

# Utilisation of Hispanic community workers and case managers to increase adherence to diabetes treatment in Hispanic populations

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## Article points

1. In the US, 11.8% of Hispanic people have diabetes, and by 2050, one in five Hispanics are predicted to have the condition.
2. Many factors contribute to diabetes in Hispanics, including poor dietary habits, lack of physical activity and inadequate access to healthcare.
3. Utilising Hispanic community workers and case managers can help the Hispanic population manage their diabetes and reduce diabetes complications.

## Key words

- Community health workers
- Diabetes education
- Hispanic
- Self-care adherence

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**There are 25.8 million people with diabetes in the US, of whom 11.8% are Hispanic. The prevalence of diabetes among Hispanic people is expected to rise, owing to poor dietary habits, lack of physical activity and lack of healthcare providers. Language and acculturation are some of the many barriers that Hispanics face when accessing care. Many do not adhere to diabetes treatment regimens. This review shows that utilisation of Hispanic community workers and case managers can be an effective measure to increase adherence to diabetes treatment amongst Hispanics in the US. The findings can be extended to minority population groups in the UK.**

**D**iabetes is a public health crisis that threatens the economies of many nations (Hu, 2011). According to the Centers for Disease Control and Prevention (CDC), there are 25.8 million people with diabetes in the US, representing 8.3% of the US population (CDC, 2011). The prevalence of diabetes in the Hispanic population is about 11.8%, the second highest among all minority groups in this country. By 2050, this prevalence is predicted to rise to >20% (Rowley and Bezold, 2012). According to the American Diabetes Association (ADA), people with diabetes cost the US \$245 billion in 2012 (ADA, 2013). The money was spent on direct medical costs, absenteeism, reduced productivity, unemployment due to diabetes-related disability and lost productivity due to early mortality. Despite the availability of many pharmaceutical agents to help manage diabetes, complications related to the condition are common, and diabetes contributed to 231 404 deaths in 2007 (CDC, 2011). It was the seventh leading cause of death that year.

Hispanic people are at an increased risk

of many diabetes-related complications as a result of language barriers and lower levels of acculturation (Ariza et al, 2010). Many studies have revealed that people with diabetes can reduce the rate of complications if they adhere to self-care behaviours and treatments. The purpose of this literature review was to assess whether utilisation of Hispanic community healthcare workers and case managers could increase adherence to self-care behaviours and reduce complications of diabetes among the Hispanic population in the US.

## Background

Diabetes has various deleterious effects on the body. It is the leading cause of kidney failure and blindness in the US, and people with the condition have a two- to four-times higher risk of heart disease and stroke (CDC, 2011). In addition, >60% of non-traumatic lower limb amputation cases involve people with diabetes. Healthcare providers need to help people with diabetes understand the importance of adherence to self-care measures in order to decrease the number of complications.

### Page points

1. Hispanic people are at risk of developing diabetes because of poor diet, lack of physical activity and inadequate access to healthcare.
2. Hispanic people with diabetes face many barriers to effective management of the condition, including poor communication and education, counterproductive beliefs about diabetes and reduced access to healthy food and recreational facilities.

The prevalence of diabetes continues to rise in Hispanic people. Poor dietary habits, lack of physical activity and inadequate access to healthcare resources are some of the many factors that contribute to the development of diabetes in this population in the US (Ariza et al, 2010).

Poor diet and lack of physical activity lead to central obesity and can be partly attributed to community-level barriers such as access to recreational facilities and grocery stores with healthy food. Hispanics tend to experience more complications from diabetes than any other ethnic group, with the onset of the disease occurring at an earlier age in this population.

Psychosocial variables that contribute to the development and exacerbation of diabetes among Hispanic people include beliefs that diabetes develops because of the influx of negative emotions (Davis et al, 2011). Many Spanish-speaking people are influenced by an external locus of control, thinking that people around them will treat the diabetes. They believe that diabetes cannot be managed, which leads to non-adherence to diabetes treatment regimens and subsequent complications. Furthermore, Hispanic men are less likely to accept free diabetes products because they believe that there is no such thing as “free”. Therefore, Hispanic men of a low socioeconomic status are less likely to receive medications or equipment needed for the management of diabetes.

In today’s healthcare environment, most diabetes education is received in the physician’s office over a short period (Babamoto et al, 2009). However, many Hispanics have difficulty understanding the importance of a diabetes therapeutic regimen (Ariza et al, 2010).

Language barriers and lower levels of acculturation can negatively influence the healthcare that they receive. Many studies have shown that the incidence and prevalence of complications of diabetes can be reduced if an individual follows a diabetes-targeted diet, engages in physical activity, checks blood glucose levels regularly and takes prescribed medications as advised by the physician (Babamoto et al, 2009; Brown et al, 2011;

Beverly et al, 2013). It is possible that Hispanic healthcare providers could be a positive influence for the Hispanic population with diabetes and increase adherence to diabetes treatment.

### Methods

This literature review was conducted on two databases, CINAHL (Cumulative Index to Nursing and Allied Health Literature) and PubMed and included randomised controlled studies. The search terms used included “diabetes”, “diabetes Mellitus, type 2”, “patient education” and “Hispanic Americans”. The limiters included articles published within the last 5 years, in order to provide the most current evidence-based practice, and articles in English. The literature review was conducted up to March 2013. This yielded about 20 articles in each database.

The CDC’s *Community Guide* website (CDC, 2001) was also searched for interventions. Each article was reviewed and synthesised according to the ARIA (Allergic Rhinitis and its Impact on Asthma) protocol (Brozek et al, 2008). The ARIA protocol has eight notations, ranging from 1A, a strong recommendation with high-quality evidence, to 2D, a weak recommendation with very low-quality evidence.

### Results

Using the ARIA protocol, seven articles were retrieved. Diabetes interventions were categorised into self-care behaviours, use of case managers and use of community health workers.

#### Self-care behaviours

Self-care behaviours for people with diabetes include medication adherence, regular blood glucose monitoring, a low-carbohydrate diet, engaging in physical activity, smoking cessation, annual foot exams and annual eye exams.

In a single-centre, randomised controlled trial of 134 people with diabetes, Beverly et al (2013) showed that intervention to reinforce self-care behaviours reduced HbA<sub>1c</sub> levels by 4.4 mmol/mol (0.4%) in the first 3 months ( $P=0.004$ ),

### Page points

1. The use of community health workers (either laypeople or healthcare practitioners) is effective in improving diabetes self-care, treatment adherence and outcomes in Hispanic people.
2. The evidence for the use of case managers in Hispanic people is weaker, although there is strong evidence in the general population.

whereas there was no change in the control group. Although there is clear clinical evidence that self-care behaviours can improve diabetes control, there are many Hispanic people who do not adhere to them (Ariza et al, 2010). Adherence to self-care behaviours is directly related to multidimensional factors, such as living in poverty, low health literacy and lack of experience or skill in accessing healthcare services.

### Case managers

In the diabetes chapter of *The Community Guide*, it is noted that there is strong evidence to support the role of case managers, who follow up with individuals at home, for the management of diabetes in the general population (CDC, 2001).

Brown et al (2011) reported that utilisation of a culturally sensitive case manager improved adherence to diabetes education services among the Hispanic population. A total of 165 Hispanic adults were enrolled in the study and were assigned to either an experimental or a control group. The experimental group received diabetes self-management education and was then given access to a nurse case manager. The control group received the self-management education alone. There were reductions in HbA<sub>1c</sub>, fasting blood glucose levels and body mass index in both groups; however, the difference between the groups was not significant.

### Community health workers

Another intervention for Hispanic people is the use of community health workers. The worker can be a layperson or a healthcare practitioner but must be culturally sensitive to the Hispanic population. The worker delivers diabetes self-management education to the community. According to *The Community Guide*, providing diabetes self-management education at community centres is more effective than at any other location (workplace, school or home; CDC, 2001). Multiple studies have been conducted throughout the US on utilisation of community health workers to deliver diabetes self-management education at community

centres (Babamoto et al, 2009; Castillo et al, 2010; Joshi et al, 2010; Peña-Purcell et al, 2011; Spencer et al, 2011). All of the studies came to the same conclusion: community health workers were effective at helping participants to improve medication adherence, decrease HbA<sub>1c</sub>, reduce hospital admissions, improve physical activity and follow prescribed diet regimens.

In the prospective randomised controlled trial by Babamoto et al (2009), 318 participants were recruited from Los Angeles, US between 2002 and 2003. The participants were assigned to one of three groups: community health workers, case managers or standard care. Participants in the community health worker group had a reduction in mean HbA<sub>1c</sub> from 70.5 mmol/mol (8.6%) to 55.2 mmol/mol (7.2%;  $P<0.05$ ). In the case manager and standard care groups, respectively, HbA<sub>1c</sub> decreased from 69.4 mmol/mol (8.5%) to 57.4 mmol/mol (7.4%;  $P<0.05$ ), and from 80.3 mmol/mol (9.5%) to 57.4 mmol/mol (7.4%;  $P<0.05$ ). Participant-reported intake of fatty foods decreased from 22 participants (29%) to 12 (16%) in the community health worker group ( $P<0.05$ ) but remained unchanged in the other two groups. All three groups had an increase in physical activity.

In the study by Castillo et al (2010), 70 participants were recruited from Chicago, US to determine the effectiveness of a community health worker programme. With the education provided by community health workers, there were improvements in HbA<sub>1c</sub> ( $P=0.001$ ) and systolic blood pressure ( $P=0.006$ ) compared with baseline.

In the study by Joshi et al (2010), 186 participants were assigned to control or experimental groups. The control group received care from their primary care physician, whereas the experimental group received care from community diabetes educators. The study duration was 24 months. Participants in the experimental group had a significantly greater decline in HbA<sub>1c</sub>, emergency department visits, lipid levels and microalbumin levels.

The study by Peña-Purcell et al (2011) was a 5-week, quasi-experimental study to evaluate the effectiveness of diabetes

***“While a limited number of articles were examined in this literature review, the results provide evidence that community workers and case managers who were culturally sensitive to the Hispanic population made a positive impact on the management of diabetes via education.”***

self-management education in a group setting compared to education provided at the physician’s office. A total of 144 participants were recruited. Participants in the intervention group had a significant decline in HbA<sub>1c</sub> (from 62.8 mmol/mol [7.9%] to 54.1 mmol/mol [7.1%]) at the end of 5 weeks, whereas participants in the control group did not.

The study by Spencer et al (2011) evaluated the effectiveness of community health workers in assisting people with diabetes to improve glycaemic control. It was a 6-month randomised controlled trial conducted in 164 participants recruited from Detroit, US. All participants, whether assigned to the intervention or the control group, had access to REACH (Racial and Ethnic Approaches to Community Health) Detroit community activities: healthy eating demonstrations, physical fitness activities and community farmers’ market produce. However, participants in the intervention group also received regular home visits from the community health workers to assist with improving glycaemic control. The authors observed that participants in the intervention group had a significant decline in HbA<sub>1c</sub> (from 70.5 mmol/mol [8.6%] to 61.7 mmol/mol [7.8%];  $P < 0.01$ ), whereas there was no change from 69.4 mmol/mol [8.5%] in the control group.

### **Discussion**

The goal of this literature review was to assess the impact of using Hispanic community workers and case managers to increase adherence to self-care behaviours among Hispanic people with diabetes. From the findings, it is clear that such measures can be effective in educating these people about the importance of self-care in diabetes and thus improving glycaemic control.

Many Hispanic people face obstacles to managing their diabetes, including language barriers, lack of acculturation and lack of access to recreational facilities and healthy food (Ariza et al, 2010). In order to overcome these obstacles, healthcare providers need to increase the utilisation of Hispanic community

workers and case managers, who can reduce the effects of low acculturation and language barriers, assist people with diabetes in utilising recreational facilities and grocery stores with healthy food, and improve adherence to therapeutic treatment.

According to Rowley and Bezold (2012), by 2025 the prevalence of diabetes in the US Hispanic population will be 16.6%, the second highest amongst all minorities. As healthcare providers, we need to shift our focus from disease management to health promotion. In addition, we need to provide care not only on an individual level but also on a population level in order to decrease the prevalence of diabetes.

Both of these goals can be addressed with the increased utilisation of Hispanic community workers and case managers who can deliver interventions in the community while educating Hispanics about the importance of adhering to prescribed diabetes therapy.

This review found positive outcomes with the utilisation of Hispanic community workers and case managers. However, there were several limitations. One major limitation was that the majority of the studies had small sample sizes, which makes it harder to generalise the findings to the whole population before further, larger studies are conducted. In our findings, there was only one study with a large sample size ( $n=318$ ; Babamoto et al, 2009).

Another limitation of this literature review is that there were few randomised controlled trials. According to the ARIA grading system, most of the studies were grade 1C (strong recommendation, weak evidence) rather than 1A (strong recommendation, strong evidence). This could introduce bias into the review and distort the findings, as lower levels of evidence were used.

### **Conclusion**

In today’s healthcare environment, evidence-based interventions are important and expected. While a limited number of articles were examined in this literature review, the results provide evidence that community workers and case managers who were culturally

**“Adherence to self-care behaviours by the people involved was improved, thereby resulting in improvements in clinical outcomes.”**

sensitive to the Hispanic population made a positive impact on the management of diabetes by educating people with diabetes about the importance of good self-care. Adherence to self-care behaviours by the people involved was improved, thereby resulting in improvements in clinical outcomes, such as reductions in HbA<sub>1c</sub>, reductions in hospital admissions, improved physical activity, increased uptake of prescribed diet regimens and increased medication adherence.

We believe that the findings of this review of the evidence base could be applied to minority population groups within the UK, who may face similar barriers to care. Further review of UK-specific minority populations is required. ■

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