

In Brief

Empowerment-based diabetes group education emphasizes strategies that are patient centered, problem based, culturally relevant, integrative, and evidence based. These programs and strategies can be conducted across a variety of educational and clinical settings with the goal of responding to the unique diabetes-related needs of each patient.

Group Education Strategies for Diabetes Self-Management

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Diabetes self-management education (DSME) is recognized as a fundamental component of diabetes care.¹ The goal of DSME is to help patients acquire the knowledge, information, self-care practices, coping skills, and attitudes required for the effective self-management of their diabetes. Several reviews and meta-analyses have found DSME interventions to have a positive impact on diabetes-related health and psychosocial outcomes, specifically increasing diabetes-related knowledge and improving blood glucose monitoring, dietary and exercise habits, foot care, medication taking, coping, and glycemic control.²⁻⁶

Although group-based approaches have been associated with several advantages (e.g., cost-effectiveness, patient satisfaction, and interactive learning),^{1,7-9} to date, the literature has only begun to investigate and describe different approaches to group-based DSME. Although the evidence supports the efficacy of DSME programs as a whole, variability in program goals, outcome measures, length of intervention, frequency of sessions, learning format, and demographic background of participants has meant that there is no known prototype for the optimal DSME program.¹⁰

The three objectives of this article are to:

1. Briefly summarize the literature about group-based diabetes patient education programs,

2. Describe how a theoretically based approach (i.e., empowerment) has been used to develop three different group education programs,
3. Illustrate how the consistent application of the core tenets of this approach have led to the development of DSME programs that are effective and differ substantially from traditional lecture-based group education programs.

Individual Versus Group DSME Interventions

Although a large body of evidence supports the efficacy of DSME interventions in improving diabetes-related health outcomes, few studies to date have investigated the impact of the DSME delivery format on diabetes health-related outcomes. According to Mensing and Norris¹ a group is “a gathering or an assembly of persons with a common interest.” The Centers for Medicare and Medicaid Services (CMS) has recommended a group size for patient education of 2–20 members, with an average of 10 participants.¹¹ Compared to individual-based approaches, group-based approaches typically invite greater interaction and interpersonal dynamics.¹ Moreover, the group setting can foster certain educational activities, such as social modeling or problem-based learning better than the individual setting.

Some providers believe group-based DSME is better than individual-based DSME at improving diabetes-related health outcomes.⁷ Group education is also thought to be less costly than individual education.^{7,8} In fact, the Balanced Budget Act of 1997 provided a further economic incentive for group-based programs because it specifically recognized diabetes education via a group format for uniform reimbursement by the CMS.

In a qualitative review, Norris et al.² examined individual versus group approaches to DSME. These authors found that patients in both settings demonstrated equal success in acquiring and honing self-care practices. The only self-management practices in which group-based learning led to slightly better self-care outcomes than individual-based learning was nutritional management and physical activity. They concluded that each intervention approach offered unique features and benefits.

In a later review article, Norris et al.³ found no differential impact between individual versus group-based interventions for improving glycemic control. Another review conducted by Deakin et al.¹² found that among patients diagnosed with type 2 diabetes, group-based education was effective for improving fasting blood glucose levels, hemoglobin A_{1c} (A1C), systolic blood pressure, body weight, need for medication, and diabetes knowledge.

A small number of studies have specifically compared individual versus group formats for DSME. Among a sample of patients diagnosed with type 2 diabetes, Erskine et al.⁹ investigated differences in patient satisfaction and glycemic control between participants receiving individual insulin education versus group-based education. Although no group differences were revealed for glycemic control at the 1-year follow-up, these authors did find patients in the group condition reported significantly higher rates of satisfaction with their diabetes treatment than their individual education counterparts.

Campbell et al.¹³ conducted a randomized trial comparing four conditions: a basic 2-session program, an individual 12-session program, a 3-day group education program, and an individualized behavioral program. Participation in any of the four programs was associated with improvements in A1C and BMI, with no sig-

nificant differences between the conditions. In a randomized controlled study, Rickheim et al.⁷ examined the efficacy of DSME delivered in individual versus group-based settings among 170 patients with type 2 diabetes. Both group and individual interventions consisted of four sessions at baseline, 2 weeks, 3 months, and 6 months. A standardized curriculum was presented to participants in both conditions. Diabetes-related knowledge, attitudes, and quality of life; psychosocial adjustment; physical activity; A1C; BMI; and weight were assessed at all time points. Patients in both group and individual conditions improved in diabetes-related knowledge, attitudes, psychosocial adjustment, and weight. Both groups also significantly decreased their A1C from start to completion of the intervention. However, the reduction in A1C was slightly greater for participants in the group intervention than for those in the individual intervention. Overall, group and individual DSME modalities were similarly effective in improving diabetes-related health outcomes, with the group approach slightly superior to the individual approach in improving glycemic control.

Among the small number of studies that have compared group-based DSME with individual DSME, it would appear that there are no clear and consistent differences in diabetes-related health outcomes. However, some data support the hypothesis that group-based DSME can be more cost-effective, lead to greater treatment satisfaction, and be slightly more effective for lifestyle behavioral changes, such as diet and physical activity.

Empowerment-Based Group Programs

The majority of studies that have reported successful outcomes in group programs have not included a detailed description of the theoretical approach or of the intervention itself, including the specific strategies utilized.¹⁰ As a result, the literature on group DSME lacks a coherent, constantly evolving knowledge base elucidating the most effective theoretically based group programs. The following section describes three group-based interventions that have been developed and conducted based on the empowerment approach to diabetes education and behavior change. Using empowerment as the theoretical founda-

tion, these programs have provided a series of educational strategies that, generally, differ significantly from traditional lecture-based group education. In addition, all three programs have been culturally tailored to meet the needs of African Americans living in urban settings.

The first program illustrates how the empowerment approach to informal group and individual DSME has been provided in different health care and research settings.¹⁴ The second program is a DSME intervention delivered in response to patients' diabetes-related needs, concerns, and priorities, as well as the social and cultural communities in which they live.¹⁵ The third program is a community-based intervention created to support sustained diabetes self-management for 6 months (and eventually for longer) as a follow-up to DSME.¹⁶

Capitalizing on opportunities to deliver informal DSME

To date, the DSME literature has focused predominantly on formal DSME programs that are highly structured and provide a predetermined curriculum. Although formal DSME programs are beneficial, there exist a wide range of learning opportunities in diabetes care that can be used to conduct informal group-based diabetes education. For example, Gillard et al.¹⁴ examined the impact of informal diabetes education among African-American patients with type 2 diabetes attending free community-based retinopathy clinics in the greater southeast Michigan area.

The community-based screening program consisted of several diabetes-related health components. Upon arrival to the "clinic" (clinics were held in churches, senior centers, recreation centers, and other community locations), participants rotated through several health screening stations (e.g., height, weight, blood pressure, A1C, and blood glucose level). After completing the series of health screening stations, patients received a dilated eye exam. The dilated exam procedure followed a three-step process: 1) receiving the dilation eye drops, 2) waiting for ~15–20 minutes for the dilation process to complete, and 3) returning to the exam room for the actual examination. Overall, the entire visit took 60–90 minutes.

During these screening clinics, there were numerous opportunities to provide informal diabetes education

(Table 1). Each clinic had at least one diabetes educator on site. The educator conducted small group discussions and answered questions in the waiting area throughout the duration of the clinics. Patients guided the dialogue based on their specific diabetes-related concerns, questions, and priorities. In other words, the patient education was unstructured, informal, ongoing, and free flowing, with patients constantly joining, leaving, and rejoining the group.

At time of checkout, all test results were reviewed with the patients, who were then invited to ask questions about their results. In addition to this debriefing, patients were given a written copy of their results and another was mailed to them within several weeks. Written results included blood pressure, eye exam results, and A1C and a description of both normal and abnormal results. The test results were also sent to participant-identified primary care providers.

Gillard et al.¹⁴ investigated the impact of these informal learning experiences on glycemic control and self-care behaviors. Medication use, self-monitoring of blood glucose (SMBG), and A1C were measured at baseline and at second- and third-annual screenings. Significant

($P = 0.03$) improvements in A1C were seen between the baseline (9.2%) and the second (8.9%) and third screenings (8.6%). The percentage of patients practicing SMBG significantly ($P < 0.01$) increased from 61% at baseline to 71% at the second screening and 76% at the third screening. Finally, the percentage of patients on insulin therapy increased from 37 to 42% across the successive screening points. However, the increase in the percentage of patients using insulin did not explain the improvements in A1C because patients who did not start on insulin during the study improved as much as those who did start insulin.

Although the primary purpose of this clinic was to provide free retinopathy screening for African Americans living in Detroit, this intervention also resulted in secondary gains by providing opportunities for informal diabetes education within the program. Table 1 describes the multiple informal learning opportunities within this clinic program, including having access to educational materials at the clinic, undergoing the process of informed consent, discussing eye screening results with the ophthalmologist, interacting with clinic staff, participating in “ask the expert” waiting room sessions, and

receiving health care station results.

The retinopathy clinic was not purposely designed as a DSME program, but it did foster the learning process across multiple educational opportunities. Although not currently reimbursable, this type of model may be useful for office-based practices where annual or routine visits for patients with diabetes are scheduled for a particular day so that waiting time can be efficiently used as an educational opportunity.

Conducting a culturally tailored, problem-based, community group education program

The empowerment program was conducted over a 6-week period with one 90-minute session held each week. The program provided ~ 10 hours of direct education and was held in various community locations. Participants were recruited through various community newsletters, flyers, and newspaper advertisements.^{15,17} The intervention was guided by empowerment principles and the theory of autonomy motivation, which conceptualizes patients as active agents in their self-management.^{18,19}

This program was designed to support patients in achieving their goals by responding to the unique self-management problems and issues they raised

Table 1. Strategies for Promoting Informal Learning

Opportunities	Examples
Recruitment advertisements	A flyer recruiting patients to attend a free diabetes eye screening clinic can serve as a reminder for preventive health habits.
Informed consent process	While carrying out the informed consent process for patients for a diabetes-related program or study, providers can teach about the disease and its complications.
Participation in a diabetes-related study	By participating in a diabetes-related study, patients are exposed to information and interventions during the study period.
DSME material and literature on site	When attending diabetes-related health visits, patients may read diabetes-related brochures or announcements for other diabetes health-promoting activities in the waiting room.
Diabetes-related screening or examination	When performing retinopathy screening or a foot exam, providers often educate patients about the importance of routine screening in preventing complications such as blindness or amputation.
Test results	When providing feedback regarding eye exams or other test results, physicians can affirm the patient's decision to obtain screening and reinforce future screening practices.
Interactions with clinic staff (e.g., certified diabetes educator, nurse, psychologist)	While awaiting test results or preparing for screening procedures, patients can inquire about diabetes-related health issues that they may not have asked their physician.
Information regarding diabetes-related health status	When receiving A1C, cholesterol, and blood pressure results, patients can inquire about optimal targets and behaviors that will assist in achieving and maintaining good health.

(i.e., problem based). Groups were co-facilitated by a nurse and a dietitian who were also certified diabetes educators. Table 2 presents the five core components that were part of each session. The five components included reflecting on relevant experiences, discussing the role of emotion, engaging in systematic problem solving, answering clinical questions, and providing feedback. The problem solving process followed the five-step empowerment model presented in Table 2.²⁰

At the first session, facilitators presented the philosophy of the program, established ground rules, reminded patients that they were the experts of their own diabetes, and gave patients their personal diabetes-related health status report including their A1C, lipid, blood pressure, and weight results. This report also included the normal ranges for these values. Facilitators then invited patients to ask any questions triggered by this

report as well as any other questions or concerns they wanted to raise. Therefore, the content and flow of discussion was guided entirely by their questions, priorities, and concerns. Before the end of the session, facilitators explained the five-step empowerment model and encouraged but did not require patients to identify a short-term behavioral goal they would work on during the following week.

The following five sessions usually began with a discussion about this experience. Although there were no formalized lectures and curriculum, the self-management topics identified by the National Standards for Diabetes Self-Management Education²¹ were addressed during the course of the six sessions. In addition, psychosocial, behavioral, and cultural issues were integrated throughout the program as participants raised these issues. Patients received a resource handbook based on

the type 2 diabetes curriculum and tailored for African Americans.²²

The DSME program included a built-in follow-up component through which patients could choose to participate in monthly support groups similar to the 6-week group sessions or receive a monthly phone call from the nurse. During the calls, the nurse encouraged patients to discuss their self-management plans, progress toward goals, challenges, and emotional concerns. The nurse also invited patients to refine self-management techniques or make action plans based on these discussions.

An evaluation of the program found that patients, as a group, made modest improvements in A1C, cholesterol, weight, perceived understanding of diabetes, personal sense of empowerment, and diabetes-related attitudes and that these improvements were sustained for at least 1 year. Patients in the two follow-up interventions sustained or improved their A1C values with a higher number of follow-up contacts positively associated with better A1C values. This model is most well suited for a hospital or community-based group DSME program where meeting DSME national standards²¹ is important for reimbursement.

Supporting diabetes self-management over the lifetime

Although DSME interventions have demonstrated improved blood glucose control, cardiovascular functioning, and self-care behaviors among patients with type 2 diabetes, several studies have found that without follow-up, these diabetes-related health gains are not sustained over the long term (≥ 6 months). Not surprisingly, there has been a greater emphasis on developing effective DSME programs aimed to enhance or maintain health improvements achieved previously. One example of an ongoing DSME support program is the Lifelong Management (LM) program.¹⁶

LM is an extension of the previously described problem-based DSME program. It is a community-based, patient-centered, long-term self-management intervention that was found to be feasible for and culturally acceptable to African-American adults with type 2 diabetes living in the greater Detroit area.¹⁶ The goal of the LM intervention was to help patients sustain and improve diabetes self-management gains they have achieved through previous short-term DSME

Table 2. Empowerment-Based Problem Solving Model

Step 1: Explore the problem or issue.

- What is the hardest thing about caring for diabetes for you?
- Please tell me more about that.
- Are there some specific examples you can give me?

Step 2: Clarify feelings and meaning.

- What are your thoughts about this?
- Are you feeling [insert feelings] because [insert meaning]?

Step 3: Develop a plan.

- What do you want?
- How would this situation have to change for you to feel better about it?
- Where would you like to be regarding this situation in [specific time, e.g., 1 month, 3 months, 1 year]?
- What are your options?
- What are barriers for you?
- Who could help you?
- What are the costs and benefits for each of your choices?
- What would happen if you do not do anything about it?
- How important is it, on a scale of 1 to 10, for you to do something about this?
- Let's develop a plan.

Step 4: Commit to action.

- Are you willing to do what you need to do to solve this problem?
- What are some steps you could take?
- What are you going to do?
- When are you going to do it?
- How will you know if you have succeeded?
- What is one thing you will do when you leave here today?

Step 5: Experience and evaluate the plan. How did it go?

- What did you learn?
- What barriers did you encounter?
- What, if anything, would you do differently next time?
- What will you do when you leave here today?

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programs. Therefore, patients were required to have at least received a basic level of diabetes education either from a patient education course or from individual education with diabetes-specialty health care professionals (e.g., dietitian, nurse, physician, or other diabetes educators) within the past 3 years.

The LM pilot program consisted of 24 weekly sessions (90 minutes in length) held over a period of 6 months. The direction and flow of each session were guided by patient-identified interests, concerns, and experiences. Patients were encouraged to attend sessions as frequently as needed. Based on individual self-perceived support needs, attendance could be weekly, monthly, or sporadic depending on the experiences and events in patients' lives. A two-person team consisting of a certified diabetes educator and a clinical psychologist facilitated these groups.

Similar to the empowerment group program of Anderson et al.,¹⁵ LM sessions were structured with the five components, including reflecting on relevant experiences, discussing the role of emotion, engaging in systematic problem solving, answering clinical questions, and providing feedback (Table 2).¹⁵ Patients raised issues and challenges they faced, and the group leader facilitated a process of problem solving with other group members, using the empowerment model presented in Table 3. Major self-management areas were outlined on a poster board to help trigger group discussion about diabetes-related experiences. Sessions were conducted at different times of the day and at different locations throughout the community to accommodate varying schedules.

All educational materials were compiled in a resource binder called the Lifelong Management Guidebook, which patients received at the outset of the program. Patients were encouraged to bring the binder to each session and to use it as a reference at home. The guidebook was organized into seven sections reflecting the major components of diabetes self-management education.²¹ These included eating and diet, taking medications, exercise, monitoring glucose, problem solving for glucose management, reducing risks of complications, and living with diabetes.

Participation in the LM intervention was found to be associated with

significant improvements in diabetes-related health outcomes.¹⁶ After the LM program, patients demonstrated significant improvements in BMI and serum total, HDL, and LDL cholesterol levels. No significant changes were found for A1C or blood pressure. There were also positive changes in daily self-care behaviors practiced per week, including choosing a healthy diet, evenly spacing carbohydrates consumed, exercising, examining feet, and monitoring glucose. On psychosocial measures, patients reported a higher perceived quality of life, less difficulty in engaging in routine physical activity, and less difficulty in using a meal plan. This model would be most useful as an ongoing support group conducted by diabetes educators or trained peers within a community.

Guiding Principles for Group-Based DSME Programs

The core empowerment-based principles provided the conceptual foundation for all three of the programs described above. These guiding principles, which informed the programs' design and implementation, called for the programs to be patient centered (i.e., focused on concerns and questions introduced by patients), problem based (i.e., used real problems encountered by participants to guide the teaching/learning process), culturally relevant, inclusive of the clinical and psychosocial aspects of living with diabetes, and evidence based.

Patient centered

Patients come from unique social and cultural environments; have different learning needs, priorities, and diabetes self-management experience; and encounter different challenges over the course of their lives. However, many DSME programs are curriculum centered, and lesson plans are based on a predetermined set of topics and a specific teaching/learning sequence. In contrast, the above-described interventions are based on patients' experiences, circumstances, needs, and priorities. This patient-centered approach makes learning meaningful, personally and culturally relevant, and directly applicable to patients at that particular time in their lives.

Problem based

This approach to learning helps patients acquire the knowledge and

skills to solve problems that are important to them. The learning begins with patient-identified problems and focuses on helping patients acquire the knowledge and skills needed to address those problems.

Culturally relevant

Using a patient-centered, problem-based approach is by definition culturally relevant because the education focuses on problems as prioritized and perceived by the patients in the program. For example, focus group research has shown that there is a strong cultural norm in both the African-American and Latino communities placing family needs before self-care. This needs to be addressed in education programs. Further cultural tailoring occurs by offering the programs in community locations well known to the participants. Finally, the three DSME programs in this article used culturally specific written and audio-visual materials that were designed and evaluated using community-based focus groups.²³ These materials included a set of videotaped vignettes portraying the challenges faced by African Americans with diabetes, ethnic food recipes, and a resource handbook.

Inclusive of psychosocial, behavioral, and clinical issues

Diabetes education and behavioral research often addresses living and caring for diabetes as a set of independent topics or categories. For example, patients' self-care behaviors, emotional coping, and clinical and metabolic functioning are often addressed in different classes taught by different health professionals.

Although educators and clinicians find it logical to reduce diabetes care and education into a discrete set of topics, such an approach does not bear fidelity to the patients' life experiences with diabetes. Patients perceive their illness as holistic, complex, and dynamic. The three programs described above were based on the lived experiences of program participants as the focus of diabetes education. Patients were encouraged to share and reflect on their own experiences of living with diabetes to identify the problems and priorities addressed during the program.

Evidence based

During the past few decades, the ever-growing body of DSME research has

provided us with data to support the efficacy of patient education in improving patients' diabetes self-management practices, glycemic control, psychosocial adjustment, and other health-related outcomes. The DSME programs outlined here have been designed based on the factors, principles, and approaches demonstrated to

be successful in previous programs and investigations. Future funding and health care coverage for group-based DSME is likely to become increasingly contingent on the evidence base generated for the short- and long-term health benefits of these programs.

In our experience, many payors,

administrators, and health care providers view patient education as monolithic (i.e., they believe that all patient group education programs are roughly equivalent to each other). Perhaps worse, many health providers and policy makers believe that group patient education programs are just a series of didactic lectures.

Table 3. Structure of the Weekly Problem-Based Group Sessions

Component 1: Reflect on diabetes self-management experiments.

At the end of the each group session, most patients choose a self-management experiment designed to help them achieve a self-selected short-term goal. At the beginning of the next session, these patients are invited to reflect on the results of their experiment.

- Invite patients to describe what they did and what happened.
- Did it help them reach their short-term goals?
- What did they learn about themselves from this experience?
- What did they learn about their diabetes self-management?
- How can they incorporate what they learned into their diabetes self-management?

Component 2: Discuss the emotional impact of living with diabetes.

Living with diabetes raises emotional issues related to relationships, work, family, economic circumstances, overall health, physical functioning, and other aspects of life. Also, emotion often has a strong influence on patients' self-management decisions. In addition, discussing the emotional aspects of living with diabetes is usually therapeutic in and of itself. During group sessions, patients are encouraged to discuss the emotional impact of living with diabetes.

- What feelings does having diabetes bring up for patients?
- How do they feel when they get a negative test result?
- How do these feelings influence their self-management decisions?
- How do they feel about how others react to their diabetes?

Component 3: Engage the group in systematic problem solving.

The fundamental principle informing the structure and process of this program is that the questions and concerns of patients are the focus of the program. The topics and issues discussed during the group sessions are ones introduced by patients. The problems addressed include interacting with health care providers as well as self-management and psychosocial issues. The flow of each session is determined by the questions and concerns introduced by participants during that session.

- Invite a patient to identify a problem or concern to address.
- Use the group to generate possible solutions to the problem.
- Invite the patient to identify facilitators and barriers to implementing possible solutions.
- Invite the patient to choose one of the solutions based on its "goodness of fit" with his or her situation.
- Each week, invite patients to conduct a self-care experiment designed to help them solve a problem or achieve a short-term goal. Do not pressure patients to set a goal if they do not wish to do so.

Component 4: Ask diabetes self-management questions.

This component provides the opportunity for patients to inquire about issues related to diabetes self-management. The question-and-answer component provides patients with the diabetes self-management information usually contained in the lectures presented in traditional programs. Often, a particular topic area is identified for a Q&A session to ensure a coherent discussion.

- Answer diabetes-related clinical and health questions raised by participants.
- Encourage participants to share knowledge within the group.
- Encourage participants to seek consultation with health care providers when necessary.
- Address psychosocial, behavioral, and clinical issues in an integrated holistic fashion, i.e., the way patients experience living with and managing diabetes.

Component 5: Choose a self-management experiment.

This component provides patients with an opportunity to identify a self-management experiment to help them achieve one of their short-term goals. However, patients do not have to conduct an experiment if they do not wish to. Patients who do are given the opportunity to share their goal and experiment. Sometimes, patients revise their plan based on the discussion, but facilitators make it clear that the person carrying out the experiment is the best judge of what will work. Asking questions helps to clarify the process.

- What will you do?
- When and where will you do it?
- Who will be involved?
- How will you evaluate the outcome of your experiment?

Diabetes educators and behavioral researchers have established that behaviorally oriented group patient education is effective at producing a series of positive changes (at least in the short term) in knowledge, skills, self-management behaviors, and metabolic indexes. The challenge now is to establish an evidence base indicating which theoretical approaches and strategies used in group education are most effective in the short and long terms. A more difficult challenge will be raising awareness among stakeholders who are not educators about the increasing number of dynamic, progressive, and conceptually sophisticated patient education programs being developed and evaluated.

Conclusion

DSME has been delivered and implemented using a variety of methods. Although group-based DSME has generally been found to be equally as effective as individual DSME at improving diabetes-related outcomes, there is some evidence that group programs are more cost effective, result in greater treatment satisfaction, and are slightly better in supporting lifestyle changes.

DSME group programs have utilized different patient education theories and strategies that have not been well described in the literature. This article has highlighted strategies that can be used in different health care or community-based settings, including informal learning opportunities, culturally relevant problem-based DSME, and ongoing support for sustaining DSME gains over the long term. Although each of these three programs may have had a different context, format, or primary goal, they all were founded on the empowerment approach to diabetes education and care and designed to meet individual patient needs while taking advantage of the experiences of a group of patients to provide support and assistance to each other.

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