Can J Diabetes 42 (2018) S36–S41

Contents lists available at ScienceDirect

Canadian Journal of Diabetes

journal homepage: www.canadianjournalofdiabetes.com

2018 Clinical Practice Guidelines

Self-Management Education and Support

Diabetes Canada Clinical Practice Guidelines Expert Committee

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KEY MESSAGES

- Offer collaborative and interactive self-management education and support.
- Incorporate problem solving, goal setting and self-monitoring of health parameters for ongoing self-management of clinical and psychosocial aspects of care.
- Design and implement person-centred learning to facilitate informed decision-making and achievement of individual goals.
- Individualize self-management education interventions according to the type of diabetes and recommended therapy within the context of the individual's ability for learning and change, culture, health beliefs and preferences, literacy level, socioeconomic status and other health challenges.
- Create and offer self-management support that reflects person-centred goals and needs.

KEY MESSAGES FOR PEOPLE WITH DIABETES

- A variety of diabetes education and support programs are available to you. These may include group classes and individual counselling sessions, as well as strategies that use technology (e.g. Internet-based computer programs, mobile phone apps).
- You are strongly encouraged to access diabetes self-management education and support when you are first diagnosed, as well as during times when there are changes in your diabetes treatment, general health or life circumstances.
- Work with your diabetes team to:
  - Establish a trusting and collaborative relationship
  - Set goals for caring for your diabetes and health, and
  - Identify strategies to help you manage your diabetes.

Introduction

The dynamic nature of diabetes and its impact on multiple aspects of one's life requires individuals to make frequent and ongoing self-management decisions. Therefore, the title of this chapter has been modified to include self-management education (SME) and self-management support (SMS), in recognition of the growing evidence and benefit of SMS for individuals living with diabetes, particularly when combined with SME (1).

SME is a process to facilitate individuals in decision-making, resulting in improvements in variables, such as knowledge, attitudes and self-efficacy, as well as improvements in healthy behaviours and clinical outcomes (2). SME is defined as a systematic intervention that involves active participation by the individual in self–monitoring of health parameters and/or decision-making with the application of knowledge and skills (3). It also recognizes that patient-provider collaboration, approaches and the development of problem-solving skills are crucial for sustained self-care (4). SMS includes activities that support the implementation and maintenance of behaviours for ongoing diabetes self-management, including education, behaviour modification, psychosocial and/or clinical support (5,6). The goal of SME and SMS is to foster opportunities for people with diabetes to become informed and motivated to continually engage in effective diabetes self-management practices and behaviours. To date, a growing body of research evidence indicates that the combination of both SME and SMS is most advantageous for improving glycemic control, self-efficacy, self-care behaviours (i.e. monitoring of blood glucose and healthy eating) and reducing diabetes distress and foot complications (1,6).

Self-Management Education

Several meta-analyses have demonstrated that SME is associated with clinically important benefits in people with diabetes, such as reductions in glycated hemoglobin (A1C) (1,3,7–11) and improvements in cardiovascular (CV) risk factors and reductions in foot ulcerations, infections and amputations (1). A large population-based cohort study of 27,278 people with type 2 diabetes and no known previous cardiovascular disease (CVD) found that attending structured diabetes education was associated with a reduction in: all-cause mortality of 44%, first CVD episode of 20% and stroke of 30% (12). A large retrospective cohort study of 26,790 individuals who had had at least 1 diabetes education session demonstrated lower diabetes-related health-care expenditures after 12 months compared to individuals who did not receive diabetes education (13). Improved quality of life has also been demonstrated (14), in addition to sustained weight loss and CV fitness for up to 4 years following education (15). SME also improved short- and long-term (1 year) self-efficacy and reduced diabetes-related stress (16).

Defining SME

Diabetes SME has evolved from traditional didactic teaching to a variety of educational, psychological and behavioural interventions, and collaborative teaching methods, tailored to the individual's specific needs (17). SME comprises any educational processes that provide individuals with the knowledge and skills to inform decisions and increase their capacity and confidence to apply these

Conflict of interest statements can be found on page S40.

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https://doi.org/10.1016/j.jcjd.2017.10.006

skills in daily life situations (4). Interventions and strategies for ongoing self-management of medical, behavioural and emotional aspects of care may be integrated into knowledge and technical skills training (1).

A review of 18 systematic reviews found that educational interventions that emphasize knowledge, emotional and behaviour support, coping strategies and self-management training were associated with improved glycemic control at all ages (1). Additionally, SME strategies that incorporate individual goal setting (16), collaboration, problem solving (18), patient empowerment strategies (12) and tailored education (1) were effective in improving glycemic control and self-care outcomes for individuals with diabetes. Furthermore, SME results in positive changes in diabetes-related knowledge (19), as well as psychological (20–23) and behavioural (20,24) domains. Basic knowledge and skills for SME include monitoring of relevant health parameters, healthy eating, physical activity, pharmacotherapy, prevention and management of hypo- and hyperglycemia, and prevention and surveillance of complications. Skill training includes self-monitoring of blood glucose (SMBG); making healthy dietary choices; incorporating physical activity; stress management; and medication adherence and adjustment (25,26).

Finally, research demonstrates that combining complex cognitive and affective (emotional) interventions to support the detection of problems, identify possible causes and generate corrective actions, were most effective in improving glycemic control (27). The acquisition of knowledge may be augmented with cognitive behavioural interventions to achieve longer-term change in self-care behaviours (7,20,22,28). These include cognitive restructuring, problem solving, cognitive behavioural therapy (CBT), stress management, goal setting and relaxation techniques. All of these recognize that personal awareness and alteration of causative (possibly unconscious) thoughts and emotions are essential for effective behaviour change (29).

Cognitive behavioural interventions share common elements, including a patient-centred approach, shared decision-making, the development of problem-solving skills, and the use of action plans directed toward patient-chosen goals, (20,22,30) and may be used in both individual and group settings (17,20). In general, group settings are more effective for short-term glycemic control, whereas group interventions combined with individual follow-up sessions result in lower glycated hemoglobin (A1C) levels than either setting alone (31). Cognitive-behavioural interventions are effective in lowering A1C (8,32,33), improving quality of life (34,35) and increasing self-care behaviours (20,32), although other studies show mixed results (7,28). A meta-analysis of behavioural interventions for type 1 diabetes found a reduction in A1C of –0.29% after 6 months (9). A network meta-analysis found that 11 or more hours of behavioural interventions for type 2 diabetes were associated with a reduction of A1C of at least 0.4%. The reduction in A1C was even greater in those with baseline A1C levels greater than 7.0%, in adults less than 65 years of age, and in visible minority populations (10). Interventions that combine strategies for knowledge acquisition and self-care management (22,28) appear to be more effective in increasing knowledge, self-efficacy and self-care behaviours and in achieving metabolic control than didactic and knowledge-oriented programs alone (8,17,32,36).

Delivering diabetes SME

Diabetes SME is based on a trusting and collaborative patient-health-care professional relationship (6,8). A growing number of studies demonstrate that early diabetes SME is effective in improving glycemic control (1). However, statistically and clinically significant improvements in A1C were seldom maintained after 3 months without additional SMS (1). Frequent communication is key for successful interventions, whether by an interprofessional, in-hospital diabetes team or a community setting (37,38). Effective individual health-care provider communication may improve adherence by decreasing barriers to overall diabetes management (39).

Many systematic reviews demonstrate that access to an interprofessional team for diabetes education is associated with improvements in glycemic control, lipids and blood pressure (BP) (1). Diabetes education interventions that used a combination of health-care professionals (diabetes educators) were more successful in improving glycemic control for individuals with type 2 diabetes (–1.84%) than interventions that used nurse only (–0.80) or non-nursing personnel (–0.77%) (40). However, nurses working in combination with other health-care professionals are most effective in decreasing A1C levels (–1.84%) (40). Furthermore, expanding the role of educators, to include medication management, support and monitoring of individuals with diabetes, is associated with improvements in glycemic control, cholesterol and BP (1).

Evidence on the use of new technology to support SME in diabetes is still emerging. The current literature suggests that virtual environments provide a feasible and useful platform for diabetes education and support for people with diabetes as well as educators (41,42). SME delivered via the Internet is effective at improving measures of glycemic control and diabetes knowledge in adults with type 2 diabetes compared with usual care (1,41). Internet-delivered diabetes education may increase access for many individuals and they can engage in self-paced learning. The ability to interact with or message an educator/health-care provider is an attractive option to individuals (41); however, most studies report that Internet/web usage declines over time (2,41). New online materials may need to be added for ongoing engagement (41). The use of interactive modules that allow for tracking and tailored feedback, the addition of personalized components from counselors or peer supporters, and/or emails and telephone contacts allow for, and contribute to, the development of online communities (42).

A meta-analysis of computer-based diabetes self-management interventions (via clinics, the Internet and mobile phone apps) to manage type 2 diabetes appears to have a small beneficial effect on A1C (–0.2%), and this effect was larger in the mobile phone subgroup (–0.5%) (43). However, there was no evidence of benefit for other biological, cognitive, behavioural or emotional outcomes (43). Mobile applications, especially text messaging, may also be used as educational tools for improving outcome among people with type 2 diabetes (2,44). In a meta-analysis of 13 trials, a difference in A1C of 0.53% was reported in the intervention compared to usual care. The acceptability of such approaches are mixed as some report high satisfaction, while others report participants requesting to stop the messages before the end of the intervention, and low acceptability for challenging interfaces or inexperienced participants with mobile web use (2). Age, diabetes duration, A1C, and type and length of the intervention may also have implications on the effectiveness of such approaches (44).

Tailoring SME

The content and skill-training components of SME are most effective when individualized according to: the type of diabetes and recommended therapy; the individual's ability for learning and readiness for change; the context of one's cultural beliefs, health beliefs and preferences; literacy level; socioeconomic barriers and other health challenges (8,31,45). Tailoring SME to the individual is paramount. All trials evaluating a culturally appropriate education module (incorporating cultural or faith traditions, values and beliefs, delivery in the person's preferred language, adapted cultural dietary advice, the person's needs and/or involving family members) note improvements in diabetes-related knowledge, self-management behaviours and clinical outcomes (46,47). Family and culturally tailored interventions are particularly relevant

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