

Assessing Willingness of Patients with Diabetes to Attend Pharmacist-Led Structured and Patient Specific Diabetes Self-Management Education

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Abstract

Background: The American Diabetes Association recommends that people with diabetes should participate in diabetes self-management education, however data shows that many patients do not attend educational classes.

Objectives: To examine the views of patients with diabetes who utilize services at an independent pharmacy in Richmond, Virginia regarding their (1) interest in attending diabetes self-management education and support (DSMES) services, (2) perceptions of a pharmacist leading DSMES services, (3) willingness to pay for DSMES services, and (4) relationship between self-reported diabetes management status with their willingness to attend DSMES services.

Methods: A qualitative survey was administered over five months to patients with diabetes at an independent community pharmacy in Richmond, VA. The survey included 35 questions in a mixed format of Likert scale, dichotomous, and fill in the blank. Survey data was analyzed using univariate, bivariate, and/or multivariate analysis using SAS 9.4.

Results: Twenty seven surveys were completed, 15% response rate. Patients were female (56.7%) with an average age of 69 ± 10.8 years. Caucasian race accounted for 90% of patients, 6.7% reported Black or African American, the remainder responded “other”. Patients agreed they were interested in attending individual virtual and in person DSMES sessions with a rate of 52% and 87%, respectively. When asked about the full service of 9 group sessions, 33% responded disagree and 30% reported agree. 52% of patients reported belief that pharmacists had the knowledge to lead sessions. When asked about willingness to pay, patients mostly selected the lowest cost option (\$25 – \$35).

Conclusion: Patients with diabetes are willing to participate in DSMES services and believe pharmacists can lead the sessions. It is important to continue to advocate for DSMES services so patients can understand the full benefits of the program and receive the best possible care.

Keywords: Surveys and Questionnaires, Diabetes Mellitus, Pharmaceutical Services

Background

Community based patient care services include risk assessments for falls, depression, asthma, tobacco cessation, contraceptive counseling and initiation, various disease state screenings, and chronic care management for a variety of diseases.¹ As community based pharmacists continue to enhance patient care services, it is important to evaluate what services are needed and their sustainability. Diabetes may be an optimal target because more than 30 million people in the United States have diabetes which is a chronic disease that requires daily self-management decisions and complex performances of care activities.²

Community based pharmacists may integrate patient care services into their practice through initiation of a diabetes self-management education and support (DSMES) services. Data has shown that people who receive diabetes education and support continuously, and at four crucial points in their lives (diagnosis, annually, new complication, transition of care) have better outcomes.³⁻⁵ Outcomes include improved A1C by as much as 1%, improved blood pressure and cholesterol, higher medication adherence, fewer or less severe diabetes – related complications, and decreased healthcare costs.^{3,5-8} DSMES services provide a foundation for patients with diabetes to navigate the daily decisions that are required of them with a goal to optimize their personal diabetes goals and health outcomes.³ Additionally, DSMES services are identified as one of the essential elements of comprehensive diabetes medical care.⁵

DSMES services consist of 10 total billable hours per patient in the first year enrolled in the program. The service consists of one 60 minute initial visit, and 9 one hour groups visits in the first year totaling 10 sessions. After the first year, there are an additional 2 hours of continuing education annually. For the

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initial visit, a one on one session is held to determine appropriate medical, family and social history, insurance information, health literacy, support systems, barriers to success, and personal goals. This visit examines a participants' ability to read nutritional labels and how participants prioritize their diabetes. Initial visits for a community based pharmacy model should be conducted by a pharmacist or any other licensed health care professional, however subsequent educational sessions may be conducted by a diabetes health educator. A pharmacy technician may take an additional certification course to qualify as a certified diabetes health educator. After this initial visit, an education plan is created for the participant to complete one or all of the 9 educational group sessions that include introduction to diabetes, healthy coping, healthy eating, being active, taking medications, monitoring, reducing risks, and problem solving.^{4,6,9-10} These 9 educational group sessions should be conducted in a space designed to maintain privacy.. The patient's primary health care provider has the ability to recommend that these group sessions be changed to one on one sessions. The medical reason must be documented through referral forms. This education plan is created by the licensed health care provider who conducted the initial meeting with input from the patient and their primary health care provider.⁹

DSMES services follow a structured program for accreditation that consists of 10 standards for best practices. Currently there are two organizations offering accreditation recognized by Medicare; the Association of Diabetes Care & Education Specialists (ADCES) and the American Diabetes Association (ADA). Both accrediting agencies contain pathways for pharmacists and community pharmacies to achieve accreditation. The main standards for accreditation are the same, but there have some minor differences in forms required. These standards include internal structure, stakeholder input, evaluation of population served, quality coordinator overseeing DSMES services, DSMES Team, curriculum, individualization, ongoing support, participant progress, and quality improvement. The curriculum must reflect current evidence and practice guidelines, with criteria for evaluating outcomes.^{9,10} The DSMES Team must have at least one member who is responsible for facilitating DSMES services. The requirements are registered nurse, registered dietitian/nutritionist, pharmacist with training and experience pertinent to DSMES, or another healthcare professional who is either board certified or holding certification related to diabetes management. . Other team members may include healthcare workers or diabetes paraprofessionals who operate under the supervision of the team member responsible for facilitating services.⁹ Accreditation helps ensure that DSMES services offer the most up to date and quality education. Each certifying body has a formal application process and requires supporting documentation. Once a program can document all of the standards and successfully applies and receives accreditation, they can begin billing for services through insurance plans. Procedure codes through Medicare are G0108

for individual per 30 minutes, and group session per 30 minutes are G0109.⁹ Accreditation and ability to bill for services using procedure codes can be achieved by pharmacist led programs in ambulatory care, private health, hospital based, and community pharmacy environments.

Although DSMES services have potential for sustainability through accreditation leading to billing pathways through Medicare, Medicaid and private insurers, barriers to success still exists. Barriers include difficulty attaining participants, lack of resources, lack of support among healthcare administrators, meeting the various requirements for individual insurance plans, limited administrative and marketing activities, and administrative challenges.⁹

At a local independent pharmacy team meeting in Richmond, Virginia it was determined that creating a DSMES service might be a beneficial to improve patient centered care. Therefore, a needs assessment was conducted with patients in the pharmacy to gather information about potential attendance and perceptions on DSMES services.

Objectives

The objectives of this study were to examine the views of patients with diabetes who utilize services at an independent pharmacy in Richmond, Virginia regarding their (1) interest in attending diabetes self-management education and support (DSMES) services, (2) perceptions of a pharmacist leading DSMES services, (3) willingness to pay for DSMES services, and (4) relationship between self-reported diabetes management status with their willingness to attend DSMES services.

Methods

A prospective 5 month study used a qualitative survey to collect data from patients with diabetes at an independent community pharmacy in Richmond, Virginia. The study period was from October 2020 through February 2020. The survey was developed by the investigators and included 35 questions assessing demographic information, management of diabetes, perceptions of pharmacist led diabetes education sessions, and willingness to pay for diabetes self-management education. The questions were a mixed format of Likert scale, dichotomous, and fill in the blank. The Virginia Commonwealth University Institutional Review Board reviewed the research protocols and determined the project did not meet the definition of human subjects, approval was not required.

Patients were identified utilizing a patient services platform at the independent pharmacy. Patient service platforms are useful tools to help health care professionals keep track of patient medications, vaccination records, patient care notes, and more. Inclusion criteria included patients 18 years of age, having a history of taking at least one medication with an indication for treatment or management of diabetes mellitus, and/or utilized vaccination and/or point of care services at the pharmacy within one year from the start of the study period. This

information was obtained using the patients profile found on the patient service platforms. Patient surveys were excluded if they reported never having received a diagnosis of diabetes to account for medications that may have multiple indications. Patients were also excluded if they had gestational diabetes. The survey was available in English and was administered using a paper copy for written answers or via telephone for verbal answers. Paper surveys were completed in the pharmacy or were mailed to patients for completion at home, and then sent back to the pharmacy. A brief summary of the DSMES service was explained to patients before beginning the survey. Telephone surveys were conducted by first reading the brief summary of DSMES that was provided with paper surveys, then question and answer options were read, and patient answers were recorded.

Survey data collected was analyzed using univariate, bivariate, and/or multivariate analysis using SAS 9.4, p-values were set to 0.05 for identification of significance. For analysis purposes patients who responded strongly agree were combined with agree values, the same was done for strongly disagree and disagree values.

Results

195 potential patients received a survey with a prescription or were asked to participate in the survey. 30 surveys were returned to the research team, 3 reported that they had never received a diabetes diagnosis and were excluded. The overall response rate was 15%. Most patients were female (56.7%) with an average age of 69 ± 10 years old. Caucasian or white patients accounted for 90% of the study population with 6.7% reported Black or African American; the remaining responded "other" or left the question blank. Highest education level reported included a bachelor's degree 40.7%, 22.23% master's degree, 22.2% completion of some college and 14.8% a Ph.D. The average annual income was $\$82,316 \pm \$55,750$, however 30% of patients wrote in "retired" in place of writing a monetary sum. The average reported years living with diabetes was 11.9 ± 9 years.

Figure 1 displays responses from patients examining DSMES interest, belief on pharmacist involvement in DSMES including leadership of services, and willingness to participate in various DSMES service formats. Patients reported that they were mostly neutral when asked about their interest in personalized diabetes education (45%), 22% reported that they disagreed and 33% reported that they agreed. When asked about beliefs that pharmacists can help patients with diabetes meet their specific diabetes related goals, patients reported equally that they were neutral or agreed/strongly agreed at 45%, respectively, with 10% reporting that they disagreed. Survey data showed that 52% of patients agreed that pharmacists have the knowledge to lead these DSMES sessions, while 37% reported feeling neutral and 11% reported that they disagreed.

74.1% of patients reported that they agreed to attend one on one in person meetings. 14.8% of patients disagreed with disinterest in attending. While the neutral response was selected for 11.1% of the time. One on one virtual meetings showed less favorable responses with 40.7% reporting agreement with willingness to participate. 51.8% of patients reported willingness to participate in one on one virtual meetings. Neutral responses were 22.3%, with disagree responses reaching 25.9%. 44.5% agreed with participation in group sessions, with 33.3% neutral and 22.2% disagree. Majority of patients were neutral (37%) about participating in the full 9 group sessions with 33.5% disagree and 29.6% agree, respectively.

Survey questions assessing patient reported value of DSMES services showed less of a response rate than the rest of the survey with 37% of individuals leaving this section blank. Options of choice included \$25 - \$35, \$36 - \$45, \$46 - \$55, \$56 - \$65, \$66 - \$65, and > \$75. When asked to assess the value of one on one, 1 hour sessions, 41% of patients chose \$25 - \$35 options. Similarly, when asked about value of group sessions, \$25 - \$35 was the most selected value option at 47%. The remainder of the patients evenly distributed the amounts to the other cost options. No statistical differences were found between willingness to participate in one on one in person, one on one virtual, group sessions, and the full service of 9 total group sessions and patients self-perceived diabetes management (Table 1).

Discussion

Our study results support the data that shows the diversity of patient participation and perceptions of DSMES services.^{6,11,12} Krall, et al. discovered that primary care based intervention showed modest improvements in DSMES services and participation. In their control group of patients who had not been referred by a primary care doctor 26.1% participated in DSMES services – our own survey results show that 29.6% of our patients would agree to participate in the full DSMES service of 10 total sessions. Their results improved to 34.9% when referred by primary care.⁶ The Freeman group determined that community based programs were effective in providing healthy behavioral changes through DSMES services and showed a decrease in diabetes related emergency department visits than those of the national average.¹¹ They were able to obtain patient participation in their program by utilizing primary care referrals and showed a participation rate of roughly 75%. The majority of their patient population were Caucasian females with a mean age of 57 years – similar to our results.¹¹ In a pilot project led by Andrigh and Foronda, participants showed improvement in their overall health over their 4 week DSMES services trial period. However, diabetes is a lifelong disease that requires lifelong investment into personal health, a 4 week trial examining DSMES services was not long enough to fully evaluate perceptions on participation in the service.¹² Our results mirror these reports by reflecting that patient participation tends to be the main barrier for

successful implementation of DSMES services. Studies that have found success in their patient participation in DSMES credit primary care referrals as a major component.⁶⁻¹¹

Although the response rate was low, this study does show that patients in an independent community pharmacy believe that pharmacists have the knowledge to lead DSMES services. However, a large number of survey responses were “neutral”. This could be due to patients being unfamiliar with pharmacist educational background or pharmacist knowledge of diabetes and other chronic disease states. Asking about participation in 9 total group sessions was the only survey question that resulted in additive strongly disagree and disagree responses coming close to majority of responses. However, even this question had more individuals state their desire was majorly neutral. This data shows that patient patients do believe that pharmacist are capable of leading sessions and may be able to help patients reach their specific diabetes related goals. Interestingly, no correlation was discovered between patients that self-reported poor or well managed diabetes with their interest in participating in the service. However, some studies have reported that they did find a connection between patients of elevated A1C and elevated BMI as being potential predictors of increased willingness to participate in DSMES services.^{6,11} Pharmacists in community based settings should consider implementing DSMES services for patients, but should continue to examine methods for increasing number of patient participants to ensure sustainability of the services.

Potential limitations to this study include a low response rate of 15%. The low response rate may not provide a clear picture of patient perceptions of the service. Patients reported that they didn't have time to complete surveys or did not respond to researcher's questions on why surveys were not returned. Additionally, from the patients who did respond, only 63% of those reported information on willingness to pay for services. As these surveys were anonymous, no further information could be collected as to explain the lack of completion of this section of the survey. The survey was not validated and were limited to patients utilizing services at a local independent community pharmacy in Richmond, Virginia. This particular patient pool may not be applicable to other patient care settings. It is also possible that asking patients with diabetes about increasing health care visits, individual or in person, could have been affected by the coronavirus pandemic. Patients with diabetes are high risk for COVID-19 related complications or increased severity, and as such may not have wanted to respond to surveys, or responded negatively, due to fears of increasing their chances of contacting the virus. Some patients individually reached out to the research team to explain that they were too busy to complete the surveys, or that they were not willing to participate in DSMES services at this time due to COVID-19 pandemic stressors. With these limitations in mind, it was decided by the pharmacy to delay implementation of a DSMES service to examine partnerships and methods to increase participation.

Community pharmacists should examine the needs for DSMES as a billable, sustainable service to provide for their patients. To further the impact on assessing patient perceptions on DSMES services, increased targeted in person discussions should be conducted about DSMES services and benefits. In addition, examining the effect of recommendations from primary care physicians or diabetes management physicians on belief on participation could further results from other studies showing primary care referrals improve participation.¹¹ Finally, it would be of interest to determine if targeting patients with diabetes who have elevated A1C or elevated BMI values would increase participation in DSMES services.

Conclusions

Patients with diabetes are willing to participate in DSMES services and believe pharmacists have the knowledge to lead sessions. Pharmacists should continue to educate patients on the benefits of DSMES to improve upon participation to these services, and to ensure all patients with diabetes are completing the DSMES service.

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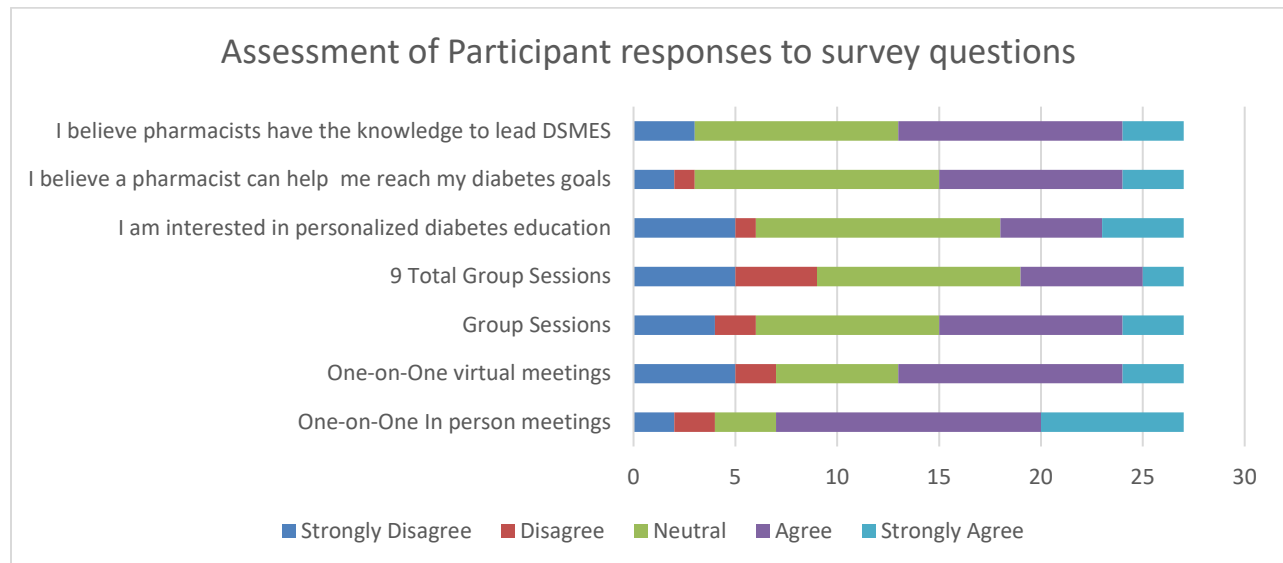
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Figure 1

Survey responses from patients examining DSMES interest, belief on pharmacist involvement in DSMES, and willingness to participate in various DSMES service formats (n = 27).

**Table 1**

Wilcoxon-Mann-Whitney test results from comparison of survey questions assessing interest in attending DSMES services and belief that diabetes is well-managed (n = 27).

Diabetes Management Belief	Diabetes status is well-managed	n	p-value
One-on-one in person meetings	Yes	22	0.671
	No	5	
One-on-one virtual meetings	Yes	22	0.559
	No	5	
Group Sessions	Yes	22	0.231
	No	5	
Nine (9) total group	Yes	22	0.307
	No	5	