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The Use Of Person-First Language In Diabetes Care & Research. How Far Have We Come Since Ada & Adces Recommendations?: A Systematic Review

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THE USE OF PERSON-FIRST LANGUAGE IN DIABETES CARE & RESEARCH. HOW
FAR HAVE WE COME SINCE ADA & ADCES RECOMMENDATIONS?:

A SYSTEMATIC REVIEW

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Denise Nicole Portillo

2022

Dedication

I would like to dedicate this thesis to my parents, without your continued support and love this would not have been possible. Thank you for being an example of what hard work and dedication can achieve. To my abuelita, todavía estás con nosotros pero no puedes comunicarte con nosotros, te extraño mucho. Gracias por todo lo que hiciste por mí.

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FAR HAVE WE COME SINCE ADA & ADCES RECOMMENDATIONS?:

A SYSTEMATIC REVIEW

by

DENISE NICOLE PORTILLO, BS, CHES[®]

THESIS

Presented to the Faculty of the Graduate School of

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of the Requirements

for the Degree of

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Department of Public Health Sciences

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Abstract

Background: Diabetes is a chronic medical condition that affects more than 34 million people across the United States (Centers for Disease Control and Prevention (CDC), 2020). Diabetes is characterized as the inability to create or regulate insulin adequately (Costabile et al., 2020). There are three main types of diabetes, type 1 diabetes mellitus (T1D), type 2 diabetes mellitus (T2D), and gestational diabetes (CDC, 2020). Of the more than 34 million people with diabetes, 5 to 10% have T1D, while the remaining 90-95% have T2D (CDC, 2020). In 2017, the Association of Diabetes Care & Education Specialists (ADCES) and the American Diabetes Association (ADA) recommended changing the language used in diabetes care and education (Dickinson et al., 2017). There is substantial support for person-centered and person-first language as a priority for improving health outcomes. Purpose: This research aims to: 1) review the literature on the use of Person-First Language (PFL); 2) identify thematic characteristics of organizations and institutions that do not use the proper PFL; and 3) determine differences in the use of PFL among ethnic/racial samples. Methods: The systematic review was completed using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher et al., 2009). Inclusion criteria used to conduct searches focused on peer-reviewed literature regarding 1) diabetes patient care and management; 2) human subject intervention research related to behavior and treatment care; and 3) research conducted in the US. The articles included were from 2018 to 2020. Articles with at least one use of disease first language (e.g., 'diabetic,' 'compliant,' 'control,' and 'adhere') were included. Exclusion criteria consisted of all research literature focused on molecular level diabetes research and non-human research; and articles published before 2017 and after 2020. Articles that utilized 100% PFL, and international studies and journals were also excluded. Articles were searched using the online databases of PubMed, CINAHL, and PsycInfo.

Results: The total number of identified articles was 3,481; after inclusion and exclusion criteria were applied and duplicates were removed, only 62 articles met the criteria to be used for analysis. Overall, of the articles assessed, 17.74% still used the term 'diabetic' within the article; 16.13% used 'compliant/compliance;' 93.55% used 'control/controlling/controlled;' and 70.97% used 'adhere/adherence/adherent.' When considering the credentials of the senior authors, 100% of Master of Arts used the terms 'control' and 'adhere' within the article; 100% of Medical doctors (MD) used 'control;' 90% of MDs with additional degrees and/or certifications used 'control;' 95.45% of PhDs used 'control;' 58.33% of PhDs and additional degrees and/or certifications used 'adhere.' Among pharmacists, 100% used 'control' and among pharmacists with additional degrees and/or certifications 100% used 'control;' 100% of nurse practitioners used 'diabetic' and 'control;' 80% of nurse practitioners with additional degrees and/or certifications used 'adhere;' and 100% of individuals with a Certified Diabetes Care and Education Specialist certification used the terms 'control' and 'adhere.' Among senior authors from an academic setting, 94.12% used the term 'control' in the articles; 92.31% of medical schools used 'control;' 100% of nursing schools used 'control;' 100% of associations used 'control;' 88.89% of hospitals or clinics used 'control;' and 100% of research based institutions used 'control.' Of the 62 articles analyzed, only 35.48% had Hispanic/Latinos in their studies. Conclusion: In literature specific to diabetes patient care and management, between 2018 through 2020, this review showed the frequency of use of PFL with the term 'people with diabetes' vs. the terms 'diabetic' and 'managed' vs. the term 'compliant.' This review, however, revealed a high frequency of the non-recommended terms 'control' and 'adherence.' Moreover, Hispanic/Latinos continue to be an underserved population when it comes to diabetes patient care and management.

Keywords: person-first language, diabetes patient care and management, patient-centered communication

Table of Contents

Acknowledgements.....	v
Abstract.....	vi
Table of Contents.....	ix
List of Tables.....	xi
List of Figures.....	xii
Chapter 1: Background & Significance.....	1
1.1 Person-first language.....	2
1.2 Person-first language in diabetes care.....	3
1.3 Diabetes Stigma and Stereotype: Importance of person-first vs. identity-first language.....	4
1.4 Theory of Reasoned Action and Planned Behavior.....	5
Chapter 2: Methods.....	8
2.1 Inclusion Criteria.....	8
2.2 Exclusion Criteria.....	8
2.3 Search Strategy.....	9
2.4 Data Extraction.....	9
Chapter 3: Results.....	11
3.1 Use of Negative Language or Non-PLF.....	13
Chapter 4 Discussion.....	16
4.1 Hispanic/Latino.....	17
4.2 Strengths.....	18
4.3 Limitations.....	18
4.4 Implications for Public Health practice.....	19

Chapter 5 Conclusion.....	20
MPH Program Foundational Competencies	21
MPH Program Hispanic and Border Health Concentration Competencies	22
References.....	23
Appendix.....	40
Vita	57

List of Tables

Table 1: Article Characteristics.	40
Table 2: Institution publication characteristics	53
Table 3: Author credentialing characteristics	54
Table 4: Use of Non-Person First Language at least once.....	14
Table 5: Use of problematic words at least once by author credentialing	55
Table 6: Organization and Institution of the Senior Authoor and usage of problematic terms	56

List of Figures

Figure 1: Theory of Reasoned Action and Planned Behavior.	7
Figure 2: PRISMA 2020 flow diagram for new systematic reviews which included searches of databases and registers only.....	12

Chapter 1: Background & Significance

Diabetes is a chronic non-communicable disease that affects more than 37.3 million people across the United States (Centers for Disease Control and Prevention (CDC), 2020). Diabetes is characterized as the pancreas inability to create insulin or the inability to be used properly, which then creates an excess amount of glucose within the body (Costabile et al., 2020). There are three main types of diabetes, type 1 diabetes mellitus (T1D), type 2 diabetes mellitus (T2D), and gestational diabetes (CDC, 2020). Of the more than 37.3 million people with diabetes, 5 to 10% have T1D, while the remaining 90-95% have T2D (CDC, 2020). The prevalence of diabetes is higher in racial and ethnic minority groups than in non-Hispanic whites (CDC, 2020) American Diabetes Association (ADA, n.d.). Among Hispanics in the US, 12.5% have been diagnosed with diabetes, versus the national prevalence of 11.3% (CDC, 2020). In Texas, 12.4% of individuals have diabetes, while El Paso County has higher rates of diabetes at 15.3% (Healthy Paso del Norte, 2020).

It is not known what causes T1D but it is thought to be caused by an autoimmune disorder and an inability to prevent T1D from developing (Dean & McEntyre, 2004). Risk factors leading to the development of T2D are categorized as modifiable and non-modifiable risk factors (CDC, 2020). Non-modifiable risk factors consist of age, a family history of T2D, and race or ethnicity; in contrast, modifiable risk factors consist of pre-diabetes, having excess weight or having obesity, lack of physical activity, high caloric intake, high carbohydrate intake, and unhealthy eating (CDC, 2020). Some non-modifiable risk factors, such as race or ethnicity, can cause diabetes due to these groups having low socioeconomic status, the built environment, and lack of health insurance (Schaffer, 2021; Fortier, 2008).

For an individual with diabetes to have optimal glycemic management, it is recommended that they engage in diabetes self-management education and support (ADA, 2021). Diabetes self-management focuses on modifiable risk factors such as food portion management, regularly tracking glucose levels, including or increasing physical activity, among many other recommendations (CDC, 2020). ADA recommends that for an individual to have optimal diabetes care, they should have a coordinated team of healthcare-trained professionals working together where patient-centered care is the priority (ADA, 2020).

Although there are evidence-based recommendations for effective diabetes management, such behaviors rely on individuals to engage in their own self-care. Health professionals need to engage patients to participate in self-management recommendations. The ADA also recommends that patient-centered communication be used during the patient-provider encounters. According to the ADA (2021), patient-centered communication is a standard that emphasizes the use of strength-based language, active listening skills, individual preference and beliefs, and health literacy to optimize health outcomes for people with diabetes; this includes the use of person-first language (PFL). Furthermore, when an individual is engaged in their self-management, there is a metric called patient activation measure; this metric can measure internal factors such as knowledge, skill, and ability to manage health (Greene, et al., 2015). It has been shown that when this metric is activated, there is a reduction in healthcare costs (Greene, et al., 2015).

1.1 PERSON-FIRST LANGUAGE

PFL is the use of language toward an individual with a disability or disease (Crocker & Smith, 2019). The use of PFL switches the focus from the disease and back onto the individual. The concept of person-first language is not new; in 1974, a conference was held to advocate that people be emphasized over their disability (Crocker & Smith, 2019). The American Psychological

Association (APA) is one of the first organizations to advocate and lead the change to use person-first language in 1992 (Crocker & Smith, 2019). It has been noted that Beatrice A. Wright, a social psychologist, objected to the use of language that stigmatized people with disabilities, and her work led to a shift in the field that emphasized the person over the disability (Dunn & Andrews, 2015).

1.2 Person-first language in diabetes care

In 2017, the Association of Diabetes Care & Education Specialists (ADCES) and the ADA recommended changing the language used in diabetes care and education (Dickinson et al., 2017). This recommendation has been set forth to align with other disciplines, empower individuals with diabetes, and engage all professions to move toward language change (Dickinson et al., 2017). These recommendations are meant to be used by medical providers, educators, researchers, journal editors, authors, media, and other individuals who communicate about diabetes to adapt to the use of PFL (Dickinson et al., 2017). Additional organizations that have switched to the use of PFL consist of Diabetes Australia, International Diabetes Federation, The Obesity Society, and Diabetes UK (Dickinson et al., 2017; Cooper et al., 2018).

The ADCES stipulates that using identity-first language, such as non-compliant, unmotivated, or other negative terms, can lead individuals to self-fulfill those prophecies (Dickinson et al., 2017); this is also described in expectancy theory. Research has shown that when teachers thought that students would do better, they were nicer to the students and these students performed better than other students that were expected to do worse (Rosenthal, 1994). Moreover, this same phenomenon has been seen in the athletic abilities of basketball players, in which coaches' expectations were met with some athletes over others (Weaver et al., 2016).

1.3 Diabetes Stigma and Stereotype: Importance of person-first vs. identity-first language

T1D and T2D are both chronic and complex conditions to manage and rely on an individuals' engagement in self-care behaviors (Dickinson, 2018). Because this disease involves engaged self-care, many individuals with diabetes are blamed for their conditions, leading to shame and stigma. People living with T1D have also experienced aspects of stereotyping; in a qualitative study conducted by Brown et al., it was described that a participant felt as though they were, "... 'damaged goods' I guess. People think that you're more broken or damaged or sicker than you really are." (Browne et al., 2014). To further exacerbate living with diabetes and the stigma and stereotyping that follows, people living with this disease must also deal with the healthcare profession as a source of stigma. Browne et al. (2014) noted in their study that stigma could come from the healthcare provider; a participant in their study explained, "In the last two years [I] developed large complications and I have had medical professionals say to me 'well it's your own fault because you're diabetic' which is not what you really want to hear." Though healthcare providers have started to make changes in their language after the ADA recommendation in 2017, some continue with outdated language (Agaronnik, 2019).

Moreover, Browne et al. (2013) revealed that a participant felt that the stigma of having T2D was a lifestyle disease and felt that people saw it as people with T2D were lazy and allowed this disease to develop. Stereotyping has also been experienced by people living with T2D. Dickison et al. (2017) found that the language used by their diabetes care team left them feeling judged, fear, anxious, and other negative emotions (Dickinson, 2018). In addition to the stigmatization that this disease brings, identity-first language can cause an authoritative relationship between the provider and the patient, in which the patient must follow what the doctor tells them to do (Dickinson et al., 2017). In a multi-continental study, researchers found that if

negative messaging was perceived by patients by the physician, it was linked to poorer communication quality (Polonsky et al., 2017). Examples of this included being told, "... that diabetes is mostly my fault, because of the way I have been living my life" or "... [they] told me that we may start with just one medication but more medication will be needed eventually." (Polonsky et al., 2017). However, when the patient perceived positive communication quality, this led to less diabetes distress, greater well-being, and better management of diabetes care (Polonsky et al., 2017).

There is substantial support for person-centered and person-first language as a priority for improving health outcomes. Theoretical frameworks best describe the mechanism for understanding the importance of communication on health behaviors and clinical health outcomes. One specific theory that best depicts how PFL can benefit an individual's motivation and engagement in health behavior is the Theory of Reasoned Action and Theory of Planned Behavior (TRA/TPB).

1.4 Theory of Reasoned Action and Planned Behavior

The TRA/TPB is a concept that theorizes that behavior is based on an individual's intention; thus, the intention is the likelihood that a person will engage in a behavior (Hayden, 2014). In this theory, the intention is influenced by attitudes, subjective norms, volitional control, and behavioral control (Hayden, 2014). The construct of attitude plays a role in behavior change by placing a value on the outcome; if the outcome is positive for the individual, the attitude will be positive, and the individual will likely engage in that behavior (Hayden, 2014). The construct of subjective norms also influences one's intention. Subjective norms are an external factor that is social pressure on whether or not to engage in a particular behavior (Hayden, 2014). Volitional control is an additional construct in TRA/TPB and this consists of an individual having the ability to engage or

not in the behavior (Hayden, 2014). TPB deals with the construct of behavioral control. Behavioral control is the perceived ease or difficulty to do the behavior (Hayden, 2014).

TPB is essential for communication for people with diabetes to increase intent and behavior in diabetes management. Figure 1 exemplifies how person-first language can engage people with diabetes in diabetes care. For example, a person with diabetes may have certain fatalistic beliefs that if they manage their diabetes well, it will allow them to enjoy their life in the future (Polonsky et al., 2017). This kind of behavioral belief will then lead the individual to have a positive attitude toward the behavior, which, in turn, can lead to a positive behavioral intention. When a physician normalizes diabetes, the stigma is removed from having such a disease (Kato et al., 2016). This causes the subjective norm to be positive, which then increases

the intention to lead to behavior change. When a person with diabetes has a positive interaction with a healthcare provider, such as getting assistance with a treatment plan and goal setting (Polonsky et al., 2017), this can increase control belief. Such belief can cause a person to have positive perceived behavioral control that can cause a positive intention change; thus, the possibility of behavior being enacted.

The research on the use of PFL is still ongoing, but there is evidence that communication style is effective in patient engagement (Dickinson et al., 2017). It is vital to determine the level of adoption of the 2017 ADA and ADCES recommendation about the use of PFL. The objectives of this research is to: 1) review the literature, 2) identify thematic characteristics of organizations and institutions that do not use the proper use PFL, 3) determine differences in use among ethnic/racial samples.

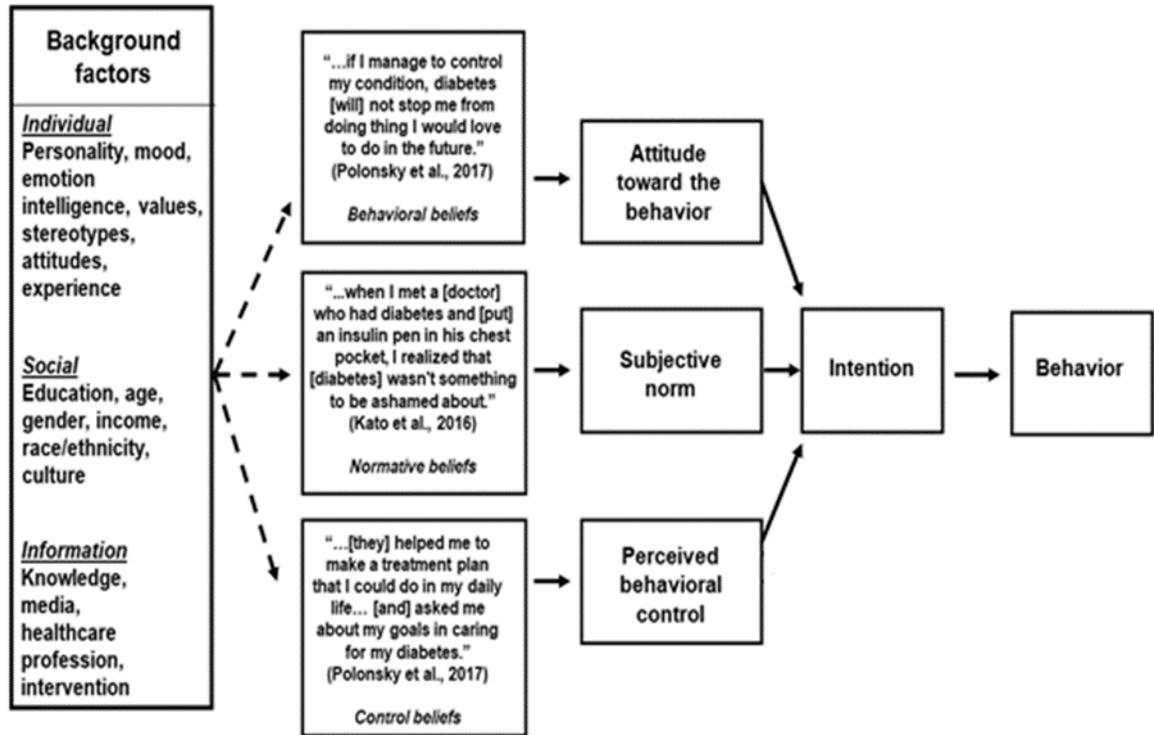


Figure 1 Theory of Reasoned Action and Planned Behavior (Ajzen & Fishbein, 2018)

Chapter 2: Methods

The systematic review was completed utilizing the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher et al., 2009). The PRISMA guidelines are guidelines for conducting systematic reviews and meta-analyses. This method includes a 27-item checklist to assist the researcher in the reporting process of systematic reviews (refer to appendix A for the 27-item checklist) (Moher et al., 2009). Articles were searched using the online databases of PubMed, CINAHL, and PsycInfo.

2.1 Inclusion Criteria

Inclusion criteria that were used to conduct searches focus on peer-reviewed literature regarding (1) diabetes patient care and management, (2) human subject intervention research related to behavior and treatment care, and (3) research conducted in the US. This includes research published after the ADA standards were published in 2017. Thus, the articles included are from 2018 to 2020. Articles with at least one use of disease first-language were included in the review. Two methods were used to accomplish this; First, a find and search approach was used for each identity-first ADA recommended terms. Second, the first author, DP, reviewed the article to validate that the literature has used disease-first terms.

2.2 Exclusion Criteria

Exclusion criteria consisted of all research literature focused on molecular level diabetes research and non-human research. In addition, research articles published before 2017 were excluded as ADA recommendations were first introduced in 2017, and articles published from 2021 and on. Furthermore, articles that utilized person-first language 100% were excluded, as they were deemed as following standards of care. International journals and studies were excluded from this systematic review.

2.3 Search Strategy

Keywords used for the search were derived from the ADA and ADCES standards regarding non-recommended and recommended language. In the 2017 recommendations, the ADA and ADCES recommend using manage over control in regard to glucose levels, or engagement over compliance in regards to self-management (Dickinson et al., 2017). For this review, keyword Boolean combination searches included (1) "diabetic, not diabetic nephropathy, not diabetic retinopathy, not diabetic neuropathy, and not diabetic ketoacidosis." (2) "Compliant (non-compliant, non-compliance), not diabetic nephropathy, not diabetic retinopathy, not diabetic neuropathy, and not diabetic ketoacidosis." (3) Adherence (adherent, non-adherent, non-adherence), not diabetic nephropathy, not diabetic retinopathy, not diabetic neuropathy, and not diabetic ketoacidosis." (4) "Control (controlled, uncontrolled, well-controlled, poorly controlled), not diabetic nephropathy, not diabetic retinopathy, not diabetic neuropathy, and not diabetic ketoacidosis." (5) "Diabetes patient care and management." (6) "United States." Articles were then filtered to use only those published from 2018, when ADCES and ADA first recommended the use of PFL, to 2020. A two-step process to selected articles: (1) The abstract of the filtered articles will be read to see if they fit the inclusion criteria; (2) the articles of the selected articles will be reviewed to be selected.

2.4 Data Extraction

After the searches were completed in PubMed, CINAHL, and PsycInfo using the inclusion and exclusion criteria, articles were filtered by a four-step process. The process entailed identification, in which all articles are found, then screening; during this process, duplicates were removed, followed by the third step of eligibility, the use of inclusion and exclusion criteria was used in this step, and the final step of inclusion, which will be the articles that will be used for the systematic review (Moher et al., 2009). The following characteristics were extracted: 1) publication year, 2) credentials of the first author, 3) institution where the first author is from, 4)

objective of the article, 5) sample of the participants of the study, 6) use of the identity first words: diabetic, compliant/ compliance, control/ controlled/ controlling, adhere/ adherence/ adherent.

Chapter 3: Results

Two article searches were conducted, the initial search was conducted in September 2021, and the second search was conducted in January 2022. The total number of identified articles was 3,481 (Figure 1). Upon removal of the duplicate articles, 3,144 remained. Three thousand one hundred forty-four articles were screened by reading the abstracts, and from that, 2,175 articles were excluded due to not meeting the inclusion criteria. A total of 969 articles were retrieved to investigate the articles further, of which only 100 articles were selected based on the inclusion and exclusion criteria. Of the 100 articles selected, only five were inaccessible but were obtained through the universities Interlibrary Loan program. After a full review of the articles, 62 (Table 1) were chosen to be used for the systematic review.

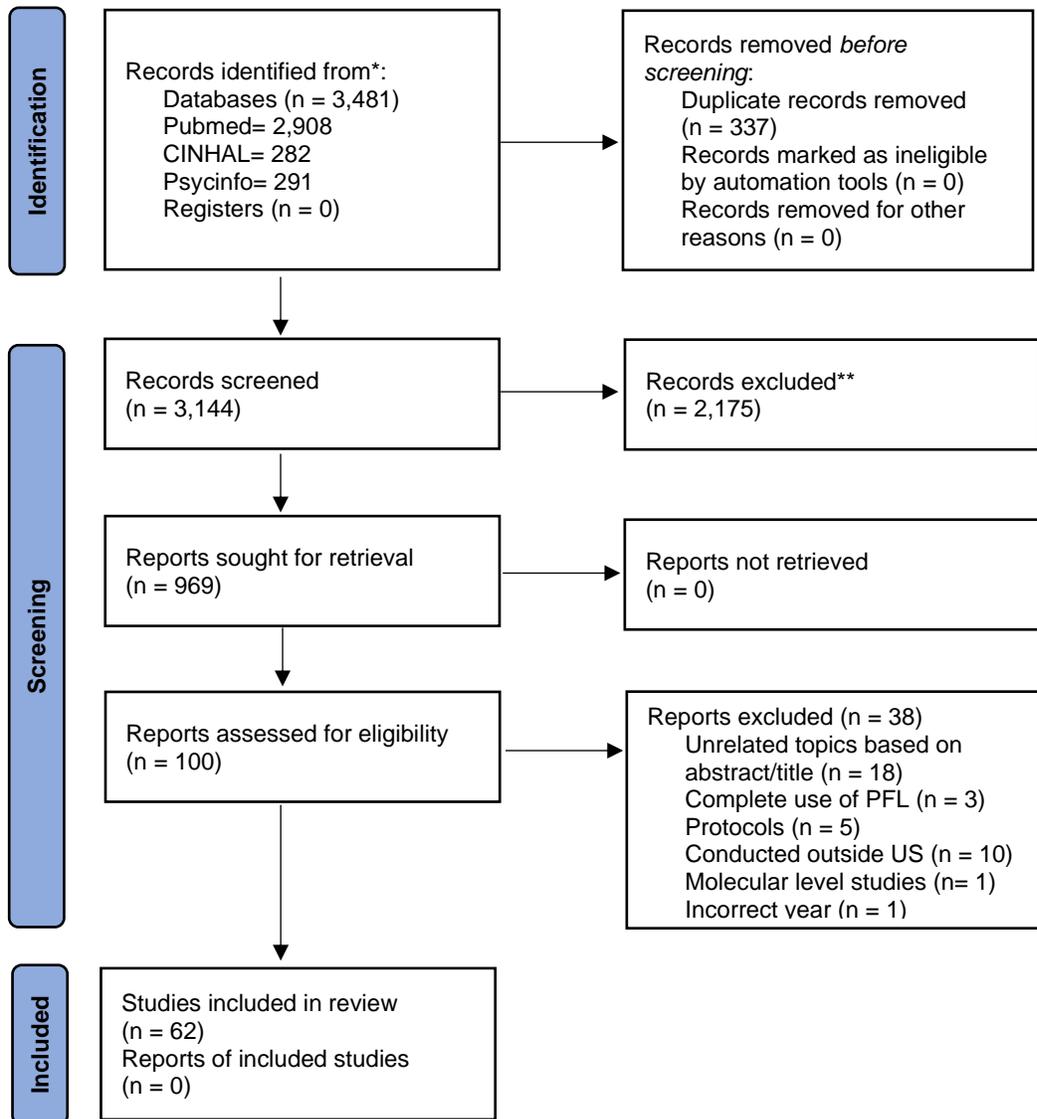


Figure 2. PRISMA 2020 flow diagram for new systematic reviews which included searches of databases and registers only

*Consider, if feasible to do so, reporting the number of records identified from each database or register searched (rather than the total number across all databases/register).

**If automation tools were used, indicate how many records were excluded by a human and how many were excluded by automation tools.

3.1 Use of Negative *Language or Non-PLF*

In 2017, ADA and ADCES recommended that positive language be used when communicating with and speaking about people with diabetes, particularly PFL. Table 2 consists of illustrates institution publication characteristics from which the senior author was employed. A total of 41.94% of publications were from academic setting of medical schools, followed by the general academic setting, and lastly, nursing schools.

Among all the authors, table 3 illustrates the types of credentials the author holds. Medical doctors (MD) were categorized in one group; academic doctors (Ph.D.), pharmacists, nurse practitioners (NP), and Master of Arts (MA) were all categorized in their individualized groups. If the senior author held additional degrees or certifications, they were separated into another group that held their initial degree plus the other degree or certification (e.g., MD + additional degree and/or certification). These individuals were divided into another category because they earned additional degrees and certifications that can contribute to lifelong learning. Lifelong learning allows the individual to maintain a knowledge base that can expand with the maintenance of certifications or multiple acquired degrees (McAdams & McNally, 2021).

Eleven categories were created for Table 3: MA, MD, MD + additional degrees and/ or certification, PhD, PhD + additional degrees and/ or certification, Pharmacists, Pharmacists + additional degrees and/ or certification, NP, NP + additional degrees and/ or certification, PhD with CDCES, RN + additional degrees and/ or certification with CDCES. The overall highest credential that was held was a PhD, 35.48% of the authors identified held that credential, followed by PhD with an additional degree and/or certification, and finally, MD with additional degree or certification.

Table 4: Use of Non-Person First Language at least once				
	Diabetic % (n)	Complaint/ compliance % (n)	Control/ controlling/ controlled % (n)	Adhere/ adherence/ adherent % (n)
The overall use of non-Person First Language n= 62	17.74(11)	16.13 (10)	93.55 (58)	70.97 (44)

The use of negative language and non-PFL is illustrated in table 4. Overall, 17.74% of the articles used the term 'diabetic,' 16.13% used 'compliance'/'compliant', 93.55% used 'control'/'controlling'/'controlled', and 70.97% used 'adhere'/'adherence'/'adherent'. When conducting the word search for the control, the terms 'randomized control', 'control group,' and 'controlled study' were not included in the count because they dealt with study design and did not pertain to the aim of the systematic review. In addition, compliance was not included in the count when the context of the sentence dealt with the study protocol.

When looking at the senior author and their use of problematic terms at least once, table 5 illustrates that out of 22 articles written by individuals with PhD's, 95.45% of them used the term 'control' in their writing. PhD's with additional degrees and/or certifications, 100% out of the 12 identified used the problematic term 'control' once within the article. Among MD's with additional degrees or certifications, ten articles were identified, and of those ten, 90% of the authors wrote the problematic term 'control' at least once within the article. Moreover, two certified diabetes care and education specialists (CDCES) were identified; one held a registered nursing degree with the CDCES certification, and the other was a PhD with a CDCES. Both individuals used 'control' and 'adherence' at least once in their published articles.

Upon looking at organizations and institutions of the senior author and usage of problematic terms, table 6, 92.31% of authors within the academic setting of medical schools; used the problematic term 'control' at least one time in their article. Authors employed in the general academic setting were seen with 94.12% of authors using the problematic term 'control' in

published works. Finally, there were nine authors employed in the setting of clinics and/or hospital settings; of those nine, 88.98% used the term 'control' within their articles.

Finally, the total number of articles used in this systematic review consisted of 62 articles. Of those 62 articles identified, only 22 of the articles (35.48%) listed a Hispanic sample population. Of the 22 articles with a Hispanic population, only 5 (22.73%) had a Hispanic population over 50% or more.

Chapter 4 Discussion

In literature specific to diabetes patient care and management, between 2018 through 2020, this review showed that among researchers that use stigmatizing language, there has been a change in the use of the problematic terms 'diabetic' and 'compliant;' but illustrated those terms such as 'control' and 'adhere' are prominently used. Overwhelmingly, in each analysis, 'control' and 'adhere' were the top terms used across all professions and institutions. In the setting of medical schools, nursing schools, and general academia, there was the consistent use of the problematic term 'control,' table 6. These institutions are teaching the next generations of clinicians, nurses, and researchers how to speak and interact with people with diabetes. Qualitative studies have shown that negative stigma from providers has left them feeling defeated (Browne et al., 2014). Instead of using the term 'control,' it is recommended that 'manage' be used instead because the body is no longer functioning the way it was designed to, and 'controlling' it can become difficult for the person with diabetes (Dickinson et al., 2017).

Moreover, in reviewing the literature, it was noted that "glycemic control" was used often. In this instance, it is recommended that words used to address this issue should be neutral and focused on physiology and biology (Dickinson et al., 2017). Using terms such as 'adhere' in diabetes care can cause an individual to think that they are being ordered to complete a task. Furthermore, this can lead to communication issues such as health literacy. It has been shown that low health literacy can lead to worse health outcomes (Dunleavy, 2021).

Upon looking at the senior author and their credentials, the top three were PhD, PhD with an additional degree and/or certification, and MD with an additional degree and/or certification. These top three groups of individuals are shaping future healthcare professionals, table 5. Looking at individuals that might have contact with patients such as MD's, NP's, Pharmacist, and RN's, a majority of them used the term 'control' at least once, followed by 'adherence.' Using blaming and commanding language can lead to a patient to feel alone and disengage from their diabetes care. In a study by Kato et al., (2016), a patient realized that they could manage their diabetes

because their doctor normalized diabetes by placing his insulin pen in his chest. Such small actions can empower a patient to believe that they too can manage their disease and will activate them in their diabetes management.

4.1 Hispanic/Latino

In the sample used for this systematic review, Hispanics/Latinos (H/L) were overwhelmingly underrepresented in the articles selected. Diabetes is a chronic non-communicable disease that affects many Hispanics, 12.5% and 14.4% with Mexican backgrounds (CDC, 2020). When it comes to the HL community, there have been studies showing that there are numerous barriers that this community must overcome to receive adequate healthcare; this includes low annual income, low education levels, different cultural beliefs, and having a foreign primary language than English (Hu et al., 2013). These barriers can cause people of HL descent to become frustrated and become overwhelmed with their diabetes care. Patient-centered communication essentialant for ethnic/racial minority groups such as HL. The quality of care for ethnic minority groups is often inferior than non-Hispanic whites (Freeman & Payne, 2000). Marginalized groups are often stigmatized and experience prejudices or discrimination; thus, added negative language from an authority figure (i.e., health professionals) discourages patient engagement in self-care. Using PFL for Hispanics is a cultural competency approach as it involves empowering language for groups that are often disempowered (Bole, 2022).

Furthermore, it has been shown that when there is a language barrier between HL patients and their healthcare provider, there is a possibility of less management of the patient's diabetes (Fernandez et al., 2011). In addition to the language barrier, low health literacy must be considered when dealing with the HL population. A subgroup of the HL population consists of immigrant HL. A study by Bacerra et al. (2017) illustrated that individuals from this group experience low health literacy, which can cause worse health outcomes.

4.2 Strengths

The strength of this systematic review is that this research was not identified by the author of this thesis. Much literature looks at patient-centered care and communication, but many do not look at PFL as well. In addition, the main strength of a systematic review is that it focuses on a narrowed down, specific question. Furthermore, there is a comprehensive search of the literature in the selected databases. When explicitly using PRISMA, there is a set checklist to follow. A systematic review is replicable and identifies a specific topic.

Finally, a strength of this systematic review was that an exponential amount of diabetes research is being conducted and allowed the ability to search many articles. Moreover, this is not the typical systematic review. It is common for systematic reviews to review the research conducted, but this systematic review reviewed the researchers.

4.3 Limitations

There are many limitations to a systematic review, but a specific one related to this topic is that only literature, the written word, was able to be analyzed. This systematic review could not examine clinical settings, where the patients attend to their diabetes care. There is literature that has noted that when it comes to the student in the academic setting, they are using PFL, but once out in real-life clinical settings, PFL is non-existent (Crocker & Smith, 2019). Because this is a systematic review, only written words can be analyzed, not real-life settings. Furthermore, only authors that contributed to researcher were used, leaving a vast population of clinicians unanalyzed.

A limitation specific to this systematic review is that the criteria for manuscript publication were not reviewed and considered. There is the possibility that the publishing journal does not require that authors use PFL or strength-based language when submitting. Finally, this review only looked at literature published from 2018-2020, thus only allowing for two years for the recommended changes to take effect from when the ADA and ADCES published their

recommendations. This might not have given researchers enough time to incorporate this change into their writing and publications.

General limitations with systematic reviews are that the databases used are self-selected by the author, though many can be used. Another limitation to systematic reviews is that they are not generalizable.

4.4 Implications for Public Health practice

Language matters, and this review has laid the groundwork for future research to examine the use of PFL quantitatively. Much of the research conducted within the United States consists of qualitative research exploring PFL and strength-based language. Though this systematic review has shown that there is a change from identity-first language to PFL there is still a lack in the use of strength-based language within diabetes care.

Advocacy to push for PFL and strength-based language can assist in the change of diabetes language in diabetes care. Diabetes is a chronic disease that has affected more than 37.3 million people across the United States (Centers for Disease Control and Prevention (CDC), 2020). All avenues must be taken to curb this disease from affecting many more individuals. Many of the senior authors identified in this systematic review were individuals that hold positions that can influence the future generations of healthcare workers, and they must serve as the example of moving towards empowering, patient-centered language.

Furthermore, people with diabetes must be empowered and encouraged to advocate for themselves. Crocker and Smith (2019) noted that students are taught to use PFL and strength-based language, but once entering the healthcare field, they revert to using identity-first language due to practitioners that have been in the field for numerous years using identity-first language. Thus, new healthcare workers must empower their patients to advocate for themselves. They need to be shown that diabetes does not define them. With the right tools, they can manage the disease and avoid any complications that are associated with the disease.

Chapter 5 Conclusion

In the literature pertaining to diabetes care and research, progress has been made when moving from the terms 'diabetic' to 'person with diabetes'. In addition, there has been a change from 'compliant', but there is still more work to be conducted. Terms such as 'control' and 'adhere' are highly used across all studies. For a person with diabetes to participate in the management of diabetes, there must be mutual respect between the provider and the patient. The use of blaming language will not earn that mutual trust and will not motivate patients to partake in their diabetes care. Diabetes is a complex disease, and a combined team effort must be orchestrated to combat this disease.

MPH Program Foundational Competencies

- A. Evidence-based Approaches to Public Health
 - 2. Select quantitative and qualitative data collection methods appropriate for a given public health context
 - 3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate
 - 4. Interpret results of data analysis for public health research, policy or practice
- C. Planning & Management to Promote Health
 - 8. Apply awareness of cultural values and practices to the design or implementation of public health policies or programs
- D. Policy in Public Health
 - 14. Advocate for political, social or economic policies and programs that will improve health in diverse populations
- F. Communication
 - 18. Select communication strategies for different audiences and sectors
 - 19. Communicate audience-appropriate public health content, both in writing and through oral presentation
 - 20. Describe the importance of cultural competence in communicating public health content

MPH Program Hispanic and Border Health Concentration Competencies

1. State the principles of prevention and control of disease, and discuss how these can be modified to accommodate cultural values and practices in Hispanic and border communities.
5. Distinguish health differences from health disparities on the US/Mexico border, and using the Toolkit for Community Action (National Partnership for Action to End Health Disparities) develop action plans for community prevention and intervention.

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Appendix

Table 1: Article Characteristics

Publication Year	Credentials	Institution	Objective and study sample population
2018	CNP	Departments of Endocrinology Mayo Clinic, Rochester, Minnesota	Decrease the percentage of patients with a hemoglobin A1c (HbA1c) more than 8%: Sample: <i>Show</i> : n= 81, <i>No-show</i> : n= 20
2018	DNP, RN, FNP-BC, NEA-BC	Director of Nursing, White Plains Hospital, White Plains, NY	How providing an online, multi- media self-management program affects patient engagement and self-reported medication adherence scores within 4–6 weeks compared with preprogram scores. Sample: <i>n= 14</i>
2018	MD	Children's Hospital of Philadelphia and Perelman School of Medicine at the University of Pennsylvania, Philadelphia, PA	To assess the association of proxies of behavioral adherence to the TODAY lifestyle program with changes in glycemic control and obesity in a multi-ethnic sample of youth with type 2 diabetes. Sample: n= 234, 36.8% Non-Hispanic Black, 3.68% Hispanic, Non-Hispanic White 19.6%, Other 6.8%
2018	MD, MPH	Department of Psychiatry and Behavioral Sciences, University of Washington, Seattle	This study aimed to evaluate the feasibility, acceptability, and preliminary effectiveness (compared with usual care) of a collaborative care model to treat community mental health center (CMHC) patients with psychosis and poorly controlled diabetes. Sample: n= 35
2018	MD, MPH	Division of General Internal Medicine, Massachusetts General Hospital, Diabetes Population Health Research	To explore the patient perspective on coordinated multidisciplinary diabetes team care among a socioeconomically diverse group of adults with type 2 diabetes.

		Unit, Massachusetts General Hospital, Boston, MA Harvard Medical School, Boston, MA	Sample: N= 53, 70% Non- Hispanic White, 15% Non-Hispanic Black, 11% Hispanic, 4% Asian/ Other/ Multi
2018	MD, MPH	Morehouse School of Medicine, Atlanta, Georgia	Studied 240 patients with diabetes in primary care practices and a church community in metropolitan Atlanta. Sample: n= 138, Black 134 (97%), Other 4 (2.9%)
2018	MD, MS	Indiana University School of Medicine, Department of Pediatrics, Indianapolis, IN	The objective of this research was to compare three strategies for improving SMBG and diabetes self-care in the short-term (6-months). These strategies were: (1) a HIT-enhanced blood glucose meter that both shared blood glucose data among patients, their parent, and health care providers, and allowed for text messaging; (2) family-centered goal setting; and (3) a combination of (1) and (2). Sample: <i>HIT-enhances SMBG</i> : n=33 (34%), Asian 0 (0%), Black 3 (9.1%), White 29 (87.9%), More than one race 0 (0%), Hispanic or Latino 1 (3%) <i>Family-Centered Goal Setting</i> : n=33 (34%), Asian 1 (3%), Black 2 (6.1%), White 28 (84.9%), More than one race 1 (3%), Hispanic or Latino 1 (3%) <i>Combined Approach</i> : n=31 (32%), Asian 0 (0%), Black 3 (9.7%), White 23 (74.2%), More than one race 2 (6.4%), Hispanic or Latino 3 (9.7%)
2018	MD, MS, MPH	Department of Emergency Medicine, Keck School of Medicine of the University of Southern California, Los Angeles, CA.	Conduct and analyze a randomized controlled feasibility trial to determine the acceptability, feasibility, and efficacy of a novel social support module integrated into an existing mHealth intervention for low-income Latinos with diabetes. Sample: <i>Intervention</i> : n= 22, Non- Latino White 1 (5%), Latino 17 (77%), African American 1 (5%), Asian 1 (5%), Other 2 (9%); <i>Control</i> : n= 22, Non- Latino White 1 (5%), Latino 18 (82%), African American 2 (9%), Asian 1 (5%), Other 0 (0%)
2018	MPH, PhD	University of Michigan School of Medicine, Department of Learning Health Sciences, Ann Arbor, MI	To evaluate the effectiveness of a peer leader-led (PL) diabetes self-management support (DSMS) group in achieving and maintaining improvements in A1C, self-monitoring of blood glucose (SMBG), and diabetes distress in individuals with diabetes.

			Sample: n= 221, White 96.8% (213)
2018	Pharm D, BCACP,	Kaiser Permanente Downey Medical Center, Downey, California.	<p>To evaluate the effect of a pharmacist-managed program within a primary care setting by determining the percentage of patients who reached the HEDIS goal of hemoglobin A1c (A1c) < 8.0%, the time needed to reach this goal, and A1c reduction in patients with type 2 diabetes.</p> <p><i>Sample:</i> Unmatched cohort- Complete Care Program: n= 1,023, Hispanic 672 (65.69%), Black 106 (10.36%), Asian/Pacific Islander 49 (4.79%), White 130 (12.71%), Other/ Unknown 66 (6.45%), Usual Care: n= 4,148, Hispanic 2,313 (55.76%), Black 533 (12.85%), Asian/Pacific Islander 416 (10.03%), White 632 (15.24%), Other/ Unknown 254 (6.12%), Matched cohort- Complete Care Program: n= 980, Hispanic 636 (64.90%), Black 104 (10.61%), Asian/Pacific Islander 48 (4.90%), White 127 (12.96%), Other/ Unknown 65 (6.63%), Usual Care: n= 980, Hispanic 615 (62.76%), Black 115 (11.73%), Asian/Pacific Islander 54 (5.51%), White 119 (12.14%), Other/ Unknown 77 (7.86%) <i>Usual care:</i> n= 31, Non- white or Hispanic 1 (3%), White non-Hispanic 30 (98%), <i>WebRx:</i> n= 30, Non- white or Hispanic 1 (3%), White non-Hispanic 29 (97%)</p>
2018	PhD	Center for Technology and Behavioral Health, Geisel School of Medicine at Dartmouth, Lebanon, NH	To conduct an unblinded pilot randomized controlled parallel-group study of a web-delivered multicomponent intervention targeting self-monitoring of blood glucose, working memory, and parent supervision of diabetes care among adolescents with type 1 diabetes.
2018	PhD	Center for Translational Science, Children's National Health System, and The George Washington University School of Medicine & Health Sciences, Washington, DC	<p>This study reports the feasibility and acceptability of a healthy eating and physical-activity-focused behavioral intervention for parents of young children with type 1 diabetes (T1D).</p> <p>Sample: n= 10, White non- Hispanic 5 (50%)</p>
2018	PhD	Department of Biomedical Informatics, University of Utah, Salt Lake City, Utah	<p>The article aims to use a patient-centered approach to design iDECIDE, a smartphone application that gathers daily diabetes SMBs and CTs related to meal and alcohol intake and exercise in real-time, and contrast patients' actual behaviors against those self-reported with the app.</p>

			Sample: n= 13
2018	PhD	Department of Family Medicine, Ohio University Heritage College of Osteopathic Medicine, Athens, OH	The purpose of this study was to conduct a qualitative process evaluation of a patient navigation program for diabetes after its first year of implementation. Sample: n= 17, White 16 (94.1%), Mixed 1 (5.9%)
2018	PhD	Department of Internal Medicine, Wake Forest School of Medicine	Examine cross-sectional relationships between dispositional mindfulness and diabetes self-care behaviors (i.e., medication adherence, diet and exercise behavior, and self-monitoring of blood glucose; SMBG), hemoglobin A1c (HbA1c, %), and body mass index (BMI; continuously and obese vs. not). Sample: N= 148, Non-Hispanic white 113 (76%), Non-Hispanic black 23 (16%), Other 12 (8%)
2018	PhD	Department of Pediatrics, Stanford University School of Medicine, Stanford, CA	The aim is to report 1-year outcomes of the Supporting Teens Problem Solving (STePS) study, a randomized controlled trial comparing a distress and depression prevention program with a diabetes education program for adolescents with type 1 diabetes. Sample: N= 264, White 173(65.5%), African American 38 (14.4%), Hispanic 29 (11%), Asian or Pacific Islander 6 (2.3%), Native American 3 (1.1%), other 15 (5.7%)
2018	PhD	Department of Psychology, University of Maryland, College Park, Maryland,	The aim of this study was to address a gap in the mHealth and health psychology literatures by investigating how individual differences in psychological traits are associated with mHealth effectiveness. Sample: n= 27
2018	PhD	Department of Surgery, Division of Ophthalmology, Children's Hospital Los Angeles, Keck School of Medicine, University	Determine whether an innovative shared telemedicine appointment care model (CoYoT1 Clinic) for young adults with T1D improves care engagement, satisfaction, and adherence to American Diabetes Association (ADA) guidelines regarding appointment frequency.

		of Southern California, Los Angeles, California.	Sample: <i>Intervention</i> : n= 42, Latino 3 (7%), Not Latino 36 (86%), Unknown 3 (7%), <i>Control</i> : Latino 5 (13%), Not Latino 31 (79%), Unknown 3 (8%)
2018	PhD	Vanderbilt University Medical Center, Nashville, Tennessee	randomized pilot study investigating the effects of a positive psychology intervention on diabetes out- comes with 48 adolescents and their caregivers. Sample: n= 48, White Non- Hispanic 39 (81.2%), Other 9 (18.8%)
2018	PhD, CDCES	Cincinnati Children's Hospital Medical Center, University of Cincinnati Medical School	This paper details FLEX design, demographic characteristics of the sample, and outcome variables at baseline. Sample: n= 258, Non-Hispanic (NH) White 200 (77.5%), Hispanic 33 (12.8%), NH Black/African American 11 (4.3%) NH Multiracial/ Other 14 (5.4%)
2018	RPh, PhD	Department of Epidemiology and Biostatistics, College of Public Health, University of South Florida	To evaluate changes in HbA1c, blood pressure, and LDLc levels in participants from practices where certified diabetes educators (CDEs) implemented standardized protocols to intensify treatment compared with those receiving usual care. Sample: <i>Intervention</i> : N= 175, Missing 5 (2.86%), White 134 (76.57%), Black 28 (16%), Other 8 (4.57%), Missing 5 (2.86%), <i>Usual care</i> : N= 65, Missing 2 (3.08%), White 60 (92.31%), Black 3 (4.62%), Other 0 (0%), Missing 2 (3.08%)
2019	APRN, CNS-BC	Capstone College of Nursing, University of Alabama, Tuscaloosa, Alabama	To provide a comprehensive evaluation of a grant-funded pilot diabetescare program. Sample: n= 59, Black 24 (40.68), White 33 (55.93%), Hispanic 2 (3.39%)
2019	DNP, MSN, RN	The University of Alabama in Huntsville	Provide health coaching to patients with a primary or secondary diagnosis of Type 2 diabetes mellitus (T2DM) to increase self-management skills and reduce 30-day readmissions. Sample: N= 20
2019	MA	University of Kansas	The current study aimed to develop an online platform to provide educational material in the form of video microlectures using an iterative, user-centered design process

			Sample: n= 22
2019	MD	Department of Pediatrics, Medical College of Wisconsin/Children's Hospital of Wisconsin, Milwaukee, Wisconsin	To assess an intervention that tailored delivery of self-management resources to families' specific self-management barriers. Sample: n= 214
2019	MD, FACS	MedStar Health Research Institute, Hyattsville, Maryland	Designed and implemented a pragmatic evidence-based DCM intervention—the Diabetes Boot Camp—for patients being managed in primary care settings. Sample: N= 732, White 102 (14%), African American 280 (79%), Hispanic 8 (1%)
2019	MD, MPA	Department of Internal Medicine, University of Michigan, Ann Arbor, Michigan	This study's purpose is to examine whether a peer coaching intervention is more effective in improving clinical outcomes in diabetes when enhanced with e-Health educational tools than peer coaching alone. Sample: <i>Peer Support only</i> : n= 144, African American 89(61.8%), White 53(36.8%), other 2 (1.4%), <i>Peer + iDecide</i> : n= 146, African American 92(63.4%), White 53 (36.6%), other 0 (0%)
2019	MD, MPH	Department of Medicine, University of Chicago, Chicago, IL.	Objective of this study was to assess the acceptability, feasibility, and perceived utility of photovoice in a diabetes self-management intervention for Latinos. Sample: n= 50
2019	MD, MS	Morehouse School of Medicine, Department of Medicine and Clinical Research Center; Atlanta, Georgia	Describe the implementa- tion, clinical outcomes and participant perspectives for e-Healthstrides©. Sample: N= 264
2019	Pharm D, BCACP, BCPS	VA Tennessee Valley Healthcare System, Murfreesboro, TN	To evaluate whether clinical pharmacy specialist (CPS) services delivered using clinical video telehealth (CVT) is consistent with CPS services via face-to-face (FTF) visits in a cohort of patients with poorly controlled type 2 diabetes mellitus. In addition, the study aimed to evaluate the potential benefits for the patient with implementation of CVT services.

			Sample: Face-to-face 2013 group: N= 51, White 42 (82%), African American 8 (16%), Other 1 (2%), Face-to-face 2014 group: N= 31, White 25 (81%), African American 4 (13%), Other 2 (6%), CVT 2014 group: N= 21, White 18 (86%), African American 3 (14%), Other 0 (0%)
2019	PharmD, PhD	Department of Medicine, Center for Healthcare Delivery Sciences, Brigham and Women's Hospital, Harvard Medical School, Boston, Massachusetts	To evaluate whether delivering more intensive insulin-adherence interventions only to individuals with type 2 diabetes predicted to benefit most was more effective than delivering a lower-intensity intervention to a larger group of unselected individuals. Sample: <i>Arm 1:</i> n= 2000, <i>Arm 2:</i> n= 2000
2019	PhD	Baylor College of Medicine and Texas Children's Hospital	This pilot study tested the feasibility, acceptability, and preliminary outcomes of a brief, strengths-based behavioral intervention for adolescents with type 1 diabetes. Sample: n= 63
2019	PhD	Department of Family Medicine and Public Health Sciences, Wayne State University	To adapt an evidence-based intervention targeting diabetes management in adolescents with poorly controlled type 1 diabetes for use in a community setting by community health workers (CHWs) and to conduct pilot testing of the new intervention, REACH for Control (RFC). Sample: N= 47, African American/Black 79%, White/ Caucasian 17%, Other 4%
2019	PhD	Fay W. Boozman College of Public Health, University of Arkansas for Medical Sciences, Little Rock, AR	Assess the effect of Family Diabetes Self-Management Education (DSME) intervention on changes in self-care behaviors among Marshallese adults with type 2 diabetes. Sample: <i>Overall:</i> N= 221
2019	PhD	Geisel School of Medicine at Dartmouth, Lebanon, NH	This was the first study to investigate if problems with executive function were associated with greater somatic problems independent of poor adherence and metabolic control in a sample of adolescents with type 1 diabetes and above target glycemic control.

			Sample: n= 93, White, 96%
2019	PhD	Oregon State University, College of Public Health and Human Sciences, Corvallis, Oregon	The purpose of this study was to design a culturally sensitive dyad-level diabetes intervention to improve glyce- mic control for older Latino adults with type 2 diabetes. Sample: N= 32
2019	PhD	Psychiatry & Human Behavior, Alpert Medical School of Brown University, The Miriam Hospital, Providence, RI	This study: Healthy Active and in Control (HA1C), examined the feasibility and acceptability of yoga as a complementary therapy for adults with Type-2 Diabetes (T2DM). Sample: N= 48, Hispanic 4 (8.3%), Non- Hispanic White 35 (72.9%)
2019	PhD	Texas A&M AgriLife Extension Service, College Station, TX	The study purposes were to 1) explore the impact of a culturally tailored DSME/S intervention on psychological distress and diabetes-related outcomes among African-American and Hispanic/Latino participants and 2) examine differences across groups in self-care, self-efficacy, diabetes knowledge, and psychological distress. Sample: African Americans n= 122, Hispanic/Latino n= 137
2019	PhD	Yale University	The purpose of this study was to evaluate the feasibility and safety of a group MVPA intervention for adolescents with type 1 diabetes that included their parents and peers and to estimate the probable magnitude of the pre-post effect on MVPA and other exploratory outcomes (nutritional, psychosocial, clinical, and fitness) pertinent to self-management of type 1 diabetes. Sample: n= 18, Lation 7 (39%), African American 5 (28%), White 5 (28%), Asian 1 (6%)
2019	PhD, OTR/L, CDCES, FAOTA	University of Sothern California	To report on the implementation and preliminary clinical outcomes of a Lifestyle Redesign® (LR)-occupational therapy (LR-OT) diabetes management intervention in a primary care clinic. Sample: N= 73, Hispanic 56 (77%), Non- Hispanic 14 (19%), Unknown 3 (4%)

2019	PhD, PharmD	Center for Healthcare Delivery Sciences (C4HDS), Department of Medicine, Brigham and Women's Hospital and Harvard Medical School, Boston, Massachusetts	Evaluate the impact of a telephone-based patient-centered intervention on glycosylated hemoglobin (HbA1c) control for individuals with poorly-controlled diabetes. Sample: n= 1400
2019	PhD, RN	Betty Irene Moore School of Nursing, University of California Davis, Sacramento	Success in diabetes research and self-management is often defined as a significant decrease in glycated hemoglobin (A1C). The aim of this article is to explore different types of successes experienced by adults with type-2 diabetes participating in a health technology and nurse coaching clinical trial. Sample: n= 132, White 60%, African American 15%, Hispanic 16%, Asian 9%
2019	RN, MPH, CDE	University of Colorado Denver, School of Medicine, Barbara Davis Center for Childhood Diabetes	To describe the behavioral interventions developed for this study, including the results of a pilot test, and describe the methods and analysis plan to test this intervention strategy with ninety participants in a large-scale, randomized trial using a SMART design. Sample: n=19
2019	RPh	American Pharmacists Association Foundation, Washington, District of Columbia	The study was conducted to answer the question of whether augmented diabetes selfmanagement support with an economically vulnerable population addresses unmet needs and reduces morbidity and premature mortality Sample: N= 446, White 218 (48.9%), African American/ Black 98 (22%, Hispanic 115 (25.8%), Native American 12 (2.7%), Other 2 (0.4%), Not Specified 1 (0.2%)
2020	DNP, ARNP, FNP-C	AstraZeneca Medical Affairs, Zionsville, Indiana	The purpose of this project was to improve glycemic control and QOL of Medicare patients age 65 years and older with T2DM. Sample: n= 24

2020	DNP, RN, CPHMIS	Georgia Southern University, Savannah, GA	A pilot program using the Chronic Care Model framework was implemented to determine its effectiveness in improving clinical and self-management outcomes of high-risk patients with diabetes attending a free clinic for the uninsured. Sample: N= 13
2020	MD	Department of Family Medicine, Rutgers New Jersey Medical School, Newark, NJ	The project aimed to enhance patient care with the assistance of a nursing student in the role of case manager, without adding to the cost of the practice. Sample: <i>Intervention Group</i> : N= 58, <i>Control Group</i> N= 61
2020	MD	Center for Addiction Medicine, Department of Psychiatry, Massachusetts General Hospital	The purpose of this study was to evaluate a 16-week, reverse integrated care, behavioral and educational group intervention for individuals with serious mental illness and diabetes. Sample: n= 35
2020	MD	Division of Endocrinology, St. Louis VA Medical Service, St. Louis, Missouri	Conducted a randomized controlled trial of EpxDiabetes, a novel digital health intervention as an adjunct therapy to reduce HbA1c and fasting blood glucose (FBG) among patients with type 2 diabetes mellitus (T2DM). Sample: <i>Intervention group</i> : n= 33, Caucasian 6 (18%), African American 27 (82%) <i>Control group</i> : n= 32, Caucasian 2 (7%), African American 29 (93%)
2020	MD, MPH	Division of General Internal Medicine, Massachusetts General Hospital, Boston, MA	Understand elements of the program that worked well, and elements that could be improved, in order to foster greater clinical benefit and facilitate more widespread implementation. Sample: N= 20, Non- Hispanic White 13 (65%), Non- Hispanic Black, 4 (20%), Hispanic 3 (15%)
2020	PharmD	Department of Pharmacy Practice, University of Rhode Island, Kingston	Determine whether a pharmacist-led telehealth disease management program is better to usual care of nurse-led telehealth in improving diabetes medication adherence, haemoglobin A1C (A1C), and depression scores in patients with concomitant diabetes and depression.

			Sample: <i>Pharmacist-led telehelth: n= 15, Nurse-led telehealth: n= 15</i>
2020	PhD	College of Medicine, University of Arkansas for Medical Sciences Northwest, Fayetteville, AR	Examined the effect of hours of intervention exposure, with the hypothesis that increased exposure is one reason the Adapted-Family DSME was found to be more effective than the Standard DSME. Sample: <i>Adapted-Family DSME: N= 110, Standard DSME: N= 111</i>
2020	PhD	Department of Medicine, Vanderbilt University Medical Center, Nashville, TN	Examine user engagement in a 12-month text message–delivered intervention supporting diabetes self-care, called REACH (Rapid Education/Encouragement And Communications for Health), among racially and socioeconomically diverse patients with type 2 diabetes (T2D). Sample: N= 248, Non- Hispanic White 119 (48%), Non- Hispanic Black 97 (39.1%), Non- Hispanic other race(s) 17 (6.9%), Hispanic 15 (6%)
2020	PhD	Department of Public Health Sciences, Clemson University, Clemson, SC	The primary objective was to enhance patient activation and self-management of T2D using the US Department of Defense's Mobile Health Care Environment (MHCE) in a patient-centered medical home setting. Sample: n= 229, American Indina 2 (0.9%), Asian 17 (7.4%), Black 33 (14.4%), Native Hawaiian 16 (7%), Unknown/ unreported 18 (7.9%), White 143 (62.4%), Hispanic24 (10.5%)
2020	PhD	Division of Biostatistics, Department of Population Health, New York University School of Medicine, New York, NY	This study aimed to develop and pilot test an intervention that leverages BE with EHR technology to promote appropriate diabetes management in older adults. Sample: n= 10
2020	PhD	School of Nursing, Duke University, Durham, North Carolina	Examine the use of multiple mHealth technologies to generate and transmit data from diverse and underserved patients with T2DM to healthcare professionals in between clinic visits. Sample: n= 60, Black/ African American 36 (60%), White 21 (35%), Other or more than 1 race 3 (5%), Hispanic/ Latino 2 (3.33%)

2020	PhD, CHES, FASHA	Social & Behavioral Sciences, School of Public Health, West Virginia University	To examine the relationship between changes in participant's knowledge, beliefs, dietary behavior, diabetes selfmanagement and program outcomes in West Virginia Dinning with Diabetes (DWD) program. Sample: n= 2745, White 2587 (94.9%), Non white 139 (5.1%)
2020	PhD, MPH	Institute for Research and Education to Advance Community Health, College of Nursing, Washington State University, Seattle, WA	Evaluate implementation outcomes of a culturally adapted diabetes self-management education intervention delivered by peer educators to Native Hawaiians and Pacific Islanders residing in Honolulu, Hawai'i. Sample: N= 28
2020	PhD, MPH	Population Studies Center, University of Michigan Institutr for Social Research	The purpose of this study was to identify factors influencing participant engagement in a community-based Diabetes Self-Management Program (DSMP), with a focus on the needs of underserved groups (e.g., racial/ethnic minorities, low income). Sample: <i>Completers</i> : n= 10
2020	PhD, MSN	Section on Clinical, Behavioral, and Outcomes Research, Joslin Diabetes Center. Harvard Medical School. Boston/Massachusetts	Provide an overview of a robust Child Life program embedded within a multidisciplinary pediatric diabetes program, with a specific focus on types of interventions delivered and innovative programs. Sample: N= 702
2020	PhD, MSN, APRN-C	University of Missouri Sinclair School of Nursing, Columbia, MO	This secondary analysis examined the relationships between Patient Activation Measure (PAM) scores, use of health services, and HgA1c. Sample: N=48, African-American 90%,
2020	PhD, RN, FNP-C	University of California San Francisco, School of Nursing, San Francisco, California	Evaluate the effective- ness of ALDEA (Latinos con Diabetes en Acción), a Shared Medical Appointment (SMA) intervention, com- pared to usual primary care (UPC) for the treatment of adults with type 2 diabetes over a 6-month period.

			<p>Sample: Site 1 SMA: n= 29, Latinx 56.7%, African American 13.3%, American India/ Alaskan Native 3.3%, Asian 6.7%, White 20%, <i>Control:</i> n= 55, Latinx 44.8%, African American 10.3%, American India/ Alaskan Native 1.7%, Asian 10.3%, White 31%</p>
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			<p>Site 2 SMA: n= 18, Latinx 100%, <i>Control:</i> n= 37, Latinx 100%</p>
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Table 2: Institution publication characteristics	
Article institution type	% (n)
Academia- Medical School	41.94% (26)
Academia	27.42% (17)
Academia- Nursing School	14.52% (9)
Hospital/clinic	14.52% (9)
Research- Health Insurance	4.84% (3)
Association	1.61% (1)

Table 3: Author credentialing characteristics	
Credentials	% (n)
PhD	35.48% (22)
PhD + additional degree and/or certification	19.35 (12)
MD + additional degree and/or certification	16.13 (10)
Nurse Practitioner + additional degree and/or certification	8.06 (5)
MD	8.06 (5)
Pharmacist + additional degree and/or certification	3.23 (2)
Pharmacist	3.23 (2)
RN + additional degree with CDCES	1.61 (1)
Nurse Practitioner	1.61 (1)
MA	1.61 (1)
PhD with CDCES	1.61 (1)

Table 5: Use of problematic words at least once by author credentialing

Senior author credentials	Diabetic % (n)	Compliant % (n)	Control % (n)	Adherence % (n)
PhD n= 22	4.55 (1)	22.73 (5)	95.45(21)	86.36 (19)
PhD + additional degree and/or certification n= 12	16.67 (2)	8.33 (1)	100 (12)	58.33 (7)
MD + additional degree and/or certification n= 10	20 (2)	0 (0)	90 (9)	60 (6)
Nurse Practitioner + additional degree and/or certification n= 5	60 (3)	20 (1)	60 (3)	80 (4)
MD n= 5	20 (1)	40 (2)	100 (5)	60 (3)
Pharmacist + additional degree and/or certification n=2	50 (1)	50 (1)	100 (2)	50 (1)
Pharmacist n= 2	0 (0)	0 (0)	100 (2)	50 (1)
RN + additional degree with CDCES n=1	0 (0)	0 (0)	100 (1)	100 (1)
Nurse Practitioner n= 1	100 (1)	0 (0)	100 (1)	0 (0)
MA n= 1	0 (0)	0 (0)	100 (1)	100 (1)
PhD with CDCES n=1	0 (0)	0 (0)	100 (1)	100 (1)

Table 6: Organization and Institution of the Senior Author and usage of problematic terms				
	Diabetic % (n)	Complaint/ compliance % (n)	Control/ controlling/ controlled % (n)	Adhere/ adherence/ adherent % (n)
Academia- Medical School n= 26	15.38 (4)	15.38 (4)	92.31 (24)	73.08 (19)
Academia n= 17	5.88 (1)	23.53 (4)	94.12 (16)	88.24 (15)
Hospital/clinic n= 9	44.44 (4)	22.22 (2)	88.89 (8)	55.56 (5)
Academia- Nursing School n= 6	16.67 (1)	0 (0)	100 (6)	66.67 (4)
Research- Health Insurance n= 3	33.33 (1)	0 (0)	100 (3)	33.33 (1)
Association n= 1	0 (0)	0 (0)	100 (1)	0 (0)

Vita

Denise N. Portillo is a Master of Public Health graduate in the Department of Public Health Sciences at The University of Texas at El Paso (UTEP). She holds two bachelor's degrees; one in Kinesiology with a minor in Psychology, which she earned in May 2014, and the other in Health Promotion with a minor in Community Health that she earned in December 2018. Her interest in public health is diabetes. Her research interests include mental health, LGBTQ+ health, and policy. She currently holds a Graduate Research position with The Diabetes Garage®, is a Certified Health Education Specialist, and is President of Paso del Norte Society for Public Health Education.

Denise will be continuing her education at The University of Texas at El Paso Interdisciplinary Health Sciences PhD program in August 2022.