



Closing the Gap: Increasing Care for Diabetes Mellitus Type Two in Unhoused Populations

Background & Importance

Type II Diabetes Mellitus (TIIDM) is a complex disease that may result in soft tissue degeneration leading to an increase risk of infection, kidney disease, retinopathy, cardiovascular disease and stroke. Pharmacological management and lifestyle habits are critical in managing blood glucose levels and preventing adverse outcomes in TIIDM. TIIDM patients who are homeless may be at risk for worse outcomes. The aim of this study is to investigate what types of tissue complications are seen in unhoused TIIDM patients compared to those who are housed.

PICO Question

What degenerative tissue complications are demonstrated in type 2 diabetic patients who experience homelessness compared with type 2 diabetic patients who are not experiencing homelessness?

Study Design

We conducted a thorough literature review of level 2-7 evidence based research addressing the PICOT question and topics related to it.

The primary outcome we were looking for in the research was an assessment in the prevalence of degenerative tissue complications in homeless TIIDM patients.

Due to lack of research in our target population of homelessness we expanded our search to include studies that include outcomes of tissue degeneration in non homeless diabetic patients, outcomes of homeless individuals, not specific to DMII who receive augmented resources, and articles addressing barriers to managing TIIDM.

Research Evidence Summary

Keene, D., Henry, M., Gormley, C., & Ndumele, C (2018)	Rental or housing assistance is shown to improve access to resources which helped manage TIIDM and decrease risk of complications.
To et al (2016)	9-65% of patients experiencing homelessness found to have foot problems including corns and calluses, infections, tinea pedis, foot pain, and limitations to walking. Many people had improper foot shoes and lack footwear access and care.
Hwang & Bugeja (2000)	72% of study participants report difficulty managing TIIDM. Barriers included access to types of food, inability to make dietary choices, inability to access supplies/medications, inability to coordinate medications with meals, mental illness, substance use.
Noel et al (2015)	13% of participants experiencing homelessness demonstrated visual impairment secondary to correctable refractive error.
Moulton, S (2013)	Increases in funding for homeless reduction programs do actually lead to a reduction in homelessness. This is important because other research suggests that reductions in homelessness in people who also have diabetes results in better self-management of the disease and reduced medical costs.

Analysis of Potential Outcomes

- Increasing access to care and interventions for TIIDM patients experiencing homelessness has potential to decrease incidence of degenerative tissue complications in this population.
- Proper interventions have the ability to reduce the hemoglobin A1C in TIIDM which reduces the risk for tissue complications.
- Screening and intervention availability among patients experiencing homelessness can reduce progression of diabetic retinopathy, kidney disease, foot ulcers and others.
- Outreach projects to improve food insecurity in our focus population could also improve health outcomes including improving glycemic control and TIIDM complications.

Barriers to Implementation

- Reduced access to types of food
- Inability to make dietary choices
- Inability to access supplies or medications
- Inability to coordinate medications with meals
- Mental illness
- Substance use
- Financial burden of increased care
- Lack of research on TIIDM degenerative tissue complications in patients experiencing homelessness

Recommendations for Next Steps

In conclusion, we were unable to specifically answer our PICO question due to the limited data in our target population, however there are indications that suggest experiencing homelessness is detrimental to TIIDM patients. Thus we recommend the following:

- Perform more research to better understand the indications of homelessness of TIIDM tissue complications.
- Continue to increase outreach to patients experiencing homelessness in an effort to improve access to resources, educate, advocate and ultimately improve glycemic control/ management of TIIDM and prevent or control tissue complications.
- One suggestion we have as practice change would be to deploy a mobile clinic which would focus on the goals stated above.
- Improving nutritional education among patients experiencing homelessness and persons who prepare meals in resource centers would help to improve TIIDM condition and prevent complications.