Jr, Preston, V. A., & Ory, M. G. (2023). Group-based trajectory analysis identifies varying diabetes-related cost trajectories among type 2 diabetes patients in Texas: an empirical study using commercial insurance. BMC Health Services Research, 23(1), 1116. https://doi.org/10.1186/s12913-023-10118-1
35. Baek, J., Cheon, O., Lee, S., & Nwana, N. (2021).
36. Han, G., Spencer, M. S., Ahn, S., Smith, M. L., Zhong, L., Andreyeva, E., Carpenter, K., Towne, S. D., Jr, Preston, V. A., & Ory, M. G. (2023).

HISTORICAL CONTEXT

Partners were asked about historical context of diabetes and diabetes prevention. Partners shared personal experiences that paralleled the historical context displayed. Many noted their own personal discovery of pre-diabetes or type 2 diabetes in their lives. This paper presents a historical timeline as a visual representation of partner summarized key events associated with the history of diabetes elements that influence diabetes prevention, management, and community health infrastructure, and the the recognition of structural inequities and social determinants of health as factors related to diabetes management success. The timeline also exhibits the recently released guidelines for management by providers. Understanding this history provides necessary context for interpreting the findings that follow and underscores why community-led solutions remain vital today.



Historical timeline link:
https://www.canva.com/design/DAFprfcbmPE/3gd-_oW7U2-g6lvGLPbsDA/view?utm_content=DAFprfcbmPE&utm_campaign=designshare&utm_medium=link&utm_source=publishsharelink

Sources
37. Rowley, W. R., Bezold, C., Arikan, Y., Byrne, E., & Krohe, S. (2017). Diabetes 2030: Insights from Yesterday, Today, and Future Trends.
38. Centers for Disease Control (2024, May 19). National diabetes statistics report.
39. Echouffo-Tcheugui, J. B., & Selvin, E. (2021). Prediabetes and What It Means: The Epidemiological Evidence. Annual Review of Public Health, 42, 59–77. https://doi.org/10.1146/annurev-publhealth-090419-102644

METHODOLOGY

DESIGN

This interpretive phenomenological study was informed by a community based participatory research framework.[40] The goal was to learn partner identified key issues associated with pre-diabetes and type 2 diabetes management by first, co-designing the first focus group utilizing an equity oriented focus group tool. The Equity Focus Group Tool guided facilitation and ensured equitable participation through co-created questions and reflective discussion. The Equity Focus Group Tool, developed by Measure, emphasizes inclusion of voices that are often marginalized and excluded. The focus group tool advanced an equitable approach to include valuable insights from individuals with these first hand experiences. Additionally, the evaluator team met with Episcopal Health Foundation to explore their insights about the problem, the target population, and to discuss community stakeholder recruitment opportunities and study support.

The research team consisted of two data activist evaluators. The study consisted 65 partners who participated in six equity focus groups that averaged six to eight partners per group scheduled for for a length of 90 minutes each group. Three focus groups were hosted online using Zoom and three were facilitated onsite in participants' communities with three of the six focusing on Spanish Speaking participants

SOURCES

40. Vangeepuram, N., Fei, K., Goytia, C., Madden, D., Corbie-Smith, G., & Horowitz, C. R. (2023). Community-based participatory research: Insights, challenges, and successes from the perspectives of frontline recruiters and investigators. Journal of Participatory Research Methods, 4(2). https://doi.org/10.35844/001c.77399

METHODOLOGY CONTINUED...

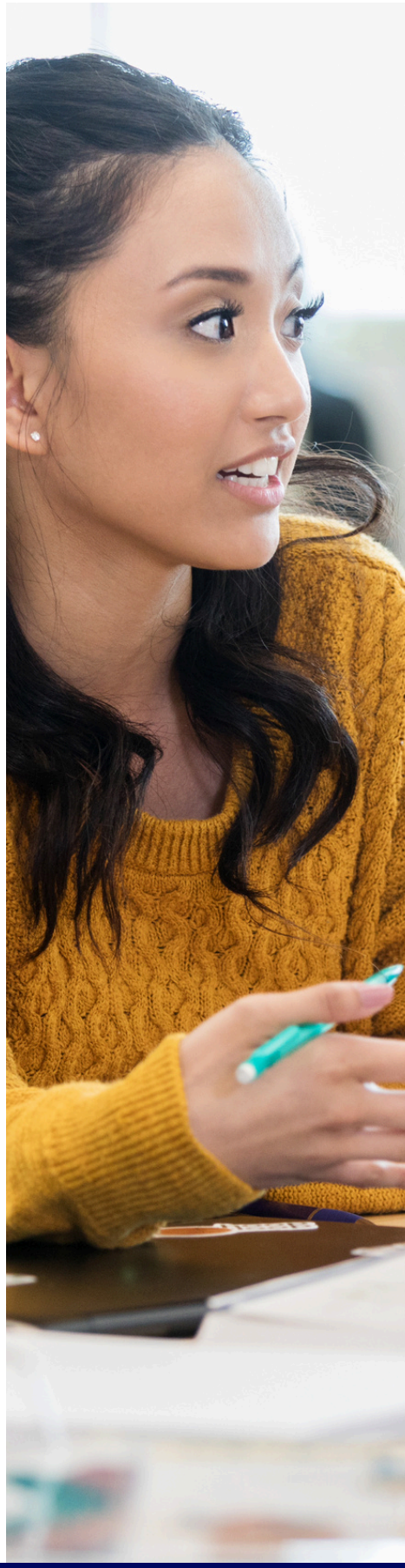
with use of a Spanish language interpreter. Evaluators successfully recruited one Spanish Speaking focus group. Remaining focus groups (focus groups 3 through 6) consisted of a mixture of Spanish only speaking participants, bilingual participants, and English only participants. The initial focus group questions, displayed on page 11, resulted in the co-design of subsequent focus group questions. Focus groups 2 through 6 were asked the questions the initial focus group were asked plus the subsequent questions that resulted from the initial focus group co-design.

PARTICIPANT CRITERIA

Participants were adults aged 18 years and older and diagnosed by a medical provider with pre-diabetes or type 2 diabetes. They were required to be rurally located in Texas, as evidenced by Census zip code designations. Each participant was incentivized $125 to participate, and some community stakeholders were financially incentivized to support recruitment.

SAMPLING

The study focused on Episcopal Health Foundation Convocation areas [41] consisting of a total of 80 Texas counties. A multistage sampling approach was used to identify participants. First, researchers used a two-stage sampling method with the first stage a cluster purposeful sampling method. Based on Centers for Disease Control U.S. Diabetes Surveillance System data [42] that showed 10 Texas counties with the highest prevalence of diabetes. Researchers identified four convocation areas targeted for focus groups participant recruiting based on the highest prevalence counties. This resulted in the following four areas, with the highest diabetes prevalence, being selected for study inclusion: Central Texas, Southeast Texas, Fort Worth, and Northeast. Rural representation was maintained across counties included.



SOURCES

41. Episcopal Health Foundation (2023). Our services areas-map. https://www.episcopalhealth.org/about/our-service-area-map/
42. U.S. Centers for Disease Control and Prevention (n.d.).

EQUITY FOCUS GROUP TOOL TABLE

CO-DESIGN FOCUS GROUP QUESTIONS

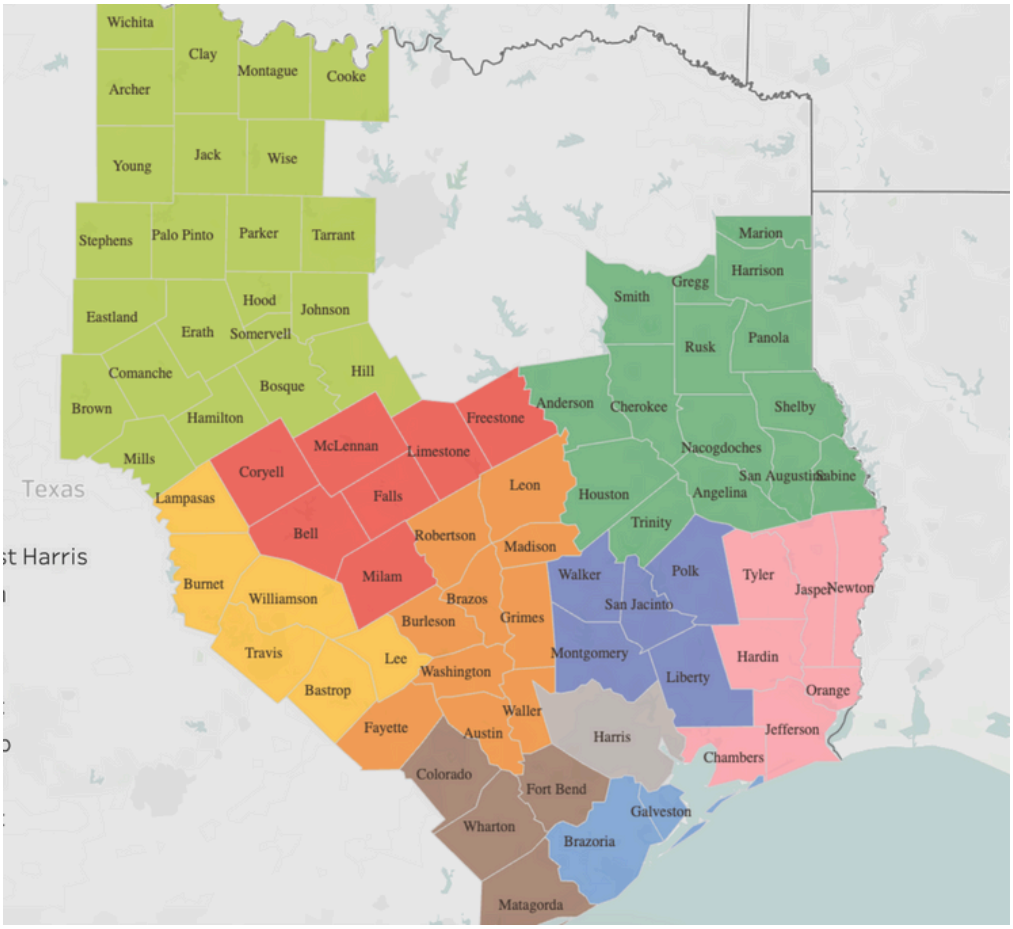
1. What core values is each person bringing in today's conversation?
2. We are interested in learning what YOU believe the problem is in one sentence. What do you think it is?
3. What do you remember or know that we can write down as a possible contributing factor to the problem/topic today?
4. What is the history as it relates to the problem?
5. What adverse experiences have happened in relation to this problem?i
6. What major policies are related to the problem being addressed and trauma in the community?
7. Why hasn't the issue been solved through previous efforts?
8. What questions have not been bought up today that you would like to ask?

SUBSEQUENT FOCUS GROUP QUESTIONS

1. What are some ways in which we can embed diabetes education for learners in different stages of life?
2. What are some ways we can make diabetes education more accessible (or earlier, before diagnosis?)
3. What are some ways in which the American healthcare system makes it harder for people to live with type II diabetes?
    a. What are some things that could make this system easier?
4. What are some government policies that impact people with diabetes or pre-diabetes?
5. How can we prevent people living with type II diabetes or pre-diabetes from purchasing unhealthy or convenient food?

METHODOLOGY CONTINUED...

EPISCOPAL HEALTH FOUNDATION CONVOCATION AREAS IN TEXAS



Next, using simple random sampling, the second stage, focused on areas not defined as high diabetes prevalent areas, resulted in the remaining two convocation areas, East Harris and Galveston, being selected from this sampling.

RECRUITMENT

Evaluators posted flyers to social media (ie., LinkedIn), and using snowball sampling, emailed a contact list of Episcopal Health Foundation stakeholders. Other evaluator identified community stakeholders were contacted by email or phone to inform them about the study (ie., food pantries, community clinics, and other agencies, and others). Interested stakeholders were emailed a flyer and to share with potential study participants. The flyer included a QR code and live survey monkey weblink used to collect socio-demographics data. Some interested stakeholders were met with to provide them study information.

METHODOLOGY CONTINUED...

In June 2025, evaluators switched from SurveyMonkey to Qualtrics to improve study (i.e., location) validity. Participants were provided informed consent as part of these surveys.

Quantitative Data Analysis

Quantitative data were summarized to identify patterns in education, employment, and participation in diabetes education programs, while qualitative responses were coded to identify key themes."

Missing cases were identified and imputed (n=4). Raw age was analyzed, and the central tendencies of categorical data were examined. A univariate analysis was conducted, and a bivariate analysis was performed using the Chi-square test with Cramer's V; the results were interpreted. An a priori alpha less than .05 was the statistical significance threshold. IBM SPSS version 29.0 was used to analyze data.

Thematic Data Analysis

All focus groups were coded using an inductive data analysis approach.[43,44] After an initial round of thematic analysis was completed for all focus groups, the first iteration of a code book was created that gathered general themes found across the data. These codes were then organized into categories, and subsequent themes were identified across multiple participants. After these categories and themes were established, one focus group was re-coded using the new codebook to assess the validity of these themes. Together, these methods provided a complete view of the structural and individual factors influencing diabetes management among rural Texans.

SOURCES

43. Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), 77-101. https://doi.org/10.1191/1478088706qp063oa
44. Gilgun J. F. (2005). "Grab" and good science: Writing up the results of qualitative research. Qualitative Health Research, 15, 256-262.

QUANTITATIVE RESULTS

The average partner was 39.25 years old, and the average annual household income was $40,000- $49,999, as shown in the following figures. Most held a bachelor's degree or higher. Many partners reported having completed at least one diabetes education class in the past (60.2%); 14 reported completing this class in 2025, followed by 16 who completed it in 2024. Eight partners have never completed a diabetes education class.

Partners who were employed were more likely to have completed a diabetes education course. Additionally, these results showed that partners who held a college degree had completed diabetes education at least once.

QUALITATIVE FINDINGS

Three overarching themes emerged from the thematic analysis. Partners broadly discussed perceived systemic harms and personal challenges, and speculated on how they might reverse their diagnoses or maintain a healthy lifestyle. One partner stated: "...living with diabetes has been a journey of learning and adaptation."

In this paper, we examine the specifics of each overarching theme. These findings showed how structural barriers and personal experiences shape diabetes management in rural communities.

THEME 1: SYSTEMIC HARMS

HEALTHCARE

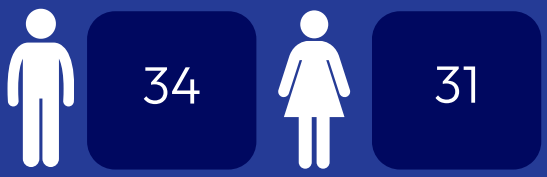
Partners identified the American healthcare system as a barrier when trying to manage their type 2 diabetes. They expressed their frustrations with different parts of this system – from doctors to dealing with insurance. Many partners felt the effects of rising medication costs in the US. While many of our partners are eligible for insurance and are currently insured, many acknowledged that the price of medication is too high to pay out of pocket for those who do not qualify for Medicaid or cannot pay for insurance due to their economics or immigration status. For those insured in our partner pool, all mentioned that they would not be able to afford the cost of common medications for the treatment of diabetes without the cost being subsidized by insurance. For those uninsured in our partner pool, many shared that they are not on medication and try to manage their condition with only diet and exercise or other holistic methods due to the high cost of medications.

SOCIO-DEMOGRAPHICS & CHARACTERISTICS

DIAGNOSIS PREVALENCE

Most participants identified as diagnosed with diabetes II (62.9%), followed by prediabetes (35.5%), and some were not sure which type of diabetes they were diagnosed with (1.6%). n=65

GENDER

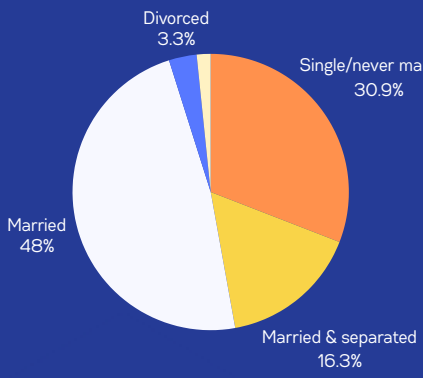


52% of participants identified as male and 48% identified as female. n=65

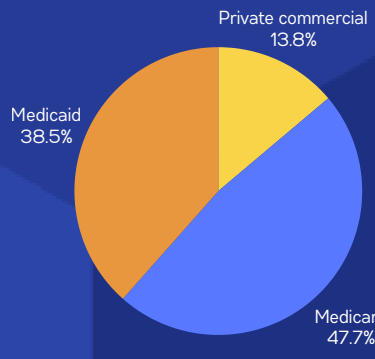
PRESCRIPTION MEDICATION MANAGEMENT

Participants were asked about use of prescriptions to manage their diagnosis. n=65

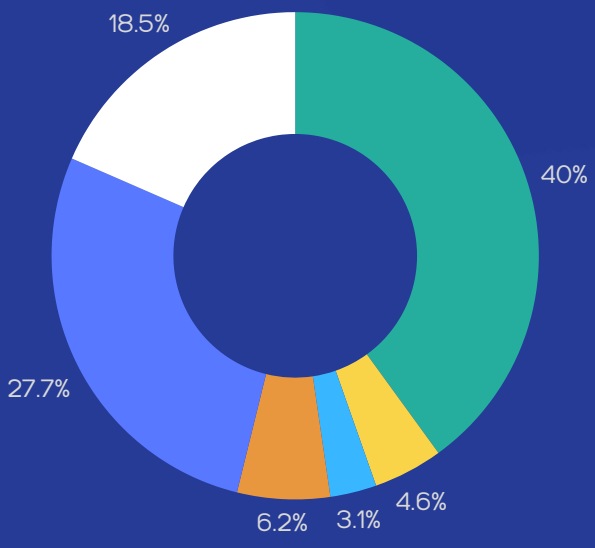
MARITAL STATUS n=65

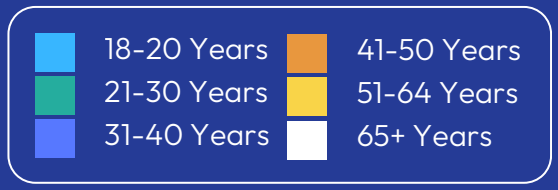


HEALTH INSURANCE TYPE n=65



AGE n=65





Beyond our study, the majority of partners recognized the American healthcare system as a barrier to getting people the care they need when managing their type 2 diabetes or reversing it. Partners in these rural areas also mentioned having limited access to specialized diabetes care, either in the form of community diabetes clinics or access to endocrinologists close to their homes. Partners shared needing to drive or bus to nearby larger cities to receive this care, which they shared to not be ideal due to the urgency in receiving this care.

EDUCATION

Most partners mentioned education being one of the key parts of bringing more diabetes prevention awareness to their circles. These educational resources include diet plans, more information detailing different medication options, information on exercise, and other ways to deal with managing type 2 diabetes. Partners mentioned wanting this education in the form of classes, flyers, or information to circulate through peers in their community. Many expressed frustration when discussing education due to the lack of resources available to them in the process of being diagnosed or trying to find additional resources beyond the first diagnosis visit.

For Spanish speaking partners, this barrier of access was further exacerbated. All partners in our all-Spanish focus group mentioned wanting greater access to educational materials in Spanish, as having these materials available in English would be the same as having no educational resources at all due to the language barrier. There is also a clear need for more educational materials in rural areas. All partners located in rural Texas counties mentioned having a harder time accessing educational resources due to the lack of specialized diabetes clinics in their areas. Moreover, partners identified education as something that should start earlier, in classrooms. While partners called for more educational resources for those older in age in their communities, they also identified a need for diabetes prevention education to begin when students are young and still in school.

“I think [diabetes education] should be put in our education now because it's so big of a problem, and it's becoming a national thing. Everybody is now having diabetes or being overweight, leading to the diabetes. I think it should be put in the schools so that way it'll make us more aware and give the younger generation that awareness of it.”

CULTURAL OBSTACLES

Partners who self-identified as being Black or Latino shared a sentiment that their experiences with type 2 diabetes and pre-diabetes were mediated by their respective cultural practices. Partners shared how both Latino and Black cultures center food when organizing gatherings. This was identified as a big obstacle when trying to manage one's diet. This finding was especially highlighted by our Latino community partners, as many shared that maintaining a healthy diet was especially hard due to how different it is from the foods they are accustomed to (beans, tortillas, etc.). While not common across all partners, some of our Latino participants shared being discriminated against while seeking diabetes care. This prejudice manifested as a healthcare professional refusing to provide care to our partner.

THEME 2: PERSONAL CHALLENGES

DIET

Diet was identified as a major barrier when participants spoke about managing their diabetes. In terms of lifestyle changes, diet was identified as the hardest to change by the majority of our participants. Many participants spoke about this challenge in terms of convenience and having the "willpower" to make better choices. Participants identified unhealthy food as the most convenient and better-tasting choice, and therefore found that changing this part of their diet was overwhelmingly difficult. Some participants had more punitive ways of thinking about their diet while others stressed the importance of finding balance in their meals. Those with a more punitive approach labeled unhealthy foods as 'guilty pleasures'and tried to avoid these in their diet as much as possible. Some other participants stressed that an easier way to have a more balanced diet was to still keep these foods in their diet, but in limited amounts, and while prioritizing whole foods before those that are less healthy.

"I think that the diabetes means a significant lifestyle change, that you have to change so much about what you do: what you eat, your exercise, how often you can go out to eat, what you pick when you go out to eat; it affects all aspects of your lifestyle. I think it's insidious."

Additionally, partners expressed frustration at the accessibility and convenience of the less healthy options in their areas. Many felt that it was unfair that even when they tried to make better dietary choices, their efforts fell flat because the cost and time that maintaining these efforts requires is not sustainable.

THEME 3: MOVEMENT

Another challenge partners shared was their experiences trying to incorporate exercise into their daily routines. The majority of our partners identified exercise as away to achieve balance in both their diet and in their lives, yet found the process of incorporating movement to be hard. Many partners shared that incorporating exercise at an older age is harder than doing so at a younger age, and therefore struggled with finding ways to incorporate movement in a way that was sustainable in their day-to-day routines. Additionally, partners shared that when they did try to incorporate movement, this often backfired because this would result in compounding medical issues. In particular, one partner expressed that when they tried incorporating longer walks into their schedule, this resulted in a knee injury, which then caused other medical issues. Other partners shared this sentiment – trying to exercise at an older age when dealing with compounding medical issues feels unsustainable for many.

CONSISTENCY

Another personal barrier to managing diabetes that partners identified was consistency. Many partners felt that while it is was easy to implement more health-conscious efforts in the short term, these felt very unachievable when trying to sustain them in the long term. These efforts mostly included diet and exercise, but for some partners, this also extended to maintaining a regular medication schedule or attending doctors' visits. Many felt that consistency is a key part of why managing diabetes is difficult for them. Partners felt as though the management of the disease requires taking into account several things that feel beyond their control, such as their environment, stress, and time.

The emotional toll of managing the disease further exacerbates this issue. Partners feel tired of the constant management the condition requires and feel as though the constant attention the management of type 2 diabetes requires is a big obstacle in maintaining control.

THEME 4: SPECULATION BEYOND TYPE II DIABETES

COMMUNITY SUPPORT AND REGAINING CONTROL

Partners were asked to think about some ways in which they could attempt to solve type 2 diabetes. One of the ways in which many partners felt they could attempt to solve the issue is through building more community. They imagined that community building could help solve the issue by creating community information resources that could be shared widely among people in the same geographic location. For example, one partner imagined that a way for people in her community to receive more support would be to set up community clinics or a community peer support system for members of the community to remain connected. This is due to the fact that many partners shared that there was often a level of apprehension when trying to receive information from medical professionals, and there was a certain level of distrust associated with letting a medical professional make all the decisions needed for their care. This distrust came from a lack of educational resources given to them at the time of diagnosis or a general lack of perceived care from the doctor ot the patient. Thus, many participants felt as though receiving this information from their peers would have a more positive impact on their actions and lead to better health outcomes. More broadly, receiving community support from people in the community experiencing the same struggles was seen as a valuable way for people in the community to remain plugged into the control of their diagnosis.

“I think that the diabetes means a significant lifestyle change, that you have to change so much about what you do: what you eat, your exercise, how often you can go out to eat, what you pick when you go out to eat; it affects all aspects of your lifestyle. I think it's insidious.”

OPPORTUNITIES

KNOWLEDGE OF DIABETES DIAGNOSIS TYPE

These opportunities highlight pathways for advancing equitable diabetes prevention and care in rural Texas. Most sampled people were diagnosed with type 2 diabetes and a few people said that they were unsure of the type of diabetes they were diagnosed with. Knowing diagnosis type may help individual with effective management as type 2 diabetes may be preventable and the goals of treatment of pre-diabetes and type 2 diabetes can be different with the former focusing on prevention and reversal and the latter focused on management and reversal.[45]

DIABETES EDUCATION COMPLETION

Some partners (8%) shared their lived experience of never having received diabetes education as a major obstacle to diabetes management. There were notable opportunities concerning diabetes education class completion for them despite most having a form of health insurance. Many expressed frustration when discussing education due to the lack of resources available to them in the process of being diagnosed or trying to find additional resources beyond the first diagnosis visit.

DIABETES EDUCATION AMONG PEOPLE WITH NON-TRADITIONAL EDUCATIONAL PATHWAYS

There is opportunity to improve diabetic education course completion among individuals with high school education or less. Health literacy and competing life priorities, as well as access to providers and healthcare services may affect their completion of diabetes education. Informal supports, like peer support, has been recommended as a facilitator of their self management.[46]

SOURCES

45. Khan, Radia, Zoey Chua, Jia Tan, Yingying Yang, Zehuan Liao, and Yan Zhao. “From Pre-Diabetes to Diabetes: Diagnosis, Treatments and Translational Research.” Medicina (Kaunas, Lithuania) 55, no. 9 (2019): 546. https://doi.org/10.3390/medicina55090546.
46. Tung, Elizabeth L, and Monica E Peek. “Linking Community Resources in Diabetes Care: A Role for Technology?” Current Diabetes Reports 15, no. 7 (2015). https://doi.org/10.1007/s11892-015-0614-5.

OPPORTUNITIES

SPANISH LANGUAGE EDUCATIONAL MATERIALS

These findings showed a need for culturally informed diabetes education. All partners in our all-Spanish focus group mentioned wanting greater access to educational materials in Spanish. Materials that are bilingual in Spanish and English are needed in rural communities. Healthcare provider or partnering with family, faith, and non-religious or faith based community centered rural community stakeholders is suggested to advance and support educational content dissemination campaigns. This may result in a wider network of dissemination of materials since some who may benefit may not get these materials from a provider visit.[47]

ACCESS TO DIABETES EDUCATION

Partners identified a persisting need for more accessible diabetes education. Some partners shared a transportation or distance barrier to accessing a specialist when referred for diabetes management services. They reported a need to drive or to bus to nearby larger cities to receive specialized care which was burdensome. An opportunity identified is the ability for use, and paid cost, of telehealth and in person provider visits for diabetes education. This may address partner identified transportation and work schedule challenges they identified as barriers to access as most participants were employed and some reported access barriers with transportation. Medicaid Transportation policy revision is an opportunity identified. Insurance policies that support specialists appointments for rural partners diabetes management is suggested. Texas Medicaid, traditional and managed, non-emergency transportation radius limits are suggested to be expanded for people with no or limited working access to telehealth, to accommodate people in rural Texas who are referred to diabetes management healthcare specialist providers outside their local communities. Other structural and policy opportunities include a suggestion for funding roundtrip vouchers to pay ride shares dedicated to healthcare transporting people to endocrinologists so that rural individuals in these communities can have access to care.

“And most especially in the rural and in the rural communities, I see that in the rural communities there are lack of education, lack of knowledge there and and there is less of of awareness awareness programs.”

SOURCES

47. Woodward, Abi, Kate Walters, Nathan Davies, Danielle Nimmons, Joanne Protheroe, Carolyn A Chew-Graham, Fiona Stevenson, and Megan Armstrong. “Barriers and Facilitators of Self-management of Diabetes amongst People Experiencing Socioeconomic Deprivation: A Systematic Review and Qualitative Synthesis.” Health Expectations: An International Journal of Public Participation in Health Care and Health Policy 27, no. 3 (2024): e14070-n/a. https://doi.org/10.1111/hex.14070.

HEALTHCARE PROVIDER CULTURAL HUMILITY

Requiring diabetes managers, such as medical doctors, dieticians and nutritionists, nurses, to complete cultural humility trainings and trainings about structural barriers rural Texans may experience that influence successful management is suggested. Making this part of requirements for board certification or registry renewals may influence partners perceptions of their diabetes management providers.[48]

Increasing Partners Knowledge about Alternative Cultural Food & Recipe Options

Culturally informed diabetes education is recommended. All partners in our all-Spanish focus group mentioned wanting greater access to educational materials in Spanish

Incorporating the use of cultural foods as part of recipe examples in educational materials, and addressing myths of commonly identified among rural individuals living in these communities, is suggested.

I went to the community clinic and I remember this nurse, a professional nurse...I was suffering a lot of issues with my health, and she laughed me on my face. I told her, "I need help", and she laughed at me.

SOURCES

48. Dragomanovich, Hannah M, and Jay H Shubrook. "Improving Cultural Humility and Competency in Diabetes Care for Primary Care Providers." Clinical Diabetes 39, no. 2 (2021): 220–24. https://doi.org/10.2337/cd20-0063.

LEVERAGE SHARED EXPERIENCE AND INFORMAL SUPPORT

Participants identified unhealthy food as the most convenient and better-tasting choice, and therefore found that changing this part of their diet was overwhelmingly difficult. One of the solutions partners voiced is that through building more community, by using a peer support system for members of the community, will help them remain connected concerning management of diabetes. This is an opportunity for non-clinical peer led coaching support. Partners in this study did not report participating in any peer support programming to help them manage their diagnosis. Peer led coaching support, defined as support by coaches who have similar experiences to individual living rurally with these diagnoses may be impactful. Peer led coaching support has been shown to be effective for management of glycemic control and management in individuals with pre-diabetes and type 2 diabetes and has proved particularly effective for individuals with low income improving their confidence and perceived support in management.[49,50] This study demonstrated success with some participants perceiving peer support as immensely meaningful to addressing their confidence and motivation to prevent poor food choices and change behaviors misaligning with their treatment goals concerning diabetes management.

POLICY CHANGES

Partners identified the overall healthcare system, as well as costs of diabetes management care, as a barrier to their successful manage of diabetes. This presents an opportunity that requires systemic policy changes associated with co-insurance and cost sharing with individuals diagnosed with these conditions and government and private health insurers. While some health plans or insurers may have cost sharing or out of pocket expenses required by affected individuals capped there may still be some out of pocket expenses that prove unaffordable to meet. Therefore, expanding the Diabetes Self Management Education and Support Program [51] to cover type 2 diabetes management beyond when newly diagnosed and when there are new complications to health, or when there are life changes making management challenging is recommended.

SOURCES

49.Heisler, M., Dyer, W. T., Finertie, H., Stoll, S. C., Wiley, D., Turner, C. D., Sedgwick, T., Kullgren, J., Richardson, C. R., Hedderson, M., & Schmittdiel, J. A. (2023). Using Peer Support to Aid in Prevention and Treatment in Prediabetes (UPSTART): Results of a pragmatic randomized controlled trial. American Journal of Preventive Medicine, 65(2), 239–250. https://doi.org/10.1016/j.amepre.2023.02.015
50. Verma, I., Gopaldasani, V., Jain, V., Chauhan, S., Chawla, R., Verma, P. K., & Hosseinzadeh, H. (2022). The impact of peer coach-led type 2 diabetes mellitus interventions on glycaemic control and self-management outcomes: A systematic review and meta-analysis. Primary Care Diabetes, 16(6), 719–735. https://doi.org/10.1016/j.pcd.2022.10.007
51. Thepwongsa, I., Nonjui, P., Muthukumar, R., & Sripa, P. (2025). Impact of Motivational Interviewing Education on General Practitioners' and Trainees' Learning and Diabetes Outcomes in Primary Care: Mixed Methods Study. JMIR medical education, 11, e75916. https://doi.org/10.2196/75916

Coverage for this program is available to Medicare beneficiaries only if they were newly diagnosed within the past year. The program provides up to 10 hours of programming to engage with a diabetes specialist and receive education on management. After this year, coverage may vary. Anyone without Medicare coverage may also vary. Therefore, expanding this program beyond these limitations to include initial diagnosis and events, as well as commercially and Medicaid-insured rural community members, directly addresses partners' lived experiences. Additionally, discontinuing efforts to repeal parts, or all, of the Affordable Care Act is recommended, as studies have shown that this policy has had a positive effect on the healthcare cost burden.[52]

PARTNER CONSISTENCY AND MOTIVATION TO CHANGE

Many partners found it very challenging to achieve realistic, sustainable, and positive changes, such as increasing physical activity. This suggests an opportunity for diabetes managers to be required to complete, at a minimum, introductory motivational interviewing training to promote and advance behavior change, such as exercise when recommended, among those living with these conditions. Some studies indicate that general practitioners are often not trained in this intervention method.[53,54]

SOURCES

52. Gao, C. C., Espinoza Suarez, N. R., Toloza, F. J. K., Malaga Zuniga, A. S., McCarthy, S. R., Boehmer, K. R., Yao, L., Fu, S., & Brito, J. P. (2021). Patients' perspective about the cost of diabetes management: An analysis of online health communities. Mayo Clinic proceedings. Innovations, quality & outcomes, 5(5), 898–906. https://doi.org/10.1016/j.mayocpiqo.2021.07.003
53. Thepwongsa, I., Nonjui, P., Muthukumar, R., & Sripa, P. (2025). Impact of Motivational Interviewing Education on General Practitioners' and Trainees' Learning and Diabetes Outcomes in Primary Care: Mixed Methods Study. JMIR medical education, 11, e75916. https://doi.org/10.2196/75916
54. Lajaunie, Aurianna M, Natalie M Vela, Hannah Kimmel Supron, Sarah Small, Kenneth Resnicow, and P. Elainee Poling. "Motivational Interviewing: Addressing Interest Among Health Professions Students." PRiMER: Peer-Review Reports in Medical Education Research 8 (2024): 35. https://doi.org/10.22454/PRiMER.2024.823357.

CONCLUSION

This study demonstrates that community participation is essential for designing equitable solutions to diabetes prevention and management. In partnership with Episcopal Health Foundation, the goal of this research was achieved, which was to identify the main challenges those living with these conditions, outline the challenges, and provide community partner based action oriented recommendations rooted in their own narratives and advance systemic changes that can result in equitable outcomes. These findings can guide ongoing collaboration between public health leaders, policymakers, and community partners.

our experience must inform

CHANGE

ABOUT OUR DATA ACTIVISTS

APRIL VIVERETTE

April C. Bowie-Viverette, PhD, connects systems and people, building bridges between communities, institutions, and policy. She uses quantitative, qualitative, and mixed methods designs in her research and applies participatory frameworks to reimagine possibilities that amplifies community voices and disrupts narratives of exclusion. Drawing on her cross-disciplinary expertise, she bridges organizational strategy, social work practice, and rigorous research methods. April's work reflects a fierce belief that communities should lead the way in shaping knowledge and solutions. She shows up as both scholar and partner, committed to using data for transformation.

ALESANDRA BACA-VAZQUEZ

Alesandra is a PhD student in Georgia Tech's Human-Centered Computing program. Her research centers community-based approaches to investigating the role of technology in grassroots and mutual aid organizations. Prior to moving to Atlanta to start her PhD, she earned her BS in Informatics from the University of Texas at Austin. Alesandra has partnered with Measure as an evaluator for one year and believes community-centered research is key in advancing social justice movements.

REFERENCES

Abu-Bader, S. H. (2011). Descriptive statistics: Measures of central tendency, variability, and percentiles. In Using Statistical Methods in Social Science Research. Oxford University Press, Incorporated.

Ahmed, M., Zulfiqar, E., Shafiq, A., Shahzad, M., Hashmi, T. M., Ahmed, R., Rana, J. S., Sidney, S., Greene, S. J., Mentz, R. J., Fudim, M., & Fonarow, G. C. (2025). Type 2 diabetes mellitus-related mortality in the United States, 1999 to 2023. JACC. Advances, 4(7), 101882. https://doi.org/10.1016/j.jacadv.2025.101882

American Diabetes Association (2021). Classification and diagnosis of diabetes: Standards of medical care in Diabetes-2021. Diabetes Care, 44(1), S15–S33. https://doi.org/10.2337/dc21-S002

Baek, J., Cheon, O., Lee, S., & Nwana, N. (2021). Diabetes education desert: Regional disparity between diabetes prevalence and diabetes self-management education programs in Texas. Population Health Management, 24(2), 266–274. https://doi.org/10.1089/pop.2020.0006

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), 77-101. https://doi.org/10.1191/1478088706qp063oa

Brown, A. F., Gregg, E. W., Stevens, M. R., Karter, A. J., Weinberger, M., Safford, M. M., ... & Beckles, G. L. (2005). Race, ethnicity, socioeconomic position, and quality of care for adults with diabetes enrolled in managed care: the Translating Research Into Action for Diabetes (TRIAD) study. Diabetes Care, 28(12), 2864-2870.

Centers for Disease Control & Prevention (n.d.). U.S diabetes surveillance system. https://gis.cdc.gov/grasp/diabetes/DiabetesAtlas.html

Centers for Disease Control (2024, May 19). National diabetes statistics report. https://www.cdc.gov/diabetes/php/data-research/index.html

Cypress, B. (2018). Qualitative research methods. Dimensions of Critical Care Nursing, 37 (6), 302-309. https://doi.org/10.1097/DCC.0000000000000322

Dragomanovich, H. M., & Shubrook, J. H. (2021). Improving cultural humility and competency in diabetes care for primary care providers. Clinical Diabetes, 39(2), 220–224. https://doi.org/10.2337/cd20-0063

Duan, D., Kengne, A. P., & Echouffo-Tcheugui, J. B. (2021). Screening for diabetes and prediabetes. Endocrinology and metabolism clinics of North America, 50(3), 369–385. https://doi.org/10.1016/j.ecl.2021.05.002

Gao, C. C., Espinoza Suarez, N. R., Toloza, F. J. K., Malaga Zuniga, A. S., McCarthy, S. R., Boehmer, K. R., Yao, L., Fu, S., & Brito, J. P. (2021). Patients' perspective about the cost of diabetes management: An analysis of online health communities. Mayo Clinic proceedings. Innovations, quality & outcomes, 5(5), 898–906. https://doi.org/10.1016/j.mayocpiqo.2021.07.003

Gilgun J. F. (2005). “Grab” and good science: Writing up the results of qualitative research. Qualitative Health Research, 15, 256-262.

Gwira, J. A., & National Center for Health Statistics. (2024). Prevalence of total, diagnosed, and undiagnosed diabetes in adults: United States, August 2021-August 2023. U.S. Department of Health & Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics.

Han, G., Spencer, M. S., Ahn, S., Smith, M. L., Zhong, L., Andreyeva, E., Carpenter, K., Towne, S. D., Jr, Preston, V. A., & Ory, M. G. (2023). Group-based trajectory analysis identifies varying diabetes-related cost trajectories among type 2 diabetes patients in Texas: an empirical study using commercial insurance. BMC Health Services Research, 23(1), 1116. https://doi.org/10.1186/s12913-023-10118-1

Hossain, M. J., Al-Mamun, M., & Islam, M. R. (2024). Diabetes mellitus, the fastest growing global public health concern: Early detection should be focused. Health Science Reports, 7(3), e2004. https://doi.org/10.1002/hsr2.2004

Heisler, M., Dyer, W. T., Finertie, H., Stoll, S. C., Wiley, D., Turner, C. D., Sedgwick, T., Kullgren, J., Richardson, C. R., Hedderson, M., & Schmittdiel, J. A. (2023). Using Peer Support to Aid in Prevention and Treatment in Prediabetes (UPSTART): Results of a pragmatic randomized controlled trial. American Journal of Preventive Medicine, 65(2), 239–250. https://doi.org/10.1016/j.amepre.2023.02.015

REFERENCES

Khan, R. M. M., Chua, Z. J. Y., Tan, J. C., Yang, Y., Liao, Z., & Zhao, Y. (2019). From pre-diabetes to diabetes: Diagnosis, treatments and translational research. Medicina, 55(9), 546. https://doi.org/10.3390/medicina55090546

Lajaunie, A. M., Vela, N. M., Supron, H. K., Small, S., Resnicow, K., & Poling, P. E. (2024). Motivational interviewing: Addressing interest among health professions students. PRiMER: Peer-Review Reports in Medical Education Research, 8, 35. https://doi.org/10.22454/PRiMER.2024.823357

Rowley, W. R., Bezold, C., Arikan, Y., Byrne, E., & Krohe, S. (2017). Diabetes 2030: Insights from yesterday, today, and future trends. Population Health Management, 20(1), 6–12. https://doi.org/10.1089/pop.2015.0181Cypress, B. (2018). Qualitative research methods.

Saldaña, J. (2016). The coding manual for qualitative researchers (3E.). SAGE.

Stafford, L. K., Cruz, J. A., Aali, A., Abate, M. D., Abd ElHafeez, S., Adane, T. D., Adekanmbi, V., Agudelo-Botero, M., Ahmadi, A., Akinyemi, R. O., Al Hamad, H., Alvis-Guzman, N., Amusa, G. A., Anyasodor, A. E., Areda, D., Armocida, B., Arumugam, A., Aryan, Z., Badawi, A., ... Zhang, Z.-J. (2023). Global, regional, and national burden of diabetes from 1990 to 2021, with projections of prevalence to 2050: a systematic analysis for the Global Burden of Disease Study 2021. The Lancet , 402(10397), 203–234. https://doi.org/10.1016/S0140-6736(23)01301-6

Tancredi, M., Rosengren, A., Svensson, A.-M., Kosiborod, M., Pivodic, A., Gudbjörnsdottir, S., Wedel, H., Clements, M., Dahlqvist, S., & Lind, M. (2015). Excess mortality among persons with type 2 diabetes. The New England Journal of Medicine, 373(18), 1720–1732. https://doi.org/10.1056/NEJMoa1504347

Teoh, K. W., Ng, C. M., Chong, C. W., Bell, S., 2.Cheong, W. L., & Lee, S. W. H. (2023). Knowledge, attitude, and practice toward pre-diabetes among the public, patients with pre-diabetes and healthcare professionals: a systematic review. BMJ Open Diabetes Research & Care, 11(1), e003203.

Thepwongsa, I., Nonjui, P., Muthukumar, R., & Sripa, P. (2025). Impact of motivational interviewing education on general practitioners' and trainees' learning and diabetes outcomes in primary care: Mixed methods study. JMIR Medical Education, 11, e75916. https://doi.org/10.2196/75916

Texas Health Data (n.d.). Behavioral risk factor surveillance system (BRFSS). https://healthdata.dshs.texas.gov/dashboard/surveys-and-profiles/behavioral-risk-factor-surveillance-system

Tung, E. L., & Peek, M. E. (2015). Linking community resources in diabetes care: a role for technology? Current Diabetes Reports, 15(7), Article 45. https://doi.org/10.1007/s11892-015-0614-5

Vangeepuram, N., Fei, K., Goytia, C., Madden, D., Corbie-Smith, G., & Horowitz, C. R. (2023). Community-based participatory research: Insights, challenges, and successes from the perspectives of frontline recruiters and investigators. Journal of Participatory Research Methods, 4(2).

Woodward, A., Walters, K., Davies, N., Nimmons, D., Protheroe, J., Chew-Graham, C. A., Stevenson, F., & Armstrong, M. (2024). Barriers and facilitators of self-management of diabetes amongst people experiencing socioeconomic deprivation: A systematic review and qualitative synthesis. Health Expectations: An International Journal of Public Participation in Health Care and Health Policy, 27(3), e14070-n/a. https://doi.org/10.1111/hex.14070
.