Characteristics associated with perceived level of confidence managing diabetes among United States adults with diabetes: A retrospective cross-sectional study

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Abstract

Objectives: Identifying characteristics associated with patients' confidence managing diabetes may aid the primary care provider in offering diabetes self-management education and support to patients. This analysis assessed the relationship between demographic, health, economic, access to care, satisfaction with care, and healthcare utilization characteristics with patients' confidence managing diabetes. **Methods:** United States adults with diabetes in the 2020 Medical Expenditure Panel Survey were included in this retrospective cross-sectional analysis. Characteristics related statistically to patients' confidence managing diabetes in multivariable logistic regression analysis were reported. **Results:** Among the 1,516 eligible individuals, 76.3% stated they were very confident/confident with their diabetes management. Adults who perceived their health positively (odds ratio 2.3, 95% confidence interval [CI] 1.3–3.9), completed ≥30 min moderate/vigorous exercise five times weekly (odds ratio 1.6, 95% CI 1.0–2.6), had at least one inpatient discharge in 2020 (odds ratio 3.5, 95% CI 1.5–8.1), said it was not difficult to telephone their usual provider (odds ratio 3.3, 95% CI 1.4–7.8), and had no emergency room visits in 2020 (odds ratio 2, 95% CI 1.1–3.3) had higher odds of stating they were very confident or confident with their diabetes management. **Conclusion:** The characteristics associated with being very confident/confident managing diabetes should be considered by primary healthcare physicians and other healthcare professionals when helping patients manage diabetes.

Keywords: Confidence, diabetes, self-management

Introduction

Type two diabetes mellitus is a prevalent metabolic disorder represented by persistent hyperglycemia consequently resulting in damage to the vasculature.[1] The proportion of United States adults with diabetes has more than doubled from approximately 5.3% (1976–1980) to 11.5% (2011–2014) and is projected to increase to 13% (more than 39 million people) in 2030.[2-4] Receiving appropriate diabetes care can help reduce the risk of diabetes-related complications.[5]

According to the 2019 National Ambulatory Care Survey, conducted by the Center for Disease Control and Prevention (CDC), one billion office visits occurred in 2019, with 50.3% of the visits made to primary care physicians. Diabetes continues to be one of the leading reasons for office visits in the United States.[6] Despite new therapies and approaches to

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managing diabetes, clinical goals continue to be difficult to meet (i.e., hemoglobin A1c).[7,8]

The annual American Diabetes Association *Standards of Care in Diabetes* offers healthcare providers and patients information on diabetes care, goals for treatment, and ways to assess care quality.[9] Beyond lifestyle modifications and pharmacologic approaches to glycemic treatment, the guidelines suggest using diabetes self-management education and support (DSMES), which can increase self-management of diabetes, patient satisfaction, and improve glucose outcomes.[10-15] DSMES is designed to help patients make informed decisions, promote self-care, facilitate solving problems, and supports collaboration between patients and providers to improve health outcomes and the cost-effectiveness of diabetes management.[16] DSMES interventions should be person-centered, address social determinants of health, and resolve barriers to DSMES using digital health solutions (such as telehealth). Traditionally, DSMES has been offered to patients via formal classes. More recently, a consensus report was released to provide guidance to primary healthcare providers to integrate DSMES into practice.[16] In both guidelines, healthcare professionals are encouraged to consider the patient's confidence for diabetes management when providing DSMES[10] Increased patient confidence in managing diabetes is related to improved patient outcomes. However, the literature does not discuss characteristics related to a person's confidence level for diabetes management.

An individuals' diabetes self-care behaviors, including how well they manage their glycemic control, can be influenced by their perceptions of diabetes and health status in general.[17] For instance, a person who believes their diabetes is outside their control is less likely to embrace behaviors and lifestyle choices to improve their diabetes than a person who strongly believes they can control their health. The relationship between patient characteristics and their perceived confidence level of diabetes management remains unknown. Being able to identify characteristics associated with confidence may provide the primary care provider with additional insight into items that can be addressed when providing DSMES to patients during an office visit. This analysis aimed to explore the relationship between the characteristics of United States adults with diabetes and their perceived confidence for diabetes management.

Methods

Data eligibility

Individuals in the 2020 Medical Expenditure Panel Survey dataset (N = 27,805) had to be at least eighteen years old, self-reported having diabetes, and not die within the study period for this analysis. Diabetes was defined from individual responses (yes or no) to an item that asked if they had ever been diagnosed with diabetes. This definition did not include gestational diabetes.[18-20] Medical Expenditure Panel Survey data are captured and compiled by Agency for Healthcare Research and Quality representatives with the same framework

for sampling utilized in the 2019 National Health Interview Survey. Interviews are performed to collect data in five panels over a timeframe of two-years. The household section is one aspect of the dataset that includes personal characteristics, health conditions and status, and health utilization and costs for everyone in the households sampled. Survey staff code this data and produce publicly available datasets. These datasets contain weighing variables that may be employed to obtain representative estimates of civilian community-dwelling individuals across the United States.[18-20]

Variables

Variables for this analysis were selected based on for their perceived applicability to this topic in the extant literature and classified into one of six categories. (1) Demographic characteristics included: age, sex, race, ethnicity, marital, and education status. (2) Health characteristics included: chronic conditions (from these options: arthritis, joint pain, asthma, chronic bronchitis, emphysema, coronary heart disease, other heart disease, angina, stroke, heart attack, high blood pressure, high cholesterol, and cancer), perceived health status, perceived mental health status, ≥30 min moderate/vigorous exercise five times weekly, smoker, and body mass index. (3) Economic characteristics included: employment status, income/poverty status, health insurance status, and food stamp use. (4) Access to care characteristics included: Usual care provider location, time taken to get to usual care provider, difficulty telephoning usual care provider, availability of evening and weekend office hours with usual care provider, and difficulty contacting usual care provider after hours. (5) Satisfaction with care characteristics included: Provider usually asks about prescription medications and treatments given by other providers, provider asks person to decide between treatment choices, and provider presents and explains all options. (6) Healthcare utilization variables included: Annual number of office-based visits, annual number of outpatient department visits, annual number of emergency room visits, and annual number of inpatient discharges.[19,20]

Outcome variable

The patient's level of confidence managing diabetes was the outcome variable, which was defined using an item that asked how confident the person was taking care of their diabetes and had response options of not confident at all, somewhat confident, confident, and very confident. For the purpose of this study, not confident at all and somewhat confident were merged into one category while confident and very confident were merged into another category for analysis.[19,20]

Statistical analysis

Statistical analysis utilized SAS programming (SAS Institute Inc., Cary, NC, USA). Cluster/strata variables were utilized appropriately for maintenance of the complex survey data structure, while the weighting variable was used to produce representative estimates across the United States with 95% confidence intervals (CI). The two groups (very confident/

confident and somewhat confident/not confident managing diabetes) were assessed by Chi-squared tests. Multivariable logistic regression models were utilized to report characteristics that had a statistical relationship with patient's confidence managing diabetes. The models assessed the very confident/confident status against the somewhat confident/not confident status. Model one included demographic characteristics, with subsequent models adding an additional set of characteristics (model two added health, model three added economic, model four added access to care, model five added satisfaction with care) until ultimately, model six included demographic, health, economic, access to care, satisfaction with care, and healthcare utilization characteristics. Correlation matrices and variance inflation factors were used to investigate collinearity (values <0.8 and <10 respectively were deemed acceptable). Collinearity was not apparent in the ultimate multivariable analysis. The significance level was 0.05. The University of Arizona Institutional Review Board reviewed and approved this analysis (protocol #00001876, September 27, 2022).

Results

In sum, 1,516 in United States adults with diabetes were included in this analysis. Among those, 1,159 individuals stated they were very confident or confident while 357 individuals reported being somewhat confident or not at all confident managing their diabetes. This represents a national estimate of 26,700,992 United States adults with diabetes. Among those, 76.3% (95% CI = 73.6–78.9%) stated they were very confident or confident and 23.7% (95% CI = 21.1–26.4%) stated they were somewhat confident or not at all confident managing their diabetes. Refer to Figure 1.

Among the demographic characteristics, the majority were aged 18–64, white race, non-Hispanic ethnicity, married, and had attained an education beyond high-school. There was an approximately equal proportion of males and females. Among the health characteristics, the majority had ≥2 chronic conditions, perceived their health and mental health as excellent/very good/good, did not do ≥30 min moderate/vigorous exercise five times weekly, were not smokers, and were overweight/obese. Among the economic characteristics, the majority were unemployed, had moderate/high income, had private health insurance, and did not use food stamps. Among the access to care characteristics, the majority received their usual care from an office setting, the time taken to get usual care was <15 min, it was not difficult to telephone their usual provider, and usual provider did not have

office hours in evenings or weekends. There was approximately equal split between all four levels of difficulty contacting usual provider after hours. Among the satisfaction with care characteristics, the majority reported the provider usually asks about prescription medications and treatments given by other providers, the provider always asks the person to choose their treatment, and the provider presents and explains all options. Among healthcare utilization characteristics, the majority had ≥1 annual office-based visit, and 0 annual outpatient dept visits, emergency room visits, and inpatient discharges. No statistical differences ($P > 0.05$) were noted between perceived level of confidence managing diabetes for all characteristics apart from race and exercise (both $P = 0.01$) and perceived health and mental health (both $P < 0.01$). Refer to Table 1.

Individuals had greater odds of stating their confidence managing diabetes if they perceived their health to be excellent/very good/good, participated in ≥30 min moderate/vigorous exercise five times weekly, and had more than one inpatient discharges annually. Individuals had lower odds of stating their confidence managing their diabetes if they reported it was very difficult to telephone their usual provider and had more than one emergency room visits annually. The c-statistic of the ultimate multivariable logistic regression analysis was 0.665. Refer to Table 2.

Discussion

Demographic characteristics

In this study, none of the demographic characteristics were statistically correlated with confidence managing diabetes. However, in descriptive analyses, there was a difference in race between those who were confident managing diabetes and those who reported being only somewhat or not confident managing diabetes. Several studies have shown that racial disparities in managing diabetes exist.[21,22] A study done by Oster *et al.*[23] evaluated racial differences in patient engagement for the self-management of diabetes. Compared to people that were White, minorities had lower utilization of preventative services and exhibited lower tendencies for diabetes self-management.[23] A more recent systematic review examined ethnic differences in patient adherence with diabetes treatments. The report showed that medication adherence differed by ethnicity when controlled for various characteristics.[24] Although further studies are needed to explain and understand why race affects self-management behaviors as it relates to diabetes, this study does support that race should be considered when developing DSMES for patients with diabetes.

Health characteristics

In this study, perceived health status was a significant characteristic of confidence in managing diabetes. Patients that perceived their health positively had increased odds of reporting confidence than those that rated their health status negatively. There are few studies that explore patients' perceived health status relative to control of diabetes. One study evaluated patients' perceptions
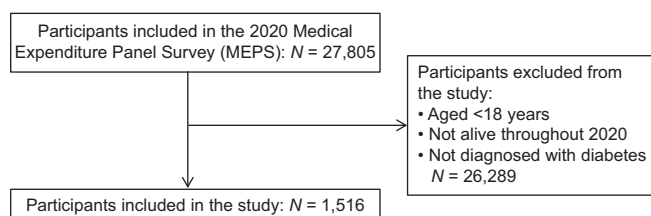
Figure 1: Participant selection process

Table 1: Characteristics of United States adults (≥18 years) with diabetes stratified by their perceived level of confidence managing diabetes (*n*=1,516)

Variables	Variables	Very confident/confident *n*=1,159 Weighted Percent (95% CI)	Somewhat/not confident *n*=357 Weighted Percent (95% CI)	P
Demographic characteristics:				
Age (years)	≥65	47.8 (44.3–51.3)	43.1 (36.8–49.4)	0.21
	18–64	52.2 (48.7–55.7)	56.9 (50.6–63.2)	
Sex	Male	51.3 (48.1–54.5)	47.8 (42.1–53.5)	0.29
	Female	48.7 (45.5–51.9)	52.2 (46.5–57.9)	
Race	White	71.3 (67.5–75.2)	79.8 (74.4–85.2)	0.01
	Other	28.7 (24.8–32.5)	20.2 (14.8–25.6)	
Ethnicity	Hispanic	15.8 (12.5–19.2)	20.5 (14.8–26.1)	0.08
	Non-Hispanic	84.2 (80.8–87.5)	79.5 (73.9–85.2)	
Marital status	Married	56.5 (52.5–60.5)	52.3 (45.1–59.4)	0.30
	Other	43.5 (39.5–47.5)	47.7 (40.6–54.9)	
Education status	Up to and including high school	47.1 (43.7–50.6)	47.7 (41.2–54.3)	0.88
	More than high school	52.9 (49.4–56.3)	52.3 (45.7–58.8)	
Health characteristics:				
Number of chronic conditions	≥2	81.9 (79.0–84.8)	81.3 (76.1–86.6)	0.86
	<2	18.1 (15.2–21.0)	18.7 (13.4–23.9)	
Perceived health status	Excellent/very good/good	73.9 (70.9–76.9)	56.8 (50.5–63.2)	<0.01
	Fair/poor	26.1 (23.1–29.1)	43.2 (36.8–49.5)	
Perceived mental health status	Excellent/very good/good	88.1 (85.3–90.8)	77.5 (72.4–82.6)	<0.01
	Fair/poor	11.9 (9.2–14.7)	22.5 (17.4–27.6)	
≥30 min moderate/vigorous exercise five times weekly	Yes	42.7 (39.0–46.5)	31.6 (25.6–37.6)	0.01
	No	57.3 (53.5–61.0)	68.4 (62.4–74.4)	
Smoker	Yes	11.1 (8.8–13.4)	14.3 (10.1–18.6)	0.14
	No	88.9 (86.6–91.2)	85.7 (81.4–89.9)	
Body mass index	Overweight/obese	84.6 (81.7–87.4)	86.8 (82.1–91.5)	0.44
	Underweight/normal	15.4 (12.6–18.3)	13.2 (8.5–17.9)	
Economic characteristics:				
Employment status	Employed	41.3 (37.9–44.8)	41.2 (35.2–47.2)	0.97
	Unemployed	58.7 (55.2–62.1)	58.8 (52.8–64.8)	
Income/poverty status	Poor/near poor/low	33.3 (29.7–37.0)	31.7 (25.8–37.6)	0.23
	Moderate/high	66.7 (63.0–70.3)	68.3 (62.4–74.2)	
Health insurance status	Private	53.0 (49.3–56.7)	51.1 (44.5–57.8)	0.21
	Public	44.4 (40.8–48.0)	43.8 (37.3–50.3)	
	Uninsured	2.6 (1.3–3.8)	5.1 (1.8–8.3)	
Food stamp use	Yes	15.4 (12.6–18.3)	19.7 (14.7–24.8)	0.09
	No	84.6 (81.7–87.4)	80.3 (75.2–85.3)	
Access to care:				
Usual source of care location	Office	70.9 (67.1–74.6)	67.4 (60.0–74.9)	0.40
	Hospital	29.1 (25.4–32.9)	32.6 (25.1–40.0)	
Time taken to get usual source of care (minutes)	<15	52.3 (48.5–56.2)	53.6 (46.7–60.5)	0.95
	15–30	35.9 (32.5–39.4)	34.8 (28.2–41.4)	
	≥31	11.7 (9.2–14.3)	11.6 (7.2–16.0)	
How difficult to contact usual source of care provider by telephone	Very difficult	4.9 (3.5–6.2)	8.3 (4.3–12.4)	0.30
	Somewhat difficult	13.3 (10.9–15.7)	15.3 (9.1–21.5)	
	Not too difficult	28.4 (25.0–31.8)	27.6 (20.6–34.6)	
	Not at all difficult	53.5 (49.9–57.0)	48.8 (41.5–56.1)	
Usual source of care had office hours in evenings and weekends	Yes	28.1 (23.8–32.3)	25.0 (18.2–31.8)	0.46
	No	71.9 (67.7–76.2)	75.0 (68.1–81.8)	
How difficult to contact usual source of care after hours	Very difficult	21.7 (17.8–25.7)	32.1 (23.7–40.6)	0.07
	Somewhat difficult	21.0 (16.8–25.1)	21.5 (14.3–28.7)	
	Not too difficult	25.9 (21.4–30.3)	22.7 (16.4–29.0)	
	Not at all difficult	31.4 (26.5–36.3)	23.7 (15.7–31.7)	

Contd...

Variables	Variables	Very confident/confident n=1,159 Weighted Percent (95% CI)	Somewhat/not confident n=357 Weighted Percent (95% CI)	P
Table 1: Contd...				
Satisfaction with care:				
Provider usually asks about prescription medications and treatments other doctors may give them	Yes	79.9 (76.7–83.1)	76.5 (70.3–82.7)	0.31
	No	20.1 (16.9–23.3)	23.5 (17.4–29.7)	
Provider asks person to help make decisions between choice of treatments	Never	9.3 (7.0–11.6)	13.2 (7.9–18.5)	0.05
	Sometimes	13.4 (10.4–16.3)	17.2 (11.8–22.7)	
	Usually	24.0 (20.8–27.2)	16.0 (11.2–20.8)	
	Always	53.4 (49.2–57.5)	53.6 (46.0–61.2)	
Provider presents and explains all options	Yes	96.5 (95.0–98.0)	96.4 (93.9–98.9)	0.95
	No	3.5 (2.0–5.0)	3.6 (1.1–6.1)	
Healthcare utilization:				
Annual number of office-based visits	≥1	91.3 (89.0–93.6)	93.2 (90.6–95.9)	0.26
	0	8.7 (6.4–11.0)	6.8 (4.1–9.4)	
Annual number of outpatient dept visits	≥1	38.9 (35.2–42.5)	35.9 (29.4–42.4)	0.42
	0	61.1 (57.5–64.8)	64.1 (57.6–70.6)	
Annual number of emergency room visits	≥1	19.0 (16.4–21.6)	24.3 (18.6–30.0)	0.06
	0	81.0 (78.4–83.6)	75.7 (70.0–81.4)	
Annual number of inpatient discharges	≥1	13.6 (11.3–15.8)	13.2 (8.4–18.0)	0.89
	0	86.4 (84.2–88.7)	86.8 (82.0–91.6)	

This analysis was based on an unweighted sample of 1,516 United States adults aged ≥18 years with diabetes alive for the full 2020 calendar year. Differences between groups were assessed using a Chi-square test. 95% CI=95% confidence interval

of health and control of diabetes in 623 patients.[25] The study found that perceptions of health were correlated with the patients' symptoms and emotions rather than hemoglobin A1c level.[25] In this study, the respondents that reported their health positively may be because they are not experiencing symptoms related to diabetes. If the patient is not feeling the symptoms from the diabetes, they may have increased confidence that they are managing their diabetes. Unfortunately, this may be a falsely elevated confidence as most patients will not feel symptoms from diabetes until complications from uncontrolled diabetes begins. Educating patients to understand the complications associated with diabetes and the role that blood glucose control has in perpetuating these complications may impact the patient's understanding of the disease and may change the health status perception, which may increase their willingness to control their blood glucose. Following the guidance set forth by the 2020 consensus report, patients that perceive their health positively, but may have uncontrolled diabetes, should be referred to a diabetes education specialist to provide further DSMES to the patient.[16]

Exercise was also a significant characteristic associated with confidence in managing diabetes. Those that reported ≥30 min moderate/vigorous exercise five times weekly at had more confidence in managing their diabetes. Diabetes self-management includes behavioral changes that include a healthier lifestyle. It has been well documented that adopting a balanced diet and exercising are critical to glycemic control for persons with diabetes.[26-28] This finding is consistent with DSMES recommendations to engage patients in behavioral changes that incorporate exercise into their routines.[29] During office visits, physicians should assess patients' desire to implement lifestyle changes. Patients that are interested in incorporating lifestyle changes should be provided with a structured intensive lifestyle intervention program.[30,31]

Economic characteristics

Interestingly, the economic characteristics did not have any statistical association with confidence managing diabetes. The authors expected this to be a significant finding as several historical studies have identified economic status, in the context of socioeconomic status (SES), as a cause of social inequalities in health.[32-34] There was no significant association between employment status, income status, health insurance status, and food stamp use. The lack of association between people with or without insurance may simply be due to less survey respondents that did not have health insurance. A systematic review, done in 2020, found it difficult to assess the impact of low socioeconomic status as it relates to complications from diabetes because there were limited studies available.[35] However, there was a relationship found between low SES increased risk for diabetes complications. Another study evaluated patient access to specialists based on SES. Patients with low SES had a lower probability of visiting specialists.[36] Physicians, that refer patients the endocrinology or DSMES, will need to ensure that patients are able to access and attend the appointments.

Access to care

Although most of the access to care characteristics evaluated were not statistically associated with confidence in managing diabetes, difficulty to contact a provider was found to be related to the perceived confidence level for diabetes management.

Table 2: Association of perceived level of confidence managing diabetes (very confident or confident versus somewhat confident or not confident) among United States adults (≥18 years) with diabetes

Variables	AOR (95% CI)
Demographic characteristics:	
Age (years) ≥65 vs. 18–64	1.1 (0.6–2.0)
Sex male vs. female	1.1 (0.7–1.7)
Race white vs. other	0.7 (0.4–1.3)
Ethnicity Hispanic vs. non-Hispanic	1.2 (0.6–2.6)
Marital status married vs. other	1.1 (0.6–1.8)
Education status up to and including high school vs. more than high school	1.2 (0.7–2.0)
Health characteristics:	
Number of chronic conditions ≥2 vs. <2	1.2 (0.5–2.6)
Perceived health status excellent/very good/good vs. fair/poor	2.3 (1.3–3.9)
Perceived mental health status excellent/very good/good vs. fair/poor	1.0 (0.5–2.0)
≥30 min moderate/vigorous exercise five times weekly yes vs. no	1.6 (1.0–2.6)
Smoker yes vs. no	0.8 (0.4–1.8)
Body mass index overweight/obese vs. underweight/normal	0.7 (0.3–1.5)
Economic characteristics:	
Employment status Employed vs. unemployed	1.2 (0.7–2.2)
Income/poverty status poor/near poor/low vs. moderate/high	1.4 (0.7–2.6)
Health insurance status private vs. uninsured	0.2 (0.1–2.5)
Health insurance status public vs. uninsured	0.2 (0.1–3.2)
Food stamp use yes vs. no	1.1 (0.5–2.4)
Access to care:	
Usual source of care location office vs. hospital	1.1 (0.7–1.9)
Time taken to get usual source of care (minutes) <15 vs ≥31	0.8 (0.4–1.8)
Time taken to get usual source of care (minutes) 15–30 vs. ≥31	1.3 (0.5–3.1)
How difficult to contact usual source of care provider by telephone very difficult vs. not at all difficult	0.3 (0.1–0.9)
How difficult to contact usual source of care provider by telephone somewhat difficult vs. not at all difficult	0.8 (0.4–1.9)
How difficult to contact usual source of care provider by telephone not too difficult vs. not at all difficult	0.7 (0.3–1.3)
Usual source of care had office hours in evenings and weekends yes vs. no	0.7 (0.4–1.3)
How difficult to contact usual source of care after hours very difficult vs. not at all difficult	0.9 (0.4–2.1)
How difficult to contact usual source of care after hours somewhat difficult vs. not at all difficult	0.8 (0.3–1.8)
How difficult to contact usual source of care after hours not too difficult vs. not at all difficult	0.8 (0.4–1.9)
Satisfaction with care:	
Provider usually asks about prescription medications and treatments other doctors may give them yes vs. no	1.4 (0.8–2.6)
Provider asks person to help make decisions between choice of treatments never vs. always	0.7 (0.3–1.6)
Provider asks person to help make decisions between choice of treatments sometimes vs. always	1.0 (0.5–2.0)
Provider asks person to help make decisions between choice of treatments usually vs. always	1.2 (0.6–2.4)
Provider presents and explains all options yes vs. no	1.1 (0.3–4.9)
Healthcare utilization:	
Annual number of office-based visits ≥1 vs. 0	1.1 (0.5–2.5)
Annual number of outpatient dept visits ≥1 vs. 0	0.9 (0.6–1.5)
Annual number of emergency room visits ≥1 vs. 0	0.5 (0.3–0.9)
Annual number of inpatient discharges ≥1 vs. 0	3.5 (1.5–8.1)

This analysis was based on an unweighted sample of 1,516 United States adults aged ≥18 years with diabetes alive for the full 2020 calendar year. AOR=adjusted odds ratio. 95% CI=95% confidence interval. Bold indicates statistical significance

Good collaboration and communication among patients and their providers leads to improved patient satisfaction, medication or treatment adherence, and health outcomes.[37] The coronavirus disease-2019 (COVID-19) pandemic disrupted this relationship. Several studies discuss challenges during COVID-19 that disrupted patient care.[38,39] A study that evaluated the effects of the pandemic, after one year, on self-management of diabetes found that patients required more diabetes support during the pandemic yet were unable to obtain the care needed.[40] Outpatient facilities mobilized healthcare providers to other high-pressure areas, which may have decreased providers available to respond to patient requests or inquiries. Patients' inability to contact a provider about obtaining a prescription refill or for a follow-up appointment may lead a patient to having decreased confidence managing diabetes. However, future work is necessary to assess relations between patients' ability to contact a provider with their perceived confidence level in managing diabetes. This study supports the inclusion of a system that responds promptly to patient's needs.

Satisfaction with care

Patients' satisfaction with care has been correlated with patients' willingness to abide by a medication regimen and manage their health condition. Satisfaction surveys are often sent out following patient care visits to enhance the patient experience. Interestingly, this study did not show that the patient's satisfaction with care is related to their confidence level for diabetes management. Patient satisfaction is considered as one of the performance measures related to healthcare quality. The literature surrounding the association between patient satisfaction and healthcare use, costs, and quality of care is conflicting.[41-44] This is most likely due to patient satisfaction being subjective and dependent on patient perceptions relative to their expectations. This study supports that patients' perceptions of their care may be unrelated to diabetes management and/or outcomes. However, physicians should continue to work closely with patients to create personalized care plans, which may increase patients' satisfaction with their care, and ultimately, with improved outcomes.

Healthcare utilization

Among the factors evaluated for healthcare utilization, emergency room visits and inpatient discharges were related to confidence with diabetes management. This study showed that those who had at least one emergency room or inpatient visit were less confident in managing diabetes compared to those who did not report any visits. There are several complications associated with uncontrolled diabetes that may require an emergency room visit or hospitalization.[45,46] Patients that require a higher level of care for their diabetes management may not feel confident that they are able to manage their diabetes. According to the 2020 consensus statement, in addition to referring the patient for formal DSMES, the physician should also be able to identify the factors that are aiding or impeding in improved diabetes management for the patient. The physician should discuss how these factors are affecting the patient's treatment and work with the patient to overcome them.[16]

Limitations

Utilizing self-reported Medical Expenditure Panel Survey data may have resulted in reporting errors due to recall bias. A temporal relationship cannot be determined from the retrospective, cross-sectional study design, rather only a statistical relationship. Additionally, diabetes management is subjective and can be interpreted differently from each individual. Lastly, the Medical Expenditure Panel Survey was collected during COVID-19. This could have resulted in alternate responses, depending on when the respondent to the survey. Despite the limitations, the large, nationally representative dataset provided by the Medical Expenditure Panel Survey allows for good external validity and generalizability for adults. Additionally, the survey did not capture a large cohort of patients that were uninsured. Characteristics that were not statistically significantly associated with perceived confidence should continue to be addressed by the healthcare practitioner until further studies are completed that encapsulate a broader population of patients that are uninsured.

The findings of this study provide characteristics and factors associated with perceived confidence in diabetes management among United States adults with diabetes. Although the practitioner should consider these factors when providing education to patients, further studies are needed to address the characteristics and factors found to increase patients' confidence in managing and, ultimately, improving their diabetes.

Conclusion

The analysis presented in this paper demonstrates patients' perceived health, participating in ≥30 min moderate/vigorous exercise five times weekly, inpatient discharges, emergency room visits, and ease contacting providers are statistically related to the confidence of patients as it related to their diabetes management. These factors ought to be taken into consideration by primary care physicians when helping patients with diabetes. Future studies are necessary to assess further characteristics associated with diabetes management confidence for adults with diabetes.

Conflicts of interest

There are no conflicts of interest.

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