Spring 2018

Addressing disparities among the homeless population with type II Diabetes through the use of educational programs

Allison Moses
James Madison University

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Addressing Disparities Among the Homeless Population with Type II Diabetes

Through the Use of Educational Programs

________________________________________________________

An Honors College Project Presented to
the Faculty of the Undergraduate
College of Health and Behavioral Studies
James Madison University

by Allison Margaret Moses

May 2018

Accepted by the faculty of the School of Nursing, James Madison University, in partial fulfillment of the requirements for the Honors College.

FACULTY COMMITTEE: HONORS COLLEGE APPROVAL:

Project Advisor: Tammy Kiser, D.N.P, R.N.
Assistant Professor, School of Nursing

Bradley R. Newcomer, Ph.D.,
Dean, Honors College

Reader: Erica Metzler Sawin, Ph.D., R.N.
Associate Professor, School of Nursing

Reader: Linda Sobel, Ph.D., R.N.
Associate Professor, School of Nursing

Reader: Janice Gandy, D.N.P., R.N.
Nursing Instructor, School of Nursing

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Abstract

Background: The homeless population is exposed to many difficulties and barriers while attempting to manage Type II Diabetes Mellitus (DMII), which involves complex medication regimens and dietary and exercise modifications. The aim of this literature review is to increase awareness among healthcare professionals, to improve their understanding and ability to educate the homeless population, to help reduce health disparities and promote chronic disease management.

Methods: Access to two electronic search engines, CINAHL and PubMed, was obtained through James Madison University’s Library Database. The Ratings System for Level of Evidence was used to determine articles for inclusion based on reliability, sample size, relevance.

Results: Eight articles were selected for inclusion after meeting the eligibility criteria. These articles offered key information to barriers and limitations that homeless individuals encounter. The information obtained from this literary review was then further synthesized to develop an educational program for nursing students to better prepare them for working and educating the homeless population.

Discussion: Healthcare professionals have limited experience or preparation to inform and make the appropriate referrals to the homeless population. Education for homeless patients, nursing students and other healthcare professionals is a key component to help reduce disparities among vulnerable populations. Future research must focus on the long-term impact that educational programs and teaching strategies have on promoting DMII disease management among homeless individuals.

Keywords: Homeless, Diabetes Mellitus, Type II, Disparities, Educational Programs, Nursing students.
Within recent years, the United States has seen a continual increase in the prevalence of homeless individuals. According to the U.S Department of Housing and Urban Development (2016), approximately 549,000 people during any given night are considered to be homeless. The definition of homelessness includes not having a permanent source of residence and involves many different living areas such as on the streets, in shelters, with friends or family, in temporary housing and so on (Elder & Tubb, 2014). However, homelessness is a conceptual term that looks different for every individual (Stanhope & Lancaster, 2016). There are many different factors and circumstances that can result in an individual becoming homeless such as lack of affordable housing, unemployment, divorce, domestic/substance abuse, mental illness, etc. (Stanhope & Lancaster, 2016). There is very limited research regarding the advantages that specific teaching interventions have on reducing the prevalent health discrepancies among the diabetic homeless population. This project aims to highlight and reduce the health disparities present among the diabetic homeless population with the implementation of educational programs directed towards nursing students.

Diabetes Mellitus (DM) is a potentially devastating chronic disease that affects multiple organs and areas of the body. An individual can adequately manage their DM through comprehensive lifestyle changes that involve dietary modifications and an exercise plan (American Diabetes Association, 2018). A medication regimen may also be incorporated if needed for the patient. Within the homeless population, approximately 6.8% to 9.2% of people have been diagnosed with diabetes (White, Logan & Magwood, 2016). Although, there are several classifications of diabetes, a majority of individuals are diagnosed with Type II (DMII). DMII is the most prevalent form that accounts for about 90%-95% of all disease occurrences (Colberg, et al., 2016). Among individuals with DMII, insulin resistance will develop over time
because the specific insulin receptors within the pancreas become unresponsive (Lewis & Sandstrom, 2017). Consequently, tissue cannot actively absorb the insulin produced causing the body to function inadequately. Uncontrolled DMII is associated with many negative short and long-term complications, which if not managed appropriately dramatically reduces an individual’s health condition and future quality of life. Diabetes in itself is a difficult and complex illness to manage, especially when combined with the poor living conditions and health disparities among the homeless population (Elder & Tubb, 2014).

Homeless individuals attempting to manage their DMII are in a challenging position with limited access to healthcare needs and poor living conditions to properly manage their chronic disease. This population is exposed to several healthcare barriers including difficulty maintaining a healthy dietary intake, limited shelter, being uninsured, inadequate medication adherence, damage to their feet and limited knowledge concerning their illness (White, Logan & Magwood, 2016). Through increasing awareness of the disparities among the homeless individuals, the goal is to provide future healthcare providers with the necessary knowledge and resources to help reduce healthcare discrepancies among the vulnerable population.

**Homelessness and its Impact on Health**

Poor living conditions and inadequate access to healthcare have profound effects on a homeless individual’s health. Most shelters or other forms of living arrangements are often overcrowded, unsanitary, have poor nutritional food options and result in inadequate sleep quality (Wahowiak, 2012). As a result of poor living conditions, the homeless population is at an increased risk for deficiencies in nutritional status, higher risk of infection, inadequate access to healthcare, increased incidence of chronic illnesses and decreased quality of life (Keauffling, 2014). Homeless people find it extremely difficult to effectively manage their chronic conditions.
because the basic survival need for adequate food and shelter is often first priority to individuals, in comparison to diabetes management. These strenuous circumstances dramatically reduce an individual’s life expectancy by many years, “The average life expectancy of a homeless individual is 44 years old in comparison to the general populations’ life expectancy of 78 years” (Stanhope & Lancaster, 2016, p. 741). The homeless population becomes increasingly likely of developing many negative long-term complications associated with uncontrolled diabetes (Bernstein, Meurer, Plumb & Jackson, 2015). Several complications include retinopathy, neuropathy, nephropathy, foot ulcers, amputations and infections (Lewis & Sandstrom, 2017). One major complication found within the diabetic homeless population is increased chance of amputation because of inadequate foot care, increased susceptibility to infection, improper footwear, etc. (Stanhope & Lancaster, 2016). The health deficiencies associated with homelessness in conjunction with the long-term complications of uncontrolled diabetes are extremely severe and can greatly impact an individual’s quality of life.

**Difficulties in Managing Diabetes Among Homeless Individuals**

Many factors affect a homeless individual’s ability to manage their chronic illness. Most common are a result of poor living conditions, inadequate resources or funding and limited knowledge concerning their disease. Issues of shelter and food become the priority at the time and they fail to properly manage or have inadequate resources to control their diabetes (Elder & Tubb, 2014). These limited resources can include limited diabetic friendly food options at shelters, inadequate or inability to afford diabetic supplies such as needles, blood sugar monitors and medications (White, Logan & Magwood, 2016). There are several barriers at the systems level within healthcare that limit diabetic homeless individual’s disease management. System level barriers include limited availability of primary care providers who can meet the needs of
homeless clients, difficulty maintaining continual access to healthcare and poor understanding of financial assistance programs available (Elder & Tubb, 2014). It is important for healthcare providers to help identify all possible barriers that influence disease management, help individuals overcome these barriers or provide them with available community resources or referrals.

In addition to having difficulties accessing appropriate resources, homeless individuals have informational deficiencies regarding diabetes. Many individuals have very limited understanding or knowledge concerning diabetes pathophysiology, negative complications and proper management strategies (Brehove, Joslyn, Morrison, Strehlow, & Wismer, 2007). To help foster successful management of diabetes among homeless individuals, the first step is patient education so the patient fully understands the pathophysiology of DM as well as the importance of the insulin hormone and glucose. The goal of the health care provider or nursing student is to break down detailed and extensive pathophysiology of the disease into clear and concise terms that are easily understood by the patient (Stanhope & Lancaster, 2016).

Homeless individuals often only have access to a very different and limited form of healthcare. The non-traditional healthcare setting is often informal, understaffed, poorly equipped with limited funds (Stanley, 2013). Their situation increases the limitations and difficulties associated with chronic disease management. Effective management of diabetes involves an extensive treatment plan focusing on proper dietary modifications, exercise and appropriate medication regimen (Billings & Kowalski, 2008). However, this is a difficult task for many homeless individuals. Healthcare providers, despite limitations to the healthcare setting in which homeless are usually seen, need to continually address the needs of the client to allow them to have effective disease management regardless of the population’s living conditions.
Methods

The first phase of this research project consisted of a literature review using the electronic search engines known as CINAHL and PubMed. All access to these engines was obtained through the James Madison University Library databases. Through the CINAHL database, a quick search was performed using keywords such as “homeless” and “diabetes.” The search results retrieved a total of seventy-three articles. Results were further narrowed down by an advanced search for specific “evidence based practice” articles and included the keyword “education.” The comprehensive search returned a narrowed result of eighteen articles. The Rating System for Levels of Evidence (Table 1) was used to identify the quality of each article and its relevance (Ackley, Swan, Ladwig and Tucker, 2008). Each article was assigned a Level of Evidence rating between 1 (highest quality level) and 7 (lowest quality level). Articles selected for inclusion were determined by their reliability, relevance, sample size and key

<table>
<thead>
<tr>
<th>Level of evidence (LOE)</th>
<th>Description</th>
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<tbody>
<tr>
<td>Level I</td>
<td>Evidence from a systematic review or meta-analysis of all relevant RCTs (randomized controlled trial) or evidence-based clinical practice guidelines based on systematic reviews of RCTs or three or more RCTs of good quality that have similar results.</td>
</tr>
<tr>
<td>Level II</td>
<td>Evidence obtained from at least one well-designed RCT (e.g. large multi-site RCT).</td>
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<tr>
<td>Level III</td>
<td>Evidence obtained from well-designed controlled trials without randomization (i.e. quasi-experimental).</td>
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<td>Level IV</td>
<td>Evidence from well-designed case-control or cohort studies.</td>
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<tr>
<td>Level V</td>
<td>Evidence from systematic reviews of descriptive and qualitative studies (meta-synthesis).</td>
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<tr>
<td>Level VI</td>
<td>Evidence from a single descriptive or qualitative study.</td>
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<tr>
<td>Level VII</td>
<td>Evidence from the opinion of authorities and/or reports of expert committees.</td>
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information. Information collected from the literary review was then used to help develop educational programs targeting nursing students, who in turn can use this information to develop effective strategies to educate homeless individuals. The educational program consists of three individual modules, each having preparation material, a PowerPoint presentation and a post quiz. The major focuses of the modules were Introduction, Diabetes Knowledge and Foot Care Services.

**Results and Discussion**

From the eighteen articles that were extensively analyzed, eight met the appropriate criteria for inclusion. Articles were excluded due to quality of research and publication date greater than the last ten years. All of the articles reviewed focused on studies that occurred within the United States. The research studies took place in a community setting or clinic outside of an acute care facility. A summary of the selected articles can be found in Appendix 4.

A common theme was the management barriers associated with diabetic homeless patients including limited dietary options, poverty, increased incidence of substance abuse, limited access to healthcare and decreased financial ability to purchase medications (Elder and Tubb, 2014; O’Connell, et al., 2010; Stanley, 2013). Bernstein, Meurer, Plumb and Jackson (2015) described the growing trend of chronic disease prevalence among the homeless emphasizing the importance of more preventative measures (nutrient programs, promotion of physical activity, and help with substance abuse). In the community, there is a continual need for increased access to medical care to help improve quality of life for homeless individuals (Kamimura, et al., 2014; White, Logan & Magwood, 2016).

Davis and colleagues (2016) demonstrated the success of a peer-led diabetes education program for a homeless community in Michigan. The research project focuses on increasing
diabetes knowledge and empowerment among homeless individuals over a four-week period. In comparison, to baseline measures, that were completed at the beginning of the program, both knowledge and empowerment scores significantly increased among participants (Davis, Keep, Edie, Couzens & Pereira, 2016). After completion of the four-week pilot program, the community aims to maintain sustainability of the program for diabetic homeless individuals.

There are several limitations to education and services provided to diabetic patients. Diabetic homeless patients reportedly have lower levels of self-efficacy and knowledge concerning their diabetes and are at increased risk for long-term complications (Kamimura, et al., 2014; O’Connell, et al., 2010;). Muirhead, Roberson and Secrest (2011) identified influential factors that affect a homeless individual’s participation in foot care services. The authors concluded that several changes need to be addressed to improve foot care services. This includes increasing advertising of services, tailoring to individual needs of the patients, and promoting access to resources that will improve foot hygiene (Muirhead, Roberson & Secrest, 2011).

Healthcare professionals reportedly have a lack of knowledge and inexperience working with this population, which contributes to healthcare disparities among the homeless (Elder & Tubb, 2014; Stanley, 2013; White, Logan & Magwood, 2016). Stanley (2013) highlights the importance of effectively preparing nursing students to be able to address the “complex health and social issues related to vulnerable populations requires educational instruction that supports students’ ability to address the multidimensional elements that surround these groups.” Nursing students participated in a service learning project at a local homeless shelter to help increase their experience working with vulnerable populations. The learning project incorporated a critical social theory approach, which allowed students to view societal norms and social determinants of health that impact the homeless individuals’ ability to demonstrate effective DMII management.
(Stanley, 2013). Following their hands-on experience, students dramatically increased their understanding of the judgement and health barriers surrounding the homeless population (Stanley, 2013). Stanley (2013) emphasizes the importance of implementing unique teaching methods, such as a service learning project, to reduce knowledge deficiencies among nursing students and improve health care services of homeless individuals. This article was the only one to specifically address nursing students and how to improve their experience and understanding of care for homeless individuals.

**Nursing Implications**

Research, evidence and further information compiled in this project identifies numerous discrepancies the homeless population faces making it extremely difficult to manage DMII. Homeless individuals are often provided with non-traditional healthcare that has limited resources and funds to help them effectively manage their diabetes (Stanley, 2013). Nursing students and nurses must strive to provide quality care, increase patient’s knowledge concerning the disease process and to refer patients to appropriate resources. A priority for healthcare individuals, working with this vulnerable population is to first understand their own personal biases and address their limited knowledge when working with the homeless population (Stanhope & Lancaster, 2016).

Education is a priority among both future healthcare professionals and homeless individuals to help reduce the negative complications associated with DMII (O'Toole, et al., 2010). Evidence continues to demonstrate the importance of providing adequate services and education programs in order to increase knowledge and self-efficacy among vulnerable populations. Limited knowledge and experience working with homeless individuals, among healthcare professionals, contribute to ineffective teaching strategies, inadequate understanding
of DMII and poor long-term disease management outcomes (Keauffling, 2014). Addressing the learning deficiencies among healthcare professionals can help to limit the disparities among the homeless and increase their access to healthcare resources (Billings & Kowalski, 2008). It is important for nurses to be aware of the issues and lack of resources homeless populations face in order to help provide them with effective care and help them to manage chronic conditions they have to the best of their abilities. Information obtained from this literary review was further synthesized to develop an educational program, specifically targeting nursing students. The purpose of the educational model is to prepare nursing students with effective teaching strategies and in-depth diabetes knowledge to better educate homeless individuals for DMII disease management.

Educational Program

The information obtained during this literary review, as well as from clinical experience, was used to develop the following educational program (Appendix 1, 2 and 3) to be given to nursing students to further enhance their understanding of the diabetic homeless population. In total, there are three separate education modules. The major topics addressed in the educational modules are Introduction, Diabetes Knowledge and Foot Care Services. Each module comes with specific objectives and three individual components including Preparation Material, PowerPoint Presentation and Post-Quiz. The preparation material incorporates specific readings addressed in textbooks and relevant articles on the subject matter, to prepare students for the presentation. The presentation itself, focuses on the important information related to each topic to highlight key components of effective teaching strategies and diabetes treatment regimen. Lastly, students are able to test their knowledge regarding key information learned throughout the module with the Post-Quiz.
**Introduction.** This module serves as an introduction to working with the homeless population, identifying limitations they have to receiving adequate care and information on constructing an effective educational program. Specific health care and learning barriers are highlighted throughout this module. The completed module including an outline, PowerPoint Presentation and post-quiz can be found in Appendix 1.

**Diabetes Knowledge.** The purpose of this module is to highlight information regarding important knowledge about type II diabetes that homeless individuals should be aware of to help them to better control their chronic disease regardless of their living situations and limited resources. The pathophysiology of DMII, short and long-term complications and strategies for effective management are addressed. All components of this module can be found in Appendix 2.

**Foot Care Services.** The goal of this module is to provide nursing students with key information addressing the importance of proper foot care measures and how to correctly teach diabetic patients how to effectively examine their feet regularly. Through educational measures it can increase homeless individuals understanding of preventative measures to reduce barriers and long-term complications associated with inadequate foot care. Refer to Appendix 3 for all parts of this module.

**Limitations to this Educational Program.** It is imperative to note that this is not all the information that could be incorporated into a diabetic homeless individual’s disease management regimen nor will all this information be relevant to each individual. It is important for the nurse or nursing student to conduct an adequate needs assessment and identify the priority information to include in their teaching to effectively help the individual client. A needs assessment should always be implemented when educating patients to help guide the provider or nurse to effectively
develop the appropriate teaching strategies that address the priority needs of the patient and help to eliminate areas of knowledge deficiencies (Stanhope & Lancaster, 2016). Another, limitation to these educational programs is the inability to efficiently evaluate the effectiveness of each educational module. Only a post test is required; there is no form of evaluation before participating in the modules. If these modules were to be implemented in the future, it is beneficial to develop a Pre- and Post- method of evaluation. A Pre-Test will demonstrate participants’ baseline understanding concerning homeless individuals, diabetes management and educational program development. A Post-Test will reassess their intellectual growth after completing each module. Through participating in specific educational programs, it helps the nurse or nursing student to help identify target discrepancies in knowledge and how to better inform vulnerable populations.

**Limitations and Future Research**

There are limited research studies examining the discrepancies among the homeless population and the long-term effects of how specific interventions can help to reduce negative complications for diabetic individuals. More research must be collected to examine the effects that educational sessions, as well as other interventions, have on long term chronic disease management. This literature review only focused on homeless individuals attempting to manage their DMII, despite poor living conditions and inadequate access to healthcare. In the future, it is imperative that research examines other chronic diseases and comorbidities among the homeless population to better understand and resolve health disparities present among the homeless population. In addition, future research must examine the occurrence of the chronic conditions in young populations and how homelessness has affected their family and developmental milestones. Lastly, research must address the lack of knowledge and understanding that future
healthcare professionals have when working with this vulnerable population. Through the implementation of continual research studies, healthcare providers can better assess disparities that homeless individuals experience every day and work to develop more effective teaching strategies and appropriate interventions for these patients.

**Recommendations**

Health disparities dramatically influence the homeless individual’s quality of life and the ability to effectively manage chronic illnesses. Through continual education, future research and policy reform, health professionals can strive to reduce health disparities among the homeless population by providing access to quality care and appropriate referrals.

As previously emphasized, effective education is a priority initiative that must be implemented to patients, nursing students and other healthcare professionals. Homeless patients must actively be informed of disease processes, complications, personal barriers to effective management and reputable resources in the area. However, effective education for homeless individuals begins with providers and nurses who are well informed with strategies and experience to properly educate the population. Healthcare providers often feel they have limited experience and preparation to adequately educate homeless individuals. Nursing schools and employers must work to reduce providers’ knowledge deficiencies by promoting continuing education courses and developing community outreach programs for the homeless population.

In the future, more research needs to focus on the disparities and interventions for homeless individuals. Currently, research regarding the homeless population is insufficient and there are very few studies that focus specifically on homeless individuals with DMII. Many study limitations are a result of the available sample size and the inability to accurately monitor the exact number of homeless individuals with diabetes in a specific location. Despite these
limitations, future research must highlight the best practices and teaching strategies available to help homeless individuals attempting to manage their diabetes and other chronic conditions that are present, while also examining how efficient educational programs are to properly inform healthcare professionals about caring for homeless individuals.

Lastly, it is clearly evident that the homeless population experiences many healthcare deficits. The health disparities among the homeless cannot effectively be resolved until there is effective policy reform to meet the healthcare needs of this vulnerable population. This task involves a comprehensive approach involving money, time and help from individuals and healthcare professionals at all areas of practice. Policy reform needs to address the many barriers associated with homelessness, access to improved healthcare resources and financial assistance to provide supplies and medications for specific chronic conditions (O’Connell, et al., 2010).

Implementing comprehensive educational programs to nursing students only focuses on one specific aspect of improving the health disparities experienced by the homeless. Nursing students need to be encouraged to participate in advocacy and policy reform at the individual, state and national level to reduce deficiencies for vulnerable populations. Nurses and nursing students must continually advocate for the wellness of their homeless patients and refer them to financial assistance programs at the state and federal level. Many homeless individuals are not aware that certain financial resources exist or that they qualify for them (White, Logan & Magwood, 2016).

At the next level, nurses must work with state representatives and boards of nursing to promote the development of more affordable housing programs for the homeless. Nursing students can submit a resolution to be adopted by the National Student Nurses Association in support of health care reform to help cover homeless individuals’ medical costs. Healthcare individuals can continually advocate for their patients, identify specific barriers to disease management and help
them have access to appropriate resources within the area. Through appropriate education, research and policy reform healthcare professionals can help reduce the healthcare disparities among the homeless to improve quality of life and promote effective disease management.

**Conclusion**

Homelessness places individuals in a difficult position with often poor living conditions contributing to (or even causing) subsequent negative consequences to one’s health. Those attempting to manage a complex chronic condition, like Type II Diabetes Mellitus, experience many barriers to effective disease management and have increased risk of developing long term health complications. Management of DMII is often controlled through dietary and exercise modifications, while incorporating an extensive medication regimen if needed. However, this management is often difficult for homeless individuals because of restricted knowledge of the pathophysiology of DM, inadequate dietary options, limited access to healthcare and lack of diabetic supplies. The long-term complications of uncontrolled diabetes are extremely severe and dramatically reduce an individual’s life expectancy (Stanhope and Lancaster, 2016). Healthcare professionals often have very limited experience working with the homeless population and lack the appropriate teaching strategies to help promote disease management. Educational programs can help to better inform healthcare individuals of the barriers that the homeless population experiences and provide them with the necessary education to help reduce health disparities and promote diabetes management among the vulnerable population. Future research must examine the impact that educational interventions have on improving homeless individuals long term outcomes of disease management and reducing healthcare deficiencies. However, health disparities will never be completely reduced until effective policy reform is in place that provides the homeless population with sufficient access to healthcare and financial assistance.
References


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Appendix 1
Introduction Module

Appendix 1a. Introduction Outline

<table>
<thead>
<tr>
<th>Topic</th>
<th>Effective Education for Homeless Individuals with Type II Diabetes Mellitus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose</td>
<td>The purpose of this educational module is to help nursing students better understand and develop effective strategies to help educate homeless individuals with type II Diabetes Mellitus. This module serves as an introduction to working with the homeless population, identifying limitations they have to receiving adequate care and information on constructing an effective educational program.</td>
</tr>
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Objectives

1. Define homelessness and the demographics that make up homeless individuals in the United States.
2. Identify some potential causes of homelessness.
3. Describe the impact that homelessness puts on an individual’s overall health status.
4. Identify difficulties associated with controlling diabetes among the homeless population.
5. Define the components of learning such as different domains, the education process and possible barriers to learning.
6. Recognize the characteristics of an effective educational program.
7. Emphasize several key elements to effectively caring and managing for homeless individuals

Preparation Materials

   a) Chapter 16: Changing Health Behavior (pg. 357-367)
   b) Chapter 33: Poverty and Homelessness (pg. 731-749)

Review the Module #1 Introduction PowerPoint
(Complete the Post Quiz to test your knowledge on the information)

Continue onto Module #2
Highlights important information needed by clients and disease knowledge to help effectively manage, Type II Diabetes Mellitus
**Appendix 1b. Introduction PowerPoint Presentation**

**Effective Education for Homeless Individuals with Type II Diabetes Mellitus**

James Madison University
By Allie Moses

**Objectives**

- Define homelessness and the demographics that make up homeless individuals in the United States.
- Identify some potential causes of homelessness.
- Describe the impact that homelessness puts on an individual's overall health status.
- Identify difficulties associated with controlling diabetes among the homeless population.
- Define the components of learning such as different domains, the education process and possible barriers to learning.
- Recognize the characteristics of an effective educational program.
- Emphasize several key elements to effectively caring and managing for homeless individuals.

**Homeless Individuals**

- Homelessness is defined as an "individual who lacks an fixed or sufficient residence"
- Living arrangements consist of:
  - Streets
  - Shelters
  - Temporary living with family or friends
  - Cars
- Lack of stability and limited resources subjects them to adverse health problems

**Demographics of Homeless Population**

- Children
- Families
- Veterans
- Elderly
- Immigrants
- Domestic abuse survivors
- Can affect anyone of every race, gender, ethnicity and age

**Impact on Health**

- Hypothermia
- Infections, leading to more serious conditions such as sepsis or pneumonia
- Higher incidence acute and chronic illness (Hypertension, Diabetes, COPD)
- Lack of access to healthcare
- Inadequate Sleep
- Nutritional status deficiencies
- Decreased quality of life
- Increase of early mortality
Diabetes Among The Homeless Population

- Homeless population, approximately 6.8% to 9.2% of people have been diagnosed with diabetes (White, Logan & Magwood, 2016).
- Many different types of Diabetes Mellitus, Type II is the most common
- To effectively manage diabetes it requires extensive control over dietary modifications, exercise and effective medication administration
- Finding adequate shelter and food is often a priority for homeless individuals and effective chronic disease management is often difficult

Difficulties In Managing Diabetes

- Difficulty maintaining a healthy diet
- Limited shelter
- Inadequate medication regimen or ability to afford medications
- Foot damage
- Limited knowledge concerning their illness
- Untraditional health care (informal, understaffed, limited equipment and funds)

Educational Programs

- Preventative services and effective communication for homeless individuals can help reduce disparities and increase one’s knowledge of how to manage chronic conditions like diabetes despite inadequate resources
- To develop an effective educational program for clients one first needs to have an understanding of how individuals learn and the components of an educational process

Educational Process

- Identify Educational Needs
- Develop Goals and Objectives
- Select Appropriate Educational Methods
  - Presentations, Teach-Back, Small/Focus Groups, Demonstrations
- Implement the Educational Plan
- Evaluate the Educational Process
  - Looking at the educator, process and product

What Makes An Effective Educational Program?

- Demonstrates a clear, concise message in the appropriate format
- Identify the most important points of your message to address
- Identify learning barriers of both the client and educator
- Environment with limited distractions and encourages open communication
- Tailor the program to your audience
  - Simple words without medical jargon
  - Do not talk above or talk down to your audience
- Use examples, appropriate visual aids and assess the validity of resources used
- Encourage questions and promote opportunities to assess individuals knowledge
## Learning Barriers

**Educator-Related**
- Fear speaking in front of others
- Lack of knowledge/experience concerning the topic
- Difficulty with adjusting knowledge based off of participants needs
- Concern about the effectiveness and/or appropriateness of learning formats

**Learner-Related**
- Low literacy levels
- Limited motivation to learn the information
- Decreased sense of needing to make a behavioral change

## Effectively Caring for Homeless Individuals

- Understand one’s own bias and perceptions of homeless individuals
- Create a trusting environment and therapeutic communication
- Be aware that “homelessness” is different for everyone and they will have different needs or issues to address
- Provide them with information that is easy for them to understand and that meets their health literacy level
- Provide effective patient centered care while maintaining client’s dignity and cultural beliefs
- Advocate for their needs and identify appropriate resources in the community
- Do not overload them with information all at once break it up into multiple smaller sessions

## Useful Resources

- U.S Department of Health & Human Services: America's Health Literacy: Why We Need Accessible Health Information [https://health.gov/communication/literacy/issuebrief/](https://health.gov/communication/literacy/issuebrief/)

## References


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**ON TO THE NEXT MODULE!!**

- The next modules will provide a specific focus on three primary areas of education for a homeless individual with Type II Diabetes
- The modules will cover information to address with these clients including:
  - Basic Disease knowledge of the components of the chronic illness, Diabetes Mellitus
  - Strategies for nutritional management
  - Adequate foot care needs and services
Appendix 1c. Introduction Post-Quiz

1. A nurse diabetic educator who recently returned from a professional conference decides to present current best practices and research findings at a gathering of newly diagnosed diabetic clients. In adopting this approach, the nurse may fail to provide health education effectively. This failure would relate to which domain of learning?
   A. Affective
   B. Cognitive
   C. Psychomotor
   D. Practice

2. A nurse volunteering at a local homeless shelter notes that many of the clients have acute and chronic illnesses and are in need of primary health care services. The most effective strategy to consider when networking with homeless individuals, families, or populations is to:
   A. form a community partnership to establish a clinic for homeless persons.
   B. create a trusting environment and establish a therapeutic relationship.
   C. collaborate with the local United Way to obtain funding for primary care services.
   D. dialogue with local clergy to address the unmet primary care need for homeless persons.

3. A recent movie release portrays a female drug user living with her abusive boyfriend, who has two children by different women, in a rundown inner-city neighborhood with high levels of poverty and unemployment. This portrayal best describes the influence of which class of factors on societal responses to poverty and homelessness?
   A. Cultural
   B. Environmental
   C. Political
   D. Social

4. When working with the poor or homeless, to develop effective nursing interventions the nurse should evaluate clients and populations in the context of:
   A. Environment.
   B. Improvement in the quality of services.
   C. Human dignity.
   D. Nursing theories.

5. To provide effective care and advocacy for individuals, families, and populations living in poverty, nurses must first:
   A. apply epidemiologic principles for prevention.
   B. develop resource expertise in the community.
   C. examine their personal beliefs, values, and experiences.
   D. understand the federal criteria and guidelines for poverty.

Answers: 1-B, 2-B, 3-C, 4-A, 5-C

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**Appendix 2**  
**Diabetes Knowledge**

**Appendix 2a. Diabetes Knowledge Outline**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Effective Education for Homeless Individuals with Type II Diabetes Mellitus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose</td>
<td>The purpose of this module is to highlight information regarding important knowledge about type II diabetes that homeless individuals should be aware of to help them to better control their chronic disease regardless of their living situations and limited resources.</td>
</tr>
</tbody>
</table>

**Objectives**

1. Determine the importance of a needs assessment in the development of educational teaching strategies.  
2. Identify the most common type of Diabetes Mellitus.  
3. Describe the pathophysiology of Type II Diabetes in simple and concise terms.  
4. Differentiate short and long-term complications of uncontrolled diabetes management  
5. Examine the components making up an effective diabetes management plan.  
6. Discuss potential barriers of inadequate management in the homeless population

**Preparation Materials**

1. Type II Diabetes Mellitus Pathophysiology Video, [https://youtu.be/RILrvnnTDDU](https://youtu.be/RILrvnnTDDU)

**Review the Module #2 Diabetes Knowledge PowerPoint**  
*Complete the Post Quiz to test your knowledge on the information*

**Continue onto Module #3**  
Emphasizes the importance of adequate foot care and proper steps to reduce the risk of long-term diabetic complications
Appendix 2b. Diabetes Knowledge PowerPoint

Effective Education for Homeless Individuals with Type II Diabetes Mellitus

James Madison University

By Allie Moses

Module 2- Diabetes Knowledge

Objectives

- Determine the importance of a needs assessment in the development of educational teaching strategies.
- Identify the most common type of Diabetes Mellitus.
- Describe the pathophysiology of Type II Diabetes in simple and concise terms.
- Differentiate short and long-term complications of uncontrolled diabetes management.
- Examine the components making up an effective diabetes management plan.
- Discuss potential barriers of inadequate management in the homeless population.

Pathophysiology Of Diabetes Mellitus

- Different types of Diabetes Mellitus (I, II and gestational)
- Type II (DMII) is the most common type of diabetes
- Result of insulin resistance
  - Specific insulin receptors in the body become unresponsive to insulin release
  - The tissues can not adequately absorb the insulin and fail to help bring glucose into the cell
  - Negatively affecting the body’s ability to function and metabolize properly
- Uncontrolled diabetes poses many short and long term complications

Needs Assessment

- Individualize to each specific patient
- Gain information regarding how much they know about their diagnosis such as the pathophysiology of diabetes, short and long-term complications
- Identify what they would like to know more about their disease process and prioritize key points
- Identify their literacy level, incorporate strategies and visual aids to develop appropriately

Short Term Effects

- Manifestations
  - Often asymptomatic
  - Blurred vision or difficulty seeing
  - Infection
  - Weakness/Fatigue
  - Nausea/Vomiting
  - Polyuria, polydipsia, polyphagia

- Complications
  - Hypoglycemia
  - Hyperglycemia
  - Hyperglycemic hyperosmolar nonketotic coma
**Long Term Complications**

- Retinopathy - could lead to complete blindness eventually
- Neuropathy
- Nephropathy
- Foot Ulcers
- Amputations
- Infections

**Effective Management**

- Daily monitoring of blood glucose levels
- Nutrition
  - Close monitoring of total carbohydrates
  - Fiber rich foods
  - Limited alcohol intake
- Adequate Exercise for at least 3 times a week
- Foot Care Education (Next module will have detailed focus on this topic)
- Adherence to medication regimen

**Identifying Barriers of Inadequate Management in the Homeless Population**

- Assess their current living situation look
- Determine their access or adherence to medication regimen
- Identify if they have appropriate diabetic supplies (Needles, Blood sugar monitors, etc.)
- Evaluate economic factors or any financial assistance the patient has available
- Assess for mental or behavioral issues and substance abuse

**Evaluation of Learning**

- Respond to their questions or concerns appropriately
- Incorporate the Teach-Back method or have them explain the disease process back to you to assess their understanding
- Identify areas of improvement in the educational session
- Get feedback from participants about what was helpful or not to their learning
- Do not overload them with information all at once

**Reference**


Appendix 2c. Diabetes Knowledge Post Quiz

1. What is the most common form of diabetes?
   A. Type I diabetes mellitus
   B. Diabetes Insipidus
   C. Type II Diabetes
   D. Gestational Diabetes

2. The primary risk factor for Type II diabetes mellitus is ________.
   A. Obesity
   B. Being a member of a high-risk population
   C. Family history
   D. Advanced age

3. Long term complications of diabetes include ________.
   A. Impaired sensation in hands and feet
   B. Increased risk of high blood pressure
   C. Higher risk for developing kidney failure
   D. All of the above

4. Which statement about diabetes is false?
   A. The U.S. prevalence of diabetes is decreasing
   B. Diabetes is the seventh leading cause of death in the United States
   C. Diabetes is the leading cause of blindness among persons age 20 to 74
   D. Diabetes is the leading cause of kidney failure

5. Which of the following measures does not help to prevent diabetes complications?
   A. Controlling blood glucose
   B. Controlling blood pressure and blood lipids
   C. Eliminating all carbohydrates from the diet
   D. Prompt detection of diabetic eye and kidney disease

Answers: 1-C, 2-A, 3-D, 4-A, 5-C
## Appendix 3

### Foot Care Services

**Appendix 3a. Foot Care Services Outline**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Effective Education for Homeless Individuals with Type II Diabetes Mellitus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose</td>
<td>The goal of this module is to provide nursing students with key information addressing the importance of proper foot care measures and how to correctly teach diabetic patients how to effectively examine their feet regularly. Through educational measures it can increase homeless individuals’ understanding of preventative measures to reduce longer term complications associated with inadequate foot care.</td>
</tr>
</tbody>
</table>

### Objectives

1. Describe the importance of proper foot care management for individuals with Diabetes Mellitus
2. Identify possible long-term complications that occur as a result of inadequate foot care
3. Evaluate potential barriers the homeless population is subjected to that affect their foot care management
4. Explain components for successful foot care management for diabetic homeless individuals
5. Identify methods to evaluate the clients learning and knowledge after teaching
6. Create a community outreach project that could offer beneficial services to diabetic homeless individuals

### Preparation Materials

5. Diabetes Foot Care Video: [https://youtu.be/DASvmFJeYX8](https://youtu.be/DASvmFJeYX8)

Review the Module #3 Foot Care Services PowerPoint  
*(Complete the Post Quiz to test your knowledge on the information)*
Appendix 3b. Foot Care Services PowerPoint Presentation

Effective Education for Homeless Individuals with Type II Diabetes Mellitus
James Madison University
By Allie Moses

Module 3- Foot Care Services

Objectives
- Describe the importance of proper foot care management for individuals with Diabetes Mellitus
- Identify possible long-term complications that occur as a result of inadequate foot care
- Evaluate potential barriers the homeless population is subjected to that affect their foot care management
- Explain components for successful foot care management for diabetic homeless individuals
- Identify methods to evaluate the clients learning and knowledge after teaching
- Create a community outreach project that could offer beneficial services to diabetic homeless individuals

Complications of Inadequate Foot Care Measures
- Cuts and scratches
- Blisters and calluses
- Swelling
- Foot ulcers
- Infection
- Gangrene
- Amputations

Barriers Effecting Proper Foot Care
- Impaired/ Inadequate knowledge about proper foot care measures
- Lack of knowledge concerning the importance of foot health
- Lack of foot care supplies
- Inadequate foot support (shoes and socks)
- Limited understanding of potential complications
- Embarrassment regarding the conditions of their feet, shoes and socks

Importance of Foot Care for Diabetic Patients
- Diabetic Neuropathy
- Major complication of uncontrolled Diabetes Mellitus
- Continually high blood glucose can lead to damage or injury of nerve fibers in the body
- Decreased sensations or feeling in the extremities particularly to the hands and feet
- Lack of sensation in the extremities, individuals become unaware of any pain or issues they are experiencing
- Poor and unsanitary conditions among homeless individuals further increase the risk of injury, infection and other potential complications

Effective Foot Care Management
- Daily foot examinations (look at all aspects of the foot, top and bottom)
- Go to the clinic or doctor if redness, breakdown or swelling is noted
- Keep feet dry to prevent moisture from occurring in between the toes
- Clean and dry shoes and socks
- Ensure shoes are supportive and fit appropriately (not too tight or loose)
- Never go barefoot
- Do not try to remove or treat blisters, ingrown nails or calluses
- Do not apply lotion in between toes

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Community Outreach

- A unique service project that can be completed by nursing students is to create a foot care drive for homeless individuals.
- These can include donations of supplies such as shoes, socks, nail file, lotions, etc.
- Items can be collected on campus and they can also refer to campus organizations such as the Nursing Students Association to help.

References


Appendix 3c. Foot Care Services Post-Quiz

1. True or False: Diabetes can cause nerve damage and loss of a person’s protective sensations, which can lead to complications.

2. How do you know if the nerves in your feet might be damaged?
   A. Feet might feel cold or look pale
   B. Feet may have a tingling sensation or feel numb
   C. There are no symptoms
   D. All of the above

3. All of the following are good for effective foot care management for people with diabetes, except:
   A. Do daily foot care and inspections.
   B. Try to do some form of exercise several times per week.
   C. Rub lotion on your feet and in-between your toes daily
   D. Never walk around barefoot.

4. It is important to teach clients to regularly inspect their feet as well as their toes to examine for:
   A. Small pebbles between your toes
   B. Small blisters or cracks
   C. Dryness
   D. None of the above are correct

5. Flat feet are a problem because
   A. It can cause you to fall
   B. It indicates that you need to lose weight
   C. It can cause pressure areas leading to skin break down
   D. It means you can no longer dance

Answers: 1-True, 2-D, 3-C, 4-B, 5-C
Appendix 4  
Research Table

<table>
<thead>
<tr>
<th>Authors</th>
<th>LOE</th>
<th>Study Purpose</th>
<th>Sample Description and Size</th>
<th>Intervention</th>
<th>Instruments with Validity and Reliability</th>
<th>Results/Statistical Evidence</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bernstein, R., et al. (2015).</td>
<td>I</td>
<td>The goal was to examine growing trends in disease prevalence and to compare disease prevalence among homeless individuals in contrast to the general population.</td>
<td>Initial sample size= 1658, 170 met the appropriate criteria and was fully reviewed, sample was narrowed from the review to 53 articles that were selected for inclusion.</td>
<td>The systematic meta-analysis evaluated 5 different databases that focused on articles written from 1980-2014 and analyzed self-reported data on chronic disease information.</td>
<td>Systematic search of published articles from Medline, PsychINFO, Cumulative Index to Nursing and Allied Health Literature, Cochrane, and Science Citation Index.</td>
<td>The pooled prevalence of self-reported diabetes, based on 39 studies, was 8.0% (95% confidence interval [CI] = 6.8%, 9.2%; Q = 245.93; I² = 84.5%).</td>
<td>Emphasizes the importance of more preventive measures (nutrient programs, promoting physical activity, help with substance abuse) and increase access to medical care to help improve quality of life for homeless individuals.</td>
</tr>
<tr>
<td>Davis, S., et al. (2016).</td>
<td>VI</td>
<td>To determine the effectiveness of peer-led educational programs to improving glycemic control and diabetic self-care practices to homeless individuals</td>
<td>N-31 participants throughout the 4-week programs, out of the total 20 individuals had T2DM.</td>
<td>Carefully, selected peer leaders lead four community oriented diabetes educational session after they took part in a one month orientation program. Diabetes empowerment and knowledge was assessed you pre-and post-test.</td>
<td>Everything was assessed with pre-and posttests following each 4 weekly sessions. Diabetes empowerment was assessed using the Diabetes Empowerment Scale-Short Form (DES-SF), diabetes knowledge questions and assessment for Peer lead participation were chosen out of the IDF Peer Leader Manual.</td>
<td>Of the community participants, with T2DM (n = 20), only 60% had gone to diabetes check-ups, 45% had never attended diabetes education, 55% missed meals, and 85% did not know their HgbA1C. Empowerment DES-SF scores significantly improved for those who attended all four sessions (p = .027).</td>
<td>Knowledge improved in all areas during the course of each informational session. Dramatic increase in knowledge following the educational session that demonstrated signs, symptoms and complications. Proves the need of increased education and support to the homeless individuals within the community.</td>
</tr>
<tr>
<td>Elder &amp; Tubb, (2014).</td>
<td>III</td>
<td>To determine potential barriers and factors affecting a</td>
<td>N=18 Participants from an urban community in Cincinnati.</td>
<td>Multiple in-person interviews were conducted and Applying the information collected to an adaptive chronic care</td>
<td>Internal factors identified were physiological demands,</td>
<td></td>
<td>A chronic care model promotes continual learning by al</td>
</tr>
<tr>
<td>Study</td>
<td>IV</td>
<td>Summary</td>
<td>Sample Size</td>
<td>Data Collection</td>
<td>Data Analysis</td>
<td>Findings</td>
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<tr>
<td>Kamimura, A., et al. (2014).</td>
<td>Survey was conducted to examine the efficacy of the services to diabetic patients compared to non-diabetic patients offered at a free clinic.</td>
<td>Sample size= 365 participants who were 18 years or older</td>
<td>The physical, mental health and diabetes self-efficacy were measured through interviews and standardized instrument tools</td>
<td>Self-reported health status (Duke Health Profile), Diabetes related Self-efficacy (Diabetes Empowerment Scale-Short Form), and self-demographic characteristics</td>
<td>Patients with diabetes reported poorer physical health, mental and perceived health status compared to patients without diabetes. Likewise, patients with diabetes reported higher levels of anxiety, depression and pain) compared to patients without.</td>
<td>This article highlights the limited resources and difficulty homeless individuals have in managing care. Need to improved services and education programs to increase self-efficacy.</td>
<td></td>
</tr>
<tr>
<td>Muirhead, L., et al. (2011).</td>
<td>This survey examined the factors enabling and constraining the participation in foot care services among the homeless individuals</td>
<td>Initial sample size= 247, 100 individuals responded back 65% of the participants were male</td>
<td>Data was collected from individuals at a free clinic. Information included demographic data, and then questions which address health history, healthcare use, foot care practices and participation in foot care services</td>
<td>Data was collected through an 18-questionnaire survey. The study used the theoretical framework (Behavioral Model for Vulnerable Populations. Project focused on methods of improving health outcomes by adopting new health behaviors and services.</td>
<td>Only 26% of respondents had ever had their feet examined by a healthcare provider. When asked about awareness of foot care services, 49% were unaware of services, 32% knew the days and times foot care services were offered, and 16% had used the foot care service.</td>
<td>Influential factor that were identified impacting an individuals’ participation are time of the clinic availability, embarrassment about their feet conditions, preserving self-dignity and literacy level. The results of this survey concluded that several changes need to be addressed to</td>
<td></td>
</tr>
<tr>
<td>O’Connell, et al., (2010).</td>
<td>VII</td>
<td>To describe the Boston Health Care public framework and services that it offers to homeless individuals.</td>
<td>Services are provided to all throughout Boston within 2 teaching hospitals, 80 shelters and a 104-bed respite unit. Each year it manages to provide services to approximately 11,000 homeless individuals.</td>
<td>Provides a wide range of medical, behavioral, oral, preventative services to homeless individuals all throughout Boston.</td>
<td>This health care network has now become a public health frameworks that emphasizes public health core functions: assessment, policy development and assurance.</td>
<td>Other cities and states need to work towards developing a healthcare framework for diabetic patients that models the Boston Health Care Program, Future improvements must be analyzed to improve collaboration &amp; communication between multidisciplinary teams and help them to find financial assistance and community resources.</td>
<td>foot care services.</td>
</tr>
<tr>
<td>Stanley, (2013).</td>
<td>VI</td>
<td>Examines methods for improving and exposing nursing students to working with homeless patients through a social theory approach.</td>
<td>The service learning was incorporated to nursing student’s community health clinical, while they worked in a homeless shelter.</td>
<td>The project allowed students to improve their teaching and experience working with the homeless population. Another large component of this project was to allow students to understand their own personal biases they experience while working with vulnerable populations.</td>
<td>Critical social theory was applied to this project. This allowed the students to examine disparities and social norms within society that impact vulnerable populations.</td>
<td>A service learning project that encompasses hands on experience with work the homeless is more effective then formal instruction. Traditional teaching is not the best method to actively inform individuals of how to effectively educate homeless individuals.</td>
<td></td>
</tr>
<tr>
<td>White, (2016).</td>
<td>III</td>
<td>This literature review examines the barriers and difficulties homeless individuals experience.</td>
<td>10 articles meet the requirements to be included in this research study.</td>
<td>Using databases such as PubMed and EBSCOHost were searched for articles with keywords.</td>
<td>The Equity of Access to Medical Care Framework was used to guide the literature research and</td>
<td>Factors negative influencing homeless housing instability, competing priorities and</td>
<td>To improve health care systems for the homeless we must develop culturally competent plan of care.</td>
</tr>
</tbody>
</table>
when trying to seek health care to manage their DMII

such as “diabetes, homeless, and health care access”

identify issues homeless individuals experience while receiving health care.

limited healthcare sources. Enabling factors were identified length of being dx with DMII, patient knowledge of disease management, and free health care services.

that is specifically tailored to the needs and the conditions of the homeless