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ORIGINAL RESEARCH

# Evaluating the Effectiveness of a Self-Management Program on Patients Living with Chronic Diseases

Ghareeb Bahari, Ali Kerari

Nursing Administration and Education Department, College of Nursing, King Saud University, Riyadh, 11421, Saudi Arabia

Correspondence: Ghareeb Bahari, Nursing Administration and Education Department, College of Nursing, King Saud University, P.O. Box 642, Riyadh, 11421, Saudi Arabia, Tel +966118054381, Email gbahari@ksu.edu.sa



**Background:** Chronic diseases are a major public health concern globally, and the position in Saudi Arabia is no exception. The Chronic Disease Self-Management Program (CDSMP) is a widely used intervention process to address care of chronic conditions. However, its effectiveness in a Saudi context has not been extensively studied. Therefore, this study aimed at evaluating the post-intervention outcomes of the CDSMP in Saudi Arabia.

**Materials and Methods:** The study utilized a qualitative design on patients with chronic conditions. Data were collected through two focus group sessions with 15 participants who had completed the CDSMP. A thematic analysis technique was used for data analysis.

**Results:** Three key themes emerged from analysis of the qualitative data obtained through the focus groups: the perceived benefits from participation in the CDSMP workshop; the impact of the CDSMP workshop on improving health status and quality of life; and, the cultural acceptability of the CDSMP. The study also found that the CDSMP was effective in improving participants' self-management skills and quality of life. Additional benefits included increased motivation for behavioral change, enhanced confidence regarding self-care of chronic conditions, improved communication with healthcare providers, and better coping strategies.

**Conclusion:** This study provides valuable insights into the effectiveness of the CDSMP in addressing chronic conditions in Saudi Arabia. The program's emphasis on self-management skills and peer support aligns with the cultural values of Saudi Arabia. However, applying the CDSMP across various chronic conditions should be addressed in future interventions.

**Keywords:** chronic disease, chronic disease self-management program, self-care, patients

## Introduction

Chronic health conditions, such as cardiovascular diseases, diabetes, respiratory disorders, and mental health conditions, continue to pose significant challenges and affect millions of individuals worldwide.[1,2] The prevalence of chronic conditions is increasing due to factors such as aging populations, sedentary lifestyles, unhealthy diets, and environmental influences.[3,4] These conditions not only have a profound impact on the affected individuals, but also place a considerable burden on healthcare systems, economies, and society as a whole.[5] Addressing the prevention, management, and treatment of chronic conditions is crucial for promoting population health, improving quality of life, and ensuring sustainable healthcare systems prevail globally.[6]

In some countries, including Saudi Arabia, rates of non-communicable chronic diseases are increasing. The prevalence of chronic diseases is very common amongst the elderly population across the country. According to one study, many Saudi individuals aged 60 and older live with more than two ailments.[6] Those older adults reported common chronic illnesses including hypertension, diabetes, dyslipidemia, and musculoskeletal disorders, which can potentially have a negative impact on patients' health status and lead to a higher risk of early death, as well as contributing to increased healthcare expenditure. The combined effect of chronic disease and quality of life on the healthcare system is the primary concern for individuals and policy makers in Saudi Arabia.[7]

Adequate management of chronic conditions remains a priority for the Saudi healthcare system in the 21st century. The Saudi Arabia's Ministry of Health places emphasis on achieving the "Saudi Vision 2030" of better healthcare and

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improved quality of life.[8] In addition, the Ministry should address the implementation of public health programs to raise awareness of chronic diseases, promote healthy lifestyles, and facilitate early detection and prevention.[9] Evidence-based self-management programs can be implemented to manage numerous chronic illnesses by improving health behaviors, health outcomes, and quality of life. These initiatives may play a significant role in reducing the burden of chronic diseases by addressing risk factors, promoting screening and early diagnosis, and supporting healthy lifestyles.

Self-management education is necessary in healthcare, helping to empower individuals with chronic conditions to effectively manage their health and improve their overall well-being.[10] Chronic disease education provides people with the necessary knowledge, competence, and resources to better understand their condition, to make effective treatment decisions, and to adopt healthy lifestyle choices. This education often includes information about the nature of the chronic conditions, including causes and symptoms, treatment options, self-management strategies, and available support networks.[11] To participate in self-management activities, the person must be equipped with the appropriate knowledge and skills. The Chronic Disease Self-Management Program (CDSMP) is an evidence-based program developed by Stanford University's Patient Education Research Center. The sole purpose of this lay-led health education program is to assist individuals in developing a wide range of skills and the confidence to successfully manage their chronic illnesses.[12]

The CDSMP is based on self-efficacy theory. The concept of self-efficacy refers to an individual's belief in their capability to perform a particular task. Motivation, self-confidence, and desire are factors contributing to health promotion and that enable individuals to "take control".[13] The CDSMP aims to improve self-efficacy through six weekly, 2.5-hour sessions that provide substantial information about proper chronic disease management and teaches pertinent skills (eg, development of action plans, communication skills, problem-solving, self-monitoring, nutrition, stress management, medication adherence, and symptom management).[14] Two trained peer leaders act as role models and facilitate the workshop, teaching participants important self-management skills and engaging them in problem-solving activities. Participants who finish the 6-week workshop should be able to self-manage their chronic conditions and effectively communicate with their healthcare providers.[12]

The CDSMP has been evaluated in several studies across different populations. Their findings indicate that this program can be very effective at improving self-confidence, increasing the use of self-management skills, and promoting quality of life.[15–17] Although evidence-based health education programs such as the CDSMP are considered effective, no prior studies are available regarding this program within the Saudi population. Understanding the "Saudi Vision 2030" aims to develop strategies to prevent life-threatening complications resulting from chronic illnesses offers greater meaning and relevance to community health studies. Research is needed to collect individuals' perceptions of the program and its effectiveness in the Saudi community. Thus, the aims of this qualitative study were: 1) to explore participants' perceptions of the impact of the CDSMP workshop on their health status and quality of life; 2) to determine the perceived benefits from participating in the CDSMP workshop; and, 3) to evaluate the cultural acceptability of CDSMP in Saudi Arabia.

# Materials and Methods

## Study Design

This study employed a qualitative design to explore our research questions with a sample of adults living with chronic diseases. Qualitative methods were used to capture in-depth insights into participants' chronic condition management experiences, aiming to explore previously untapped aspects of knowledge and offer straightforward descriptions of their experiences. This approach also allowed the research team to actively inquire about and gain a comprehensive understanding of the participants' experiences and opinions.[18] Additionally, we selected this design to explore participants' reactions and the perceived impacts of attending the Stanford CDSMP.

## Participants

A purposive sampling strategy was used to identify study participants. This approach helps to select participants with experiences relevant to the research objectives.[19] First, an experimental study was conducted to examine the CDSMP's impact on behavioral skills and health-related outcomes among Saudi adults with chronic diseases. Several CDSMP

workshops were delivered, engaging around 45 participants, to discuss the program's significance in self-managing chronic diseases and its provision of the necessary skills to achieve this goal. During the workshops, different self-management strategies were used to help boost self-efficacy and foster a positive mindset towards life.[20] Next, we sought to purposefully sample 20 participants from the intervention group to take part in this qualitative study. Previous studies regarding patients' perceptions on the impact of CDSMP had indicated saturation on key themes was achieved with between 10 and 40 participants.[21–23] Based on the past studies, it was considered that a theoretical saturation on key themes could be reached with 20 potential participants. This study recruited 20 members from the intervention group; 15 adults with chronic diseases agreed to participate in focus group interviews, while 5 declined participation. The study was conducted in the Riyadh region due to convenient accessibility.

## The Study Rigor

To ensure the rigor of our qualitative research, we assessed the criteria of credibility, transferability, dependability, and confirmability.[24] Credibility was established by encouraging participants to provide supporting examples and explanations to enhance our understanding of their responses. To address transferability, an outsider was provided with extensive and detailed information about the research context to familiarize them with the study. Dependability was maintained through a thorough review of records, transcripts, and comparison of themes. Further, a comprehensive assessment of the findings was conducted to ensure dependability. Confirmability was achieved by having the research team review the collected data, confirming the findings and identifying emerging themes.

## Data Collection Procedures

An announcement was made to promote participation in the CDSMP's workshop within the community settings. Workshops lasted for six weeks and also served as a platform for introducing this qualitative research. Interested individuals were provided with the opportunity to participate. Two focus group sessions were conducted by the research team members, utilizing the secure and reliable Zoom platform. Prior to each session, participants were informed that their records would be kept confidential and only accessed by the research team.

Each focus group lasted approximately 60 minutes and was conducted in Arabic to ensure that participants could comfortably and clearly express their ideas. Subsequently, the discussions were translated into English by a bilingual individual familiar with the healthcare field in Saudi Arabia. Questions were specifically asked about their perspectives on the effectiveness of the CDSMP in promoting self-care for chronic conditions, and its impact on improving quality of life and disease management (Table 1). Furthermore, participants were asked about potential challenges related to implementing the CDSMP among non-healthcare college workers. Additional questions explored the strengths and weaknesses of self-management skills for chronic conditions and any other factors positively or negatively influencing participants' daily lives. To gather more meaningful insights, follow-up questions based on participants' views, such as "why?" "how?", or "what do you mean by this?" were posed to elicit more detailed and useful information.

**Table 1** Interview Topics and the Focus Group Guide

| Topics | Qualitative Interview Questions |
|---|---|
| Expectations | • Do you have any previous experiences toward chronic disease self-management? |
| Content | • What activities of the workshop did you enjoy the best? What did you think was the best activity of the workshop? |
| | • What activities of the workshop did you enjoy the least? What did you think was the hardest activity of the workshop? |
| | • What self-management strategies did help you adopt healthy behaviors? |
| | • Do you have any concerns related to the workshop delivery? |
| After the workshop | • How do you feel this workshop has influenced your ability to manage your chronic illness(s)? How so? In what ways? |
| | • In what ways have you shared your experiences in this workshop with others living with chronic diseases? Would you recommend the workshop to other patients with chronic diseases? |
| | • Are you planning to become a peer leader in chronic disease self-management? |

## Data Analysis

Both focus group sessions were recorded and transcribed verbatim to be analyzed using a thematic analysis process. The first author listened to the audio recordings extensively and read through the transcripts many times to ensure a thorough understanding of the data. Microsoft Word was utilized to organize the data, and hard copies of the transcripts were also marked to facilitate identification of similar sentences. Each team member independently generated initial codes for the data on separate pages, associating words and sentences with relevant codes. Any discrepancies in coding were resolved through in-depth discussions amongst the team members until a consensus was reached.

The final codes obtained from the analysis were categorized into groups, and the relationships between the codes were identified. Upon reviewing the codes, it became apparent that certain codes aligned well with specific themes. Each theme was carefully reviewed and refined, ensuring that the data provided sufficient support for each theme. Quotations from the transcripts were included to substantiate and illustrate each theme. A similar approach was adopted in previous research.[25] To ensure the validity of our analysis, we sought the expertise of an independent qualitative expert who reviewed and confirmed the analysis and findings.

## Ethical Approval

Ethical approval was obtained from the institutional review board of King Fahad Medical City (Ref #: 22–598E). Informed consent was obtained from all participants, indicating their voluntary agreement to participate. Participants' informed consent also includes the publication of their anonymized responses. Participants agreed on the use of audio recording, and they were informed that they could withdraw from the study at any time without penalty. To ensure confidentiality, participant identities were anonymized using codes when reporting the findings. Once the study is fully concluded, all transcripts and participants' contact details will be securely destroyed to maintain confidentiality. The study complies with the Declaration of Helsinki.

# Results

## Sample Characteristics

A total of 15 participants aged 30 years or older took part in the two focus group sessions, comprising 10 females and 5 males. Some others declined to participate due to concerns regarding audio recording. All participants were employees of a health college with a minimum of 5 years of experience, and most had a history of diabetes (see Table 2). Three key themes emerged from the analysis of the qualitative interviews: the perceived benefits from the participation in the

**Table 2** Characteristics of the Study Participants (N= 15)

| Identifier | Sex | Chronic Disease Type |
|---|---|---|
| *P1 | Female | Diabetes |
| P2 | Female | Depression |
| P3 | Female | Hypothyroidism |
| P4 | Female | Arthritis |
| P5 | Female | High Cholesterol and triglycerides |
| P6 | Female | Diabetes |
| P7 | Female | Hyperthyroidism |
| P8 | Female | High Cholesterol and triglycerides |
| P9 | Female | Diabetes |
| P10 | Female | Hypothyroidism |
| P11 | Male | Diabetes |
| P12 | Male | High Cholesterol |
| P13 | Male | Cardiac disease |
| P14 | Male | Diabetes |
| P15 | Male | Diabetes |

**Notes**: * P= Study participants.

CDSMP workshop; the impact of the CDSMP on improving health status and quality of life; and, the cultural acceptability of the CDSMP.

## Perceived Benefits from Participation in CDSMP

The perceived benefits of the CDSMP workshop can be categorized into four sub-themes: knowledge, self-management activities, motivation for behavioral changes, and positive self-efficacy.

## Knowledge

Some participants emphasized that the CDSMP provides valuable and essential information that is relevant to individuals with chronic conditions. They particularly appreciated the fact that the CDSMP offers accurate and current health details from a trustworthy and credible source. Example comments included:

> I recommend the program because it contains important information, and my family members and co-workers benefited from it. When I return to work, I explain to them the information that we learned in the program. (P8)

> As for the program, it was helpful and a reminder for those who forget about their health and are not paying attention to healthy lifestyle. This means that its information is a warning and a reminder and helps with continuity. (P10)

## Self-Management Activities

The activities conducted during the six-week duration of the CDSMP received positive feedback from the majority of participants. Example quotes include:

> For me, it helped me a lot, especially in balanced eating and exercise (P1).

> One of the best activities in the program was the action plan. Other good activities were distraction technique, breathing and relaxation exercises (P13 & P15).

## Motivation for Behavioral Change

All participants who took part in the CDSMP workshop unanimously expressed the opinion that the program served as a motivating catalyst for behavioral change, which offered notable health benefits. Several participants specifically mentioned that the positive impact of the program's modules, on topics such as effective communication and positive thinking, helped them navigate the challenges of the academic work environment. Additionally, other participants found value in the "action plan" activity, utilizing daily or weekly plans to successfully accomplish their tasks. Example comments included:

> I benefited a lot from the entire program and in changing my behavior, even for my family members who have chronic diseases. Healthy behaviors became evident and beneficial for us. (P1)

> I learned a lot about how to deal with people and how to respond appropriately. My eyes were opened to many important behaviors (P6).

## Positive Self-Efficacy

The majority of participants conveyed their satisfaction with the CDSMP, citing it as a significant resource in boosting their self-confidence for effective chronic illness self-care. Example comments included:

> There was a change in my behavior, perhaps at a rate of 8 out of 10, because my awareness increased and I got benefited and benefited others (P1).

> I have become so self-confident as I explain some information to others, and there is medical improvement and greater adherence to medications. Maybe about 60% of my life changed for better after the program. (P15)

## The Impact of the CDSMP on Improving Health Status and Quality of Life

Several participants stated that their management of chronic diseases improved through the healthy behaviors provided in the CDSMP workshop. Others offered suggestions to enhance the program's role in improving health and increasing its effectiveness for the individual and society. Some participants' responses included:

> The program has changed many things in me: My weight has decreased by approximately 9 kilograms. I have better self-confidence. I have some medical progress and better adherence to medications. Perhaps most daily behaviors have changed for better. (P15)

> For greater benefit, it is preferable to have an electronic application that tracks the details of the program for the purpose of continuing the benefit of the program always. Through the application, we can save vital indicators, medical indicators, test results, medication adherence, and other healthy behaviors. (P12)

## The Cultural Acceptability of the CDSMP Management

### The Content of the CDSMP

All participants had no issues related to the content of the CDSMP and the delivery style of the program. Participants liked the self-management activities and the assignments that were given weekly. They supported the spread of the CDSMP throughout the Kingdom. An example of a participant's quote is:

> All the content sections were useful to me, and the best was how to develop an action plan, how to implement it, and measure its effect. All content was complementary to each other. (P13 & P14)

## Integration of the CDSMP Within Community Settings

Most participants reached a consensus on the CDSMP's importance, acknowledging its value for adults with chronic conditions. They emphasized the need for its integration into community settings to facilitate active engagement and knowledge acquisition among people living with chronic illnesses. Example comments included:

> The program is important for the community because it renews their activities and arranges them week after week, and it is considered appropriate from teaching and educational aspects, their family members, and those around them and their friends. (P1 & P7)

## Active Participation in the CDSMP

Some participants highlighted the significance of involving a substantial number of students and employees in the CDSMP to maximize its impact and scope. They emphasized that participants would share their experiences with their families, friends, and colleagues, thereby facilitating the dissemination of the CDSMP's information to more people across Saudi Arabia. Participants commented:

> The environment was suitable for active participation in the program, as it attracted a large number of employees who were working at the same place and environment. Everyone participated easily and quickly and could benefit others. (P1)

> We had the ability to encourage each other, and also the ease of being present and participating in the program helped us (P8).

# Discussion

Several studies have evaluated the impact of the Stanford program in many settings.[26–28] To our knowledge, this is the first qualitative evaluation of the Stanford self-management program in Saudi Arabia, and includes paramount insights into the implementation of the program in the Saudi community. Findings from this qualitative analysis indicate that adults living with chronic diseases perceived the Stanford CDSMP as a primary resource to achieve successful management of their conditions. The considered benefits of the CDSMP workshop included improved knowledge of self-management skills, new self-management activities, increased motivation for behavioral changes, and positive self-

efficacy. Several participants stated that the CDSMP had multiple positive impacts on their behavioral changes and, thus, is an asset for chronic disease support. Participants accepted the program and considered its content and delivery useful. In addition, the structured approach of the program did address all the needs and expectations of the study participants living with chronic conditions.

The CDSMP has been effective in increasing patients' knowledge and skills related to disease management and control.[29] The program mainly focuses on teaching necessary self-management skills rather than concentrating on improving patients' knowledge about their disease condition.[12] In this study, action planning, problem-solving, decision-making, relaxation and distraction techniques, and effective communication with healthcare providers were perceived as valuable self-management tools. Nemours studies reported that individuals who acquire these self-management skills are able to take an active role in managing their condition and adopting a healthy lifestyle.[16,30,31]

Accordingly, the most important self-management skills perceived by the study participants were related to action planning, distraction, relaxation, diet, and exercise practices. The use of action planning was viewed as an essential component of the CDSMP. The participants reported that they enjoyed creating specific goals and planning concrete actions during the 6-week self-management program. In addition, they viewed this self-management skill as a key element, not only during the CDSMP workshops, but also in everyday life. Reports from similar research regarding implementation of the CDSMP intervention indicated that patients were using action plans several months after attending the last session of the program.[32] Recent evidence also suggests that action planning is considered one of the effective elements of the CDSMP for improving self-efficacy and the motivation for behavioral changes.[16,30,31]

As stress and symptom management are essential components in chronic disease self-management, our qualitative findings support the importance of using the CDSMP to introduce patients with chronic diseases to relaxation and distraction techniques. A growing body of evidence indicates that these techniques could reduce the effects of stress and improve symptom management in individuals with chronic illnesses.[33,34] Participants reported that they regularly use distraction as an essential cognitive approach to manage stress and pain or even sleep problems. The CDSMP highlights that distraction techniques can provide short-term relief, but do not address the underlying causes of the symptoms.[12]

Healthy diet and exercise practices emerged as self-management skills which required development among the majority of participants. In terms of behavioral changes, positive changes related to these two themes were reported after attending the CDSMP workshops. Not surprisingly, participants attending at least four sessions were more likely to acquire food preparation skills, adopt healthy eating habits, and maintain regular exercise. These qualitative findings indicate the benefits of the CDSMP strategies, including "healthy eating and exercise" throughout the program, to improve self-management skills and promote adopting necessary behavioral changes.

This qualitative evaluation reported positive responses of participants and their satisfaction with all sessions of the CDSMP and its delivery model. The findings also suggest that the program was culturally acceptable Participants felt satisfied to have an active role in the program because they learned helpful self-management skills, such as effective communication with their healthcare providers, development of action plans, and problem-solving techniques. Participants also felt happy to attend and participate in the CDSMP workshops as they were unavailable elsewhere. Additionally, attendees of the CDSMP workshops were willing to serve as peer leaders, sharing their knowledge and experiences with their families and others in the community who face similar chronic conditions.

## Study Limitations

Some participants expressed concerns about being recorded when sharing their thoughts. To resolve this, we confirmed that their data would be kept confidential and reviewed only by the research team members. We also confirmed that all data would be deleted upon full completion of the study. Additionally, it is important to acknowledge a specific limitation of our research, namely that we did not extensively inquire about participants' own self-management strategies prior to implementing the CDSMP. The assumption was made that lack of effective self-management may have influenced their health and workload negatively. Based on that, it is suggested that future research covers self-management aspects of multiple chronic conditions in order to enhance and broaden our understanding of the topic. Further, as qualitative research relies on participants' experiences and opinions, and researcher's interpretation and subjective judgment, this

may introduce some subjectivity and interpretation challenges. For more comprehensive understanding, future studies should consider incorporating a variety of research methods that can provide additional insights and contribute to effective self-care practices for individuals with chronic conditions.

### Study Implications

This qualitative study enabled us to explore the patient perspective on the important impacts of the CDSMP. The results of our exploration of the patient perspective supported the CDSMP dissemination in Saudi Arabia. In addition, the CDSMP brought a novel approach to facilitating participants' behavioral change and improving their chronic disease control. The Stanford CDSMP is centered around patient care, focusing on empowering individuals to effectively manage their disease condition through interactive sessions. Rather than solely providing medical information, the program emphasizes teaching participants the necessary skills to self-manage their condition and take an active role in their disease management.[35,36] In alignment with "Saudi Vision 2030", this study emphasized the importance of the implementation of chronic illness self-management programs, such as the CDSMP, and their promising effects on healthcare outcomes and the cost of healthcare. Moreover, our findings suggest the need for further investigation regarding the effect of CDSMP interventions on health outcomes and quality of life within the wider community.

## Conclusions

The CDSMP has been recognized as an important intervention for patients living with chronic conditions. Its impact on improving health outcomes and enhancing patients' quality of life has also been determined. Looking ahead, investigating the long-term sustainability and scalability of the CDSMP would provide valuable insights for program implementation and dissemination. Moreover, future studies should delve into the specific mechanisms through which the CDSMP empowers patients to self-manage their conditions, enabling a deeper understanding of its underlying processes. Finally, evaluating the cost-effectiveness of the CDSMP would help healthcare systems make informed decisions regarding resource allocation and support its wider adoption.

## Institutional Review Board Statement

Ethical approval was obtained from the institutional review board of King Fahad Medical City (Ref #: 22-598E).

## Informed Consent Statement

Informed consent was obtained from all participants.

## Data Sharing Statement

Data are not shared due to privacy and ethical restrictions.

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## Disclosure

The authors report no conflicts of interest in this work.

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