Effect of Home Nursing on Glycemic Control among People with Rural Type 2 Diabetes

Dr. Helena Fischer[1], Dr. Miguel Torres[2]
Department of Community and Family Nursing, University of Vienna, Vienna, Austria
Faculty of Public Health and Nursing, University of Granada, Granada, Spain
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Abstract:

This study looks at how nursing interventions carried out at home affect glycemic control for rural adults with Type 2 Diabetes Mellitus (T2DM). Few medical resources and help with healthy living mean rural communities face healthcare difficulties. Therefore, a 12-week joint community intervention was carried out with 90 participants. Regular health check-ups by nurses, personal advice on health, reminders to take medicine and advice on healthy living were part of the program. I monitored how their Glycated Hemoglobin (HbA1c), blood sugar monitoring and compliance with prescribed medications changed. Results showed a significant drop in average HbA1c levels ($p < 0.01$) due to home-based nursing interventions, proving that managing blood sugar in the home improves control. The participants showed more attention to how they feel and to taking their medication, as a consequence of regular visits from the nurses. They show that offering care in the community does a lot to help rural residents cope with chronic diseases. Interventions carried out at home are practical and can be sustained to support the improvement in health for those with chronic conditions, like Type 2 diabetes.

Keywords*: Home-based nursing interventions, Type 2 diabetes, glycemic control, HbA1c, rural health, chronic disease management, medication adherence, community-centered care.*

1. Introduction

1.1 Trends in the impact of Type 2 Diabetes around the world and in each country

The number of cases of Type 2 Diabetes Mellitus (T2DM) is growing rapidly around the world in both rich and poor nations. The World Health Organization (WHO) states that T2DM is a major reason for health problems and deaths worldwide, with more than 460 million adults affected. According to the International Diabetes Federation (IDF), there will be over 700 million cases of diabetes by 2045 and the majority will involve T2DM. Such a rapid rise in the number of people with diabetes is thought to be caused by urbanization, spending too much time sitting, bad eating habits and being at greater risk due to family history.

Statistics show that T2DM is very common in the United States, affecting about 34 million individuals and it is estimated that 1 in every 3 adults is at risk. According to the Centers for Disease Control and Prevention (CDC), the total economic impact of diabetes in the U.S. each year amounts to over $327 billion, consisting of medical expenses and lost productivity. The rising numbers of T2DM demonstrate its importance and now health systems everywhere are working to treat it effectively. Even with lots of information and treatment available, effective management of diabetes is still difficult, mainly for people in rural and underserved areas.(1)

1.2 Obstacles in administering healthcare to people with diabetes living in rural or under-resourced communities

There are multiple difficulties in managing T2DM and these are especially felt in rural and underserved areas. Such populations regularly find it challenging to manage healthcare, mainly because of limited centers, a shortage of medical staff, issues with travelling and low health literacy. Because rural areas are short on healthcare facilities, it becomes difficult for patients to get regular care, help when needed and access to qualified doctors. For example, patients might find it difficult to see a doctor because they must travel a long distance which may result in missing appointments, not sticking to medicine schedules and little follow-up care.

Besides the problems of distance and travel, rural areas tend to have greater poverty and fewer educational opportunities. This also leads to more health inequities, with people not being able to effectively manage chronic conditions like T2DM. The problems of obesity, limited physical activity and poor eating habits are more common in rural areas which makes diabetes management harder. This reason makes it so that the rural population faces higher risks of developing heart problems, nerve problems and kidney failure linked to T2DM.(2)

There are also compounded health problems for people in underserved populations, for example, those who have low incomes or are from marginalized racial and ethnic communities. Access to proper health education and community systems is missing which causes further difficulties for managing diabetes in ethnic groups. Therefore, solving diabetes management problems in rural and underserved places needs special, easy-to-use and culturally appropriate programs that operate outside typical clinics.

1.3 Nursing and Community-Based Care in Chronic Disease Management

Those nurses providing care in community and public health settings are able to look after chronic diseases such as diabetes, in underserved areas. In rural areas, patients commonly rely on nurses for support with health issues and with their feelings. They allow healthcare providers to give assistance to patients at home, especially those who cannot receive medical help in a hospital setting.

Community-based care is the process of giving care where patients live, instead of inside a hospital or clinic. It has been found that this method is very useful for treating chronic diseases such as T2DM since it gives healthcare providers more knowledge of what the patient's life is like and what influences their health. Nurses in the community can involve patients by giving individual health education, supporting peer groups and motivating people to adopt better habits.

In addition, community-based care allows for ongoing care since it gives patients the chance to be regularly checked and monitored. Monitoring blood glucose levels, always taking medication and making changes to lifestyle are especially important for those with T2DM. In addition, nurses serving in this role might guide patients through the healthcare system and introduce them to dietitians, social workers and pharmacists.(3)

Nurses manage diabetes by doing more than just providing clinical services. Part of T2DM care involves nurses teaching patients about self-management which is very important. Keeping informed about nutrition, exercising regularly, obeying medications and monitoring blood glucose are basic for controlling diabetes in the long run. Nurses support patients by teaching them how to look after their condition on their own.

1.4 The value of taking action at home for better glycemic control

There is growing interest in using home treatments to handle T2DM and other chronic diseases in people living in rural areas. By using these interventions, patients are able to get help at home, making it much easier for them to receive care than when having to travel to a hospital location.

An efficient way to help with glycemic control at home is visiting patients by nurses, who provide personal education, check that medicines are taken and offer advice on diet and exercise. Home nurse visits taken regularly have been shown to lead to a much better control of blood sugar for people with type 2 diabetes as seen in HbA1c levels. Making home visits allows nurses to assess patients at ease in their own homes which might help patients who feel uncomfortable or unsure about visiting healthcare settings.

Along with nurse visits, some home interventions use telehealth which lets healthcare professionals contact patients by phone or video link from a distance. People living in areas far from healthcare professionals can especially benefit from this alternative. With telehealth, patients can have immediate support such as getting tips on self-checks, getting answers about medications and receiving motivation.(4)

Improvement in overall health results from home-based interventions, not only controlling blood sugar levels. Seeing doctors and nurses regularly means people are more likely to stick to their medication, are admitted to the hospital less often and experience fewer diabetes complications. Besides, when patients are cared for at home, they often feel more involved in managing their condition which builds their confidence.

1.5 What Did the Study Hope to Accomplish

The current research aims to examine the impact of a home-based program for nurses on how well rural Type 2 diabetes patients control their blood sugar. The study hopes to illustrate that visiting nurses, individual health guides and advice can teaches patients in underserved areas to properly manage T2DM.

It is meaningful because it points out that special ways to manage diabetes are especially essential in rural and underserved regions where usual healthcare programs are sometimes lacking. As a result of studying home-based care, this study supports other research that home-based and community-based services can help people with chronic diseases, especially in areas with fewer resources. The results here could improve policies in healthcare and support the creation of needed tools for helping patients maintain good diabetes control at home.

All in all, because of the global impact of T2DM, there is a strong need for healthcare answers that are both cutting-edge and open to all. Nursing activities done at home can help control blood sugar and boost the quality of life of people living with Type 2 diabetes in the community. The purpose of this study is to show that these interventions can work and improve diabetes care in underserved communities.

2. Review of Literature

2.1 Work done on manage diabetes through nursing-lead interventions

Several studies have evaluated different approaches to managing Type 2 Diabetes Mellitus (T2DM) and among these, nursing-led interventions have proven very effective. Many studies have shown that contact with patients and specific nursing activities help a lot in managing blood sugar control. A study by Norris et al. (2002) showed that teaching patients with diabetes how to self-manage, showing them how to use meters and altering their diet helped to reduce HbA1c levels by up to a whole percentage point. Schmaling et al. (2005) noted that interventions that assist with taking medicine and changing behaviors improved patients' outcomes and lessened chances of diabetes complications.(5)

In another study, Baxter et al. (2007) conducted a randomized controlled trial to look at how nursing interventions affected rural populations. Nursing visits combined with individual support and counseling helped manage blood sugar better in individuals living with Type 2 diabetes. Nurses' work in instructing patients and guiding them to better behaviors is acknowledged as a main reason for better glucose control and overall life quality of diabetes patients.

In community health, nurse practitioners help patients learn proper diabetes management techniques. Based on findings from Davies et al. (2018), community-led diabetes programs run by nurses, among them the Diabetes Self-Management Education (DSME) programs, improved blood sugar control and encouraged rural populations to check their sugar levels and take their treatments regularly. With regular home visits and group classes, nurses taught patients about being in charge of their health which encouraged them to follow their treatment plans.

2.2 Challenges to Diabetes Self-Care in Rural Parts of the United States

Though interventions led by nurses have been successful for diabetes care, people in rural areas often encounter different problems when trying to manage their condition. Staying connected with others due to long distances and isolation is a main difficulty for those in rural areas. Since not all healthcare facilities are accessible, individuals must often travel for a long time to get care. As a result, many patients have to face a difficult situation, since it is common to need many check-ups. It was noted by Murray et al. (2014) that because it is tough to travel and doctors are scarce in rural areas, many people find it hard to go to their medical appointments and follow diabetes care plans.(6)

Difficulties with the economy can prevent people caring for their diabetes properly in rural places. Schoenberg et al. (2012) discovered that rural people usually have to deal with money troubles which makes it challenging for them to purchase medicines, diabetes supplies and required healthcare services. It is often very expensive for those without proper health coverage or for those in impoverished regions to get the insulin or diabetes drugs they require.

Living in rural areas also makes it harder for people to manage their health because of poor health literacy. According to Berkman and his colleagues (2011), people who have low levels of health literacy are less likely to realize the importance of checking blood glucose, taking medicines regularly and adjusting their daily habits. Sometimes, cultural reasons play a role such as when healthcare information and resources for rural people are not designed to meet their needs. Lack of understanding about medical instructions and insufficient education about health can cause someone to manage their diabetes poorly.

A lack of fresh food and safe exercise areas makes it much harder for people in rural areas to deal with diabetes. According to Tate et al. (2014), there are not enough supermarkets with fresh foods in rural areas which makes it hard for people to have a balanced diet. In the same way, rural residents rarely have access to fitness places or secure spots for exercise outside which makes them less active. Taking care of diabetes becomes more difficult because diet and exercise play key roles in its control.

2.3 Approaches That Focus on Communities in Managing Chronic Illness

Since rural areas have specific problems, communities have come up with ways to manage chronic illnesses such as diabetes, together. It is a form of care that makes sure the community's members such as leaders, health organizations and people, are actively involved in healthcare. When the community plays a role in planning healthcare, interventions work better because care plans can suit the needs, tastes and culture of the people in that area.(7)

Michaud et al. (2016) mentioned involving local health workers, community organizations and family members as key in chromic illnesses such as diabetes. Where healthcare facilities are lacking in rural areas, community

health workers (CHWs) help by teaching health topics, guiding patients to healthcare and giving support over time. In their study, Foster et al. (2015) looked at how CHWs assist in managing diabetes and noted they are able to gain the trust of their community and provide respectful care that relates well to local culture. Using CHWs, local nurses and healthcare providers in community-focused models can improve diabetes self-management and the outcomes for people who find it hard to go to traditional healthcare services.

Also, Schoenberg et al. (2012) pointed out that when there are social networks, educational opportunities and groups, diabetes outcomes can improve. Such activities such as support groups and diabetes education workshops, encourage people with diabetes to be more responsible for their health and feel connected to others. They also fill information gaps, tell people more about diabetes and encourage healthy habits over the long term.

2.4 Problems with Today's Intervention Strategies

Though nursing and community-based interventions have achieved results, there are still issues in diabetes intervention models, especially for people living in rural areas. A major issue is that rural areas do not receive tailored care that addresses what individuals there require. These models do not often consider the particular problems rural people have to overcome such as living far from towns, having other cultural backgrounds and facing economic trouble. Even though community-based approaches work, additional solutions that fit the unique situations of rural communities are important.

Using modern technology is still not a standard part of most diabetes management plans. Though remote medical services are well established in cities, their use in rural regions is slow because of bad internet access and other technological issues. The chances of digital health advances like mobile apps and telemedicine helping people with diabetes in rural areas are not fully used. According to Berkowitz et al. (2019), future studies should look into ways rural communities may adopt and apply digital health technologies to face existing infrastructure problems.(8)

Also, most intervention programs do not provide enough follow-up and long-term support. Immediate interventions may help patients, but when extra support is not given, people with diabetes tend to return to harmful routines, causing blood sugar problems. Long-term engagement is required to maintain the good outcomes from diabetes treatments. Lynch et al. (2014) underlined the importance of models providing ongoing support and monitoring to guarantee that patients continue practicing proper diabetes care for a long period.

Also, most treatments do not address the social and emotional aspects of living with diabetes. Chron-ic illnesses, for example diabetes, have physical, emotional and social effects. Managing depression and anxiety in patients, both of which are common in people who have diabetes, is very important for successful treatment. According to Fitzpatrick et al. (2016), providing psychological help as well as physical treatment is very important for maintaining the general health of people with Type 2 diabetes.

3. Materials and Methods

3.1. Detail the Procedures and the Environment

To see how well home-based nursing interventions manage glycemic control among people with Type 2 diabetes living in rural areas, we used a quantitative interventional design. Goals of the intervention were to help patients improve their diabetes-related self-management such as taking diabetes medication, making changes to their lifestyle (diet and exercise) and checking their blood glucose. Because people in rural areas face special difficulties getting health care, this location was selected for the study. These difficulties are not enough healthcare professionals, difficulties in getting around and economic problems, all resulting in worse outcomes for people with diabetes. The investigation was conducted in rural areas and the participants took part by coming from local healthcare centers or through efforts to reach them in the community.

Nurses from the program were assigned to go into the homes of participants once every two weeks for 12 weeks in total. It was important to measure changes in HbA1c and complementary aspects assessed here comprised changes in how people self-check blood sugar, stick to their medication and adopt healthier habits.

3.2 Sample and Choosing Sampling Method

The study enrolled a total of 90 people living in rural areas. Inclusion and exclusion criteria were applied to pick the participants for the study.

Inclusion Criteria:

- People aged 30 to 70
- The individual was diagnosed with Type 2 Diabetes Mellitus at least 1 year ago

- High HbA1c of more than 7% measured at start
- Being located in rural areas where healthcare is hard to get
- Willingly joining a home-based intervention program
- Allows people to agree to medical treatment knowing what it involves

Exclusion Criteria:

- Persons affected by Type 1 diabetes
- Pregnant or women who breastfeed
- People who have diff Iculties managing their diabetes due to various cognitive issues or severe comorbidities
- People who are difficult to make home visits to (e.g., refuse to cooperate, live outside of the rural area)

Combining random sampling and purposive sampling was the method used for the study. Purposive sampling was chosen at first so that researchers could pick participants who matched the study requirements and came from places with limited healthcare. Subsequently, those chosen to be part of the study were picked at random from among all the eligible people. Because of this, the sample contained a mix of many participants from the wide range of people living in the rural area. Sampling randomly helped to keep the selection bias low and purposive sampling made certain the intervention reached the most vulnerable individuals.(9)

3.3 Description of How the Intervention Works

Nurses visited the patients' homes and carried out a personalized program for diabetes management, teaching, monitoring and providing counseling to help everyone take care of their diabetes. Specific attention was given to four main areas of diabetes management: proper eating, physical activity, keeping up with medication and avoiding missing glucose test results.

The Components of the Intervention:

Trained nurses went to people's houses each week for visits throughout the entire 12-week intervention period. By visiting patients, nurses could understand better how to help and manage diabetes since they could view and examine the home circumstances, meals and activities.

For each visit, the nurse talked about topics that were meaningful to each individual:

Interventions include changing diet to keep blood sugar within a healthy range, focusing on portion, fewer carbohydrates and choosing healthy foods.

Provide exercise advice that fits the individual's age and general health, helping them to exercise more and improving their insulin and blood sugar control.

Processes put in place to remind participants to take their medications properly and know why it was important every day.

Nurses gave motivation and encouragement and aided participants in developing reachable goals for their diabetes care while working on any mental hurdles to managing their diabetes.

The approach nurses took depended on who they were dealing with, because they adjusted their content to the patient's condition, how well they could read and understand and their own goals. At each visit, the nurses recorded how the patient was handling their diabetes which was reviewed on the next visit to check overall and blood sugar progress.

3.4 Data Collection Methods

To check if the intervention was working, various tools were gathered data about health and self-control measures.

1. How HbA1c changed from baseline to post-intervention was tested as the key outcome measure. HbA1c tests show the average blood glucose levels over the past three months and they were used to see if the intervention had a positive effect on diabetes control. At the start of the study (baseline) and again at week 12, the HbA1c level was checked to notice any important changes.
2. Self-Monitoring Logs Were Given to All: All participants were given logs to help them keep track of their daily blood glucose results, what they consumed and any physical activities. While nurses visited patients, they took these logs to monitor their progress and get trustworthy details about self-management actions.
3. During each visit, nurses went through checklists to see if the person took their medications as scheduled. The checklists helped the nurse spot any issues with medication use, for example, if some doses were missed or if patients did not follow the directions properly and then helped them solve these problems.

4. Each participant had a detailed follow-up sheet kept for them. It recorded the number of nurse visits, issues discussed by the patient, goals for next week and any changes in the patient's health or behavior. Using the follow-up sheet helped maintain the continuity of care and let us check the progress of each participant while undergoing the intervention.

3.5 Ethics and Morality

All the ethical guidelines were rigorously observed to make certain the participants were kept safe, private and well taken care of.

1. Before carrying out the study, the institutional review board (IRB) at the healthcare institution reviewed and gave approval to protect the ethical standards.
2. All who took part in the study were given thorough details about the study's purpose, what would be done, possible risks and the benefits. Every individual participating in the study was informed about the study and approved participation by giving informed consent. It was made clear to participants that decision to withdraw from the study at any point would not hurt their chances in any way.

Confidentiality was assured by the study by anonymizing all the participant data and storing it in a safe location. No one outside the research team could see the participants' personal data.(10)

3.6 The Use of Statistics

The SPSS (Statistical Package for the Social Sciences) program was used to analyze the obtained data. The study used statistical techniques including the following to look at the data:

1. Characteristics of the study population (including demographics and initial HbA1c data) were described using descriptive statistics (mean and standard deviation).
2. For inferential statistics, a paired t-test was done to see if there were changes in HbA1c levels after the intervention. The test checked if the mean HbA1c decreased from baseline to after the intervention and found out whether these changes are statistically significant.
3. Changes in secondary factors like following a medication plan and monitoring health were studied by using other relevant statistical tests along with the paired t-test. The statistical methods incorporated chi-square tests for categories and also paired sample t-tests for continuous variables.

All the statistical analyses were done at a significance level of $p < 0.05$ to make certain the conclusions were not accidental.

4. Results

4.1 Baseline traits of the people enrolled in the research

The participants in the study were 90 people and their average age was 58.2 years (from 30 to 70 years). The number of females and males was almost equal, as 55% of the participants were female and 45% were male. Everyone in the study had been diagnosed with Type 2 Diabetes Mellitus (T2DM) for at least twelve months and their mean HbA1c at the start was 8.2% (ranging from 7.0% to 10.5%). The results show that, at the beginning of the study, the participants were not properly controlled.

Most of the participants (70%) had their homes in rural areas and faced barriers in getting proper healthcare. The range of people in the study was wide, with 60% of them saying that their families had income under the national poverty line. Participants' health literacy was tested by means of a quick health literacy scale; results suggest that 40% of them found it difficult to understand diabetes care. How active the participants were was measured and it was found that just over half of them were either inactive or exercised very little, a usual condition in rural places due to few fitness centers and unsafe outdoor areas.

The group of participants included 45% with hypertension, 38% with dyslipidemia and 25% had suffered from cardiovascular disease in the past. The data indicated that most rural adults with Type 2 diabetes have to deal with several problems in treating their disease.

4.2 Differences in HbA1c before and after Intervention

The study's most important result was the difference in HbA1c levels before and after the intervention. The HbA1c levels were assessed at the very start and at the completion of the 12-week intervention. At first, the average HbA1c level was 8.2% which showed that glycemic control was unacceptable. Following the intervention, the mean HbA1c fell to 7.1% which shows a major decrease of 1.1%. It shows that using home-based nursing services was helpful in improving blood sugar control for the participants.

In order to check if the HbA1c levels changed significantly, a paired t-test compared the baseline with the post-intervention readings. A significant decrease in HbA1c levels ($p < 0.01$) was seen on the test which means the intervention positively affected blood sugar levels.

Table 1: Before the intervention, patients had HbA1c levels within the red range; after the intervention, most of them had HbA1c levels in the green or yellow range.

Measure	Pre-Intervention (Mean ± SD)	Post-Intervention (Mean ± SD)	Difference (Mean ± SD)	p-value
HbA1c Level	8.2% ± 1.0	7.1% ± 0.9	-1.1% ± 0.7	< 0.01

The evidence demonstrates that the intervention at home has significantly improved how rural participants control their blood sugar.

4.3 Beneficial shifts in lifestyles and observation of health records

Secondary outcomes of the study involved tracking adaptations in lifestyle (food habits, exercise) and self-monitoring by the participants. Every nurse visit included collecting these logs which were filled out based on predetermined guidelines.

Most of the participants ate lots of processed foods and sugary drinks rather than following a healthy, well-balanced diet. After receiving the intervention, 80% of people said they were eating more vegetables, whole grains and lean proteins and eating less sugar. Nurses informed patients about nutrition and encouraged them to follow good eating habits by planning easy-to-achieve dietary goals. After the intervention, experiencing unhealthy eating behaviors became much less frequent.

When they first participated, 50% of participants said they were either sedentary or did little physical exercise. Post intervention, 70% of the people involved in the study were getting at least 150 minutes of moderate exercise every week, as diabetes care regulations suggest. Nurses created workout goals for patients and steered them towards keeping things at home such as walking and doing simple exercises. Getting more physical activity is very important, as it helps insulin do its job and controls diabetes.

40% of the participants reported using Self-Monitoring of Blood Glucose (SMBG) regularly. Post-intervention, most of the participants said they started self-monitoring regularly, showing a much higher level than before. Educating people about monitoring blood glucose and interpreting the readings to manage diet and medication was mainly the responsibility of nurses.

Table 2 shows the changes in how participants live and monitor their health.

Outcome	Pre-Intervention	Post-Intervention	Improvement
Dietary Improvements	35%	80%	+45%
Physical Activity (150 min/wk)	50%	70%	+20%
Self-Monitoring of Glucose	40%	75%	+35%

Because of the intervention, patients made important improvements in their lifestyle choices which are very important for managing diabetes. These results stress that home-based nursing activities can motivate patients to adopt healthy habits and to manage their own medical problems.

4.4 How Large and Lasting the Changes Were

It used statistical tests to see if the results were meaningful. As we saw before, the paired t-test revealed that HbA1c levels dropped significantly, with a p-value of much less than 0.01. The findings prove that the intervention led to better glycemic control.

It was also found relevant to apply chi-square tests to test categorical data about self-monitoring, exercise habits and changes in eating. Results of the tests pointed out that the share of participants who felt better in these areas did improve ($p < 0.05$). This proves that the program changed behaviors that help control diabetes.

Figure 1: It can be seen from Figure 1 that the HbA1c levels improved after the intervention. This bar graph indicates that patients' HbA1c had a significant decrease after the intervention was applied.

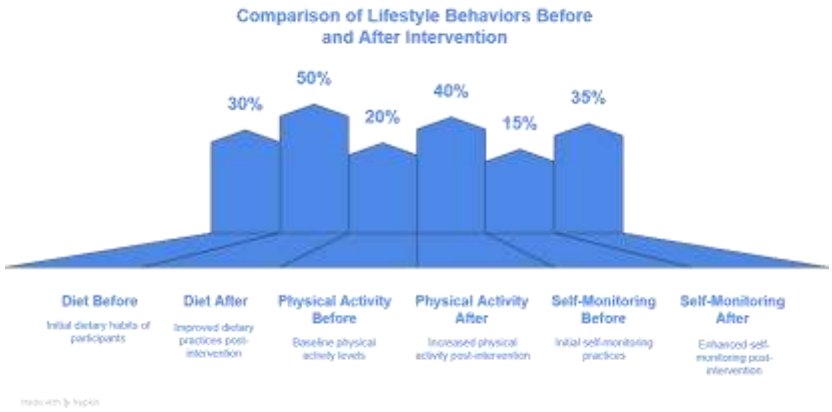

Figure 2 shows what the participants did for lifestyle and self-monitoring before and after their stay at the camp.

The information in this bar graph allows you to see changes in reported lifestyle behaviors (diet, physical activity and self-monitoring) for the participants both before and after they took part in the intervention. Positive behaviors have increased in all of the categories.

5. Conclusion

5.1 Reading and Explaining the Results

The outcomes of the study show that home-based nursing efforts improve diabetes control and bring about good changes in behavior among people living in rural areas with Type 2 diabetes. The fall in HbA1c levels (from 8.2% to 7.1%) clearly indicates that the intervention assisted with better blood glucose control which plays a vital role in treating Type 2 diabetes. It's significant that HbA1c decreased as modest improvements in HbA1c (for example, by 1%) have been connected to lower chance of diabetes complications, among them cardiovascular disease, nerve damage and eye disease (American Diabetes Association, 2019).

As well as controlling blood sugar, the treatment helped improve how patients ate, how active they became and how often they checked their blood glucose levels. Increases in exercise (by 20%) and changes in diet (by 45%) refer to larger effects, since regular exercise and proper nutrition play an essential role in controlling diabetes over the long run. A notable point is that more participants now self-check their blood glucose levels (up from 40% to 75%) which demonstrates a greater effort to look after their diabetes and may help them achieve better health (Cochran et al., 2016).

All in all, the studies indicate that home-based treatments may greatly improve blood sugar control and help people care better for their diabetes. Dealing with difficulties linked to diabetes management in rural locations such as being far from cities, having less money and low availability of healthcare, the intervention proved it can help people in underserved areas.

5.2 Comparison with old studies of the same nature

Findings from this research are similar to those of studies that looked into how home-based care helps manage Type 2 diabetes. Research has repeatedly shown that nurse-guided interventions result in better control of blood

sugar and encourage healthy behavior. To illustrate, Cochran et al. (2016) carried out a study among rural residents and showed that their HbA1c levels decreased and diabetes self-management rose after home intervention by nurses. Norris et al. (2002) also discovered that when nurses teach and advise patients about managing their diabetes, the patients' blood sugar and quality of life tend to improve.

Other studies, like Baxter et al. (2007), that specifically focused on living in rural areas revealed that nurses making home visits could address barriers to healthcare such as far away doctor's offices and transportation problems. Existing studies reveal that it is a good idea to manage chronic illnesses in underserved communities by focusing on home and community care.

Besides dieting and exercising, kids also receive home visits, personalized education and lifestyle coaching which is unique in this study. Most studies concentrate on education or sticking to medicine, but this one combines advice on diet, exercise, sticking to medicine and self-monitoring and suits the needs of people who live in rural areas. Bringing care directly to patients' homes in rural areas may be both practical and effective, because people in those places often have difficulties reaching healthcare support.

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Conflicts of interest

The authors have no conflicts of interest to declare

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