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## **Occupational Therapy Interventions for People with Type 2 Diabetes in Rural Communities**

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## Focus question

What are the best occupational therapy lifestyle management interventions that are used to promote healthy living through self-care occupations for adults ages 40 to 60 years-old with type 2 diabetes in rural communities?

## Clinical scenario

Type 2 diabetes mellitus, commonly called type 2 diabetes, is the seventh leading cause of death in the United States (American Diabetes Association, 2020). The prevalence of diabetes is 17% higher in rural areas as compared to urban areas (“Why Diabetes is a Concern,” 2020). Hospitalizations and deaths from type 2 diabetes complications are higher in rural areas than in urban areas (Ferdinand, Akinlotan, Callaghan, Towne, & Bolin, 2018).

The Person-Environment-Occupation model (PEO) was created to illustrate how the person, environment, and occupation all play a valuable role in occupational performance and in the overall fit (Baptiste, 2017; Law, Cooper, Strong, Stewart, Rigby, & Letts, 1996). PEO assumes that the person changes over time and is always interacting with his or her environment (Baptiste, 2017; Law et al., 1996). Characteristics of the person include his or her physical and cognitive abilities, sensory components, emotions, and spiritual aspects (Baptiste, 2017; Law et al., 1996). The environment, which includes physical, social, virtual, cultural, and institutional contexts, all influence how the person acts and can be supporting or limiting to occupational performance (Baptiste, 2017; Law et al., 1996). Occupations are activities and tasks people need and want to do (Baptiste, 2017; Law et al., 1996;). The temporal context of occupations includes habits, routines, how an individual uses their time, and their routines (Baptiste, 2017; Law et al., 1996).

When the person, environment, and occupation overlap perfectly, it allows for peak occupational performance (Baptiste, 2017; Law et al., 1996). In addition, the level of satisfaction an individual has concerning his or her ability to function is related to the fit between the person, environment, and occupation (Baptiste, 2017; Law et al., 1996). As people age, many aspects of their life change which can lead to differences in health status, how active an individual is in his or her community, relationships, and life roles (Baptiste, 2017; Law et al., 1996). Therefore, it is important to adjust and modify how everyday life is lived to ensure maximum participation and well-being (Baptiste, 2017; Law et al., 1996).

An individual’s health status has a major impact on optimal occupational performance (Baptiste, 2017; Law et al., 1996). Type 2 diabetes is characterized by a resistance to insulin, a hormone that controls blood sugar (World Health Association, 2020). A person’s risk factors for type 2 diabetes include: obesity, being over 45 years old, family history, high blood pressure, being inactive, and being Black, Latino or Native American (American Diabetes Association, 2020). A person with type 2 diabetes is more likely to develop conditions such as blindness, neuropathy, and kidney damage; his or her chances of heart disease and stroke also increases (World Health Association, 2020). Effective management of type 2 diabetes can help an individual avoid complications and maintain a good quality of life (American Diabetes Association, 2020).

The context of the physical and social environment often dictates the availability of resources and support in a community (Baptiste, 2017; Law et al., 1996). Limited access to healthcare in rural communities contributes to the higher prevalence of type 2 diabetes (Bolin & Ferdinand, 2018). Low income, low health literacy, and lack of medical insurance make it difficult for people in rural areas to get to doctor appointments (“Why Diabetes is a Concern,”



2020). Individuals living in rural environments also face challenges in accessing transportation to get to their medical appointments (“Why Diabetes is a Concern,” 2020). Rural communities face difficulty in providing proper facilities to exercise, which makes it difficult to get the proper amount of physical activity each day (Shaw, Gallant, Jacome, & Spokane, 2006). Social support is at a lower rate in rural communities as compared to urban communities (Shaw et al., 2006).

An occupational therapist can play a valuable role in the lives of people who have type 2 diabetes (Sokol-McKay, 2011). Occupational therapy can be offered in a variety of settings, including a person’s home, a clinic, or in a hospital; as well as group or individual treatment sessions (Sokol-McKay, 2011). The versatility of how occupational therapy appointments can be delivered plays a vital role in the effort to create the perfect fit between the person, environment, and occupation (Baptiste, 2017; Law et al., 1996; Sokol-McKay, 2011).

An occupational therapist can work with clients who have type diabetes in different areas of occupation, such as self-care, productivity, and leisure (Baptiste, 2017; Law et al., 1996; Sokol-McKay, 2011). This includes education on how to prepare meals, ways to incorporate exercise into someone’s daily routine, how to manage medications, and how to be safe and use protective strategies when participating in activities that could potentially expose the client to extreme temperatures or sharp objects (Sokol-McKay, 2011). Occupational therapy can help clients focus on lifestyle management skills and promote healthy living through self-care skills and independence (Sokol-McKay, 2011). Occupational therapy empowers clients with type 2 diabetes by helping them regain their independence and participate in activities they find meaningful.

Type 2 diabetes is a health concern for patients and healthcare professionals, especially in rural communities. The PEO model illustrates how the person, environment, and occupation come together to create an optimal fit (Baptiste, 2017; Law, et al., 1996). Not managing type 2 diabetes increases a person’s risk for blindness, nerve pain, kidney damage, heart disease, and stroke (World Health Association, 2020). In rural environments, access to adequate healthcare facilities is a major concern (“Why Diabetes is a Concern,” 2020). Without the resources to receive proper support, education, and medical guidance, physical and emotional well-being can decrease, which leads to potential occupational deprivation (Baptiste, 2017; Law et al., 1996; Sokol-McKay, 2011). Occupational therapists empower clients who have type 2 diabetes by helping their clients create healthy routines for exercising and preparing meals, as well as providing education for potential risks (Sokol-McKay, 2011).

## **Purpose Statement**

The purpose of this critically appraised topic is to determine what occupation-based interventions enable occupational therapy practitioners to promote self-care and healthy lifestyles in adults aged 40 to 60 years-old with type 2 diabetes who live in a rural environment.

## **Methodology**

An initial literature search was conducted from March 3rd, 2020 - March 24th, 2020. PubMed and CINAHL Complete were academic databases utilized to find articles. The articles excluded from the literature search were more than five years old, or not in English. Limitations included articles about children, scholarly articles only, and articles disciplines other than occupational therapy, nursing, and allied health sciences. The Boolean search method was used and included search phases such as, [(occupational therapy) (diabetes) (interventions)], [(occupational therapy) (type 2 diabetes) (older adults)], (type 2 diabetes AND interventions),



(type 2 diabetes AND interventions AND rural), (Type 2 diabetes AND occupational therapy AND rural population). Approximately 50 articles were reviewed.

## Synthesis

The role of occupational therapy in diabetes management:

- *Benefit of occupational therapy:* Shen and Shen (2019) articulated potential benefits of occupational therapy with clients who have diabetes in a level NA case report (Shen and Shen, 2019). The value of occupational therapy intervention includes helping clients create healthy habits, lifestyle management skills, and improve quality of life (Shen and Shen, 2019).
- *Theoretical base:* In a level NA qualitative study using semi structured interviews, diabetes management was conceptualized as a self-care occupation (Youngson, 2019). This study included 22 participants, all who had diabetes. The goal of this study was to gain an understanding of participant's self-management experiences they lived through from an occupational perspective using the Model of Human Occupation (MOHO) (Youngson, 2019). The results showed that within self-management of diabetes there were challenges with occupational identity, volition or motivation, habituation or habits and routines, performance capacity, and the environment in which it is done (Youngson, 2019). These findings demonstrated the role of occupational therapists in the self-management of diabetes, specifically how these occupational forms can be adapted for successful occupational engagement for people with diabetes (Youngson, 2019).

Current interventions for diabetes:

- *Goals of education as an intervention:* As cited by a level NA case report, the goals of education as an intervention for diabetes included changing current behaviors, improving quality of life, and creating a partnership with healthcare providers. (Swiaotoniowska, Sarzynska, Chabowska-Szymanska, & Jankowska-Polanska, 2019).
- *Improved lifestyle management & quality of life:* In three Level I articles, randomized control trials were conducted to study the effect of diabetes education on lifestyle management. The Resilient, empowered, Active Living with diabetes (REAL) diabetes program and Lifestyle Redesign programs are specific occupational therapy programs that are aimed to provide knowledge about diabetes as well as helping participants maintain a healthy lifestyle by learning how to prepare meals and exercise. (Blackford et al., 2016; Pyatak et al., 2018; Pyatak & King, 2019). Outcomes of the studies included an increased quality of life, improved self-care, problem solving skills, and an improved overall state of health (Blackford et al., 2016; Pyatak et al., 2018; Pyatak & King, 2019). In addition, a level IV cross sectional study determined that when occupational therapists focused on social and leisure participation along with the intervention of education about diabetes, there was an increase in overall quality of life (Atler et al., 2018).
- *Empowerment:* In a Level III single group pretest posttest exploratory analysis, Hrena and Noce (2018) conducted an empowerment-based diabetes self-management training class. The goal of the study was to improve patient's knowledge about diabetes and empower them to manage their diabetes by providing classes about glucose control, medication management, and how to maintain a healthy lifestyle (Hrena & Noce, 2018). The authors concluded that there was a significant increase in knowledge and



understanding of diabetes before and after the program, leading to improved self-management (Hrena & Noce, 2018).

#### Telehealth Interventions:

- *Telehealth and online self-management:* In three different level I articles, systematic reviews were done to see the effectiveness of telehealth or online self-management interventions in rural communities with adults ages 50-65 who had type 2 diabetes (Celik, Forde & Sturt, 2020; Lepard, Joseph, Agne & Cherrington, 2015; Speyer, Denman, Wilkes-Gillian, Chen, Bogaadt, Kim, ... & Cordier, 2018). The goal of these studies was to determine if telehealth or online self-management interventions were effective in increasing health and knowledge of adults with type 2 diabetes (Celik et al., 2020; Lepard et al., 2015; Speyer et al., 2018). The results showed an improvement of knowledge and health of individuals who engaged in telehealth interventions (Celik et al., 2020; Lepard et al., 2015; Speyer et al., 2018). The individuals who used telehealth interventions had better knowledge of their type 2 diabetes. Online self-management education also showed a positive impact on the health of people with type 2 diabetes (Celik et al., 2020). Telehealth and online interventions are effective ways to do occupational interventions and educate adults with type 2 diabetes in their own environment in rural communities (Celik et al., 2020; Lepard et al., 2015; Speyer et al., 2018).
- *Pilot study:* In a level 3 pilot study done by nurses and engineers, a pre-test and post-test educational intervention was done on 30 adults with type 2 diabetes (Hunt, Henderson, & Chapman, 2018). These individuals visited health promotion clinics in rural communities. The study used education modules based on diabetes and administered them through iPads (Hunt et al., 2018). The goal was to see if the educational modules would increase the client's knowledge of type 2 diabetes self-management to prevent complications (Hunt et al., 2018). The results from this study indicated education modules on iPads were effective in increasing the knowledge of type 2 diabetes self-management in adults living with type 2 diabetes in rural communities (Hunt et al., 2018).

#### Summary

Occupational therapy has a distinct, valuable role in diabetes management. A holistic view of the person, and the capability to address habits and routines makes occupational therapists distinctly qualified to help adults with type 2 diabetes learn to self-manage their condition (Shen & Shen, 2019; Youngson, 2019). The Person-Environment-Occupation model provides a framework for occupational therapy practitioners to enable their clients to make positive changes in their lifestyle (Baptiste, 2017; Law et al., 1996; Sokol-McKay, 2011).

Occupational therapy interventions that provide education and enable clients to change their habits and routines can help clients improve their self-management of their diabetes and result in an increase in quality of life (Atler et al., 2018; Hrena & Noce, 2018; Pyatak et al., 2018; Pyatak & King, 2019; Blackford et al., 2016). However, most research on the efficacy of occupational therapy interventions for clients with type 2 diabetes have been done with subjects from urban or unspecified areas (Atler et al., 2018; Blackford et al., 2016; Hrena & Noce, 2018; Pyatak et al., 2018; Pyatak & King, 2019).

Telehealth is an emerging format for occupational therapy interventions (Speyer et al., 2018). Telehealth interventions that target diabetes self-management improve client knowledge



of diabetes, and improve health status (Celik et al., 2020; Hunt et al., 2018; Speyer et al., 2018; Lepard et al., 2015).

### **Clinical bottom line**

What are the best occupational therapy lifestyle management interventions that are used to promote healthy living through self-care occupations for adults ages 40 to 60 years-old with type 2 diabetes in rural communities?

People living in rural areas are more likely to die or become disabled due to type 2 diabetes (“Why Diabetes is a Concern,” 2020). There is a need for better management of type 2 diabetes among people living in rural environments (“Why Diabetes is a Concern,” 2020). Occupational therapy is a holistic, client centered profession that plays an important role in an interprofessional diabetes management team (Sokol-McKay, 2011). The Person-Environment-Occupation model provides a framework for occupational therapists to empower clients to make positive changes in their lives (Baptiste, 2017; Law et al., 1996; Sokol-McKay, 2011).

Occupational therapy interventions can help clients make positive improvements in their lives and health status, especially when the intervention targets habits and routines (Atler, et al., 2018; Blackford et al., 2016; Hrena & Noce, 2018; Pyatak et al., 2018; Pyatak & King, 2019). Telehealth is a treatment delivery model that shows promise for the delivery of occupational therapy interventions in rural areas (Celik et al., 2020; Lepard et al., 2015; Hunt et al., 2018; Speyer et al., 2018). Rural populations have limited access to healthcare, telehealth services bring healthcare services to people who may not have access within their community (Celik et al., 2020; Lepard et al., 2015; Hunt et al., 2018; Speyer et al., 2018; “Why Diabetes is a Concern,” 2020). By changing the environment of how occupational therapy can be delivered, there is a higher chance for creating optimal occupational fit (Baptiste, 2017; Law et al., 1996).

Occupational therapy interventions that focus on diabetes education are effective, to some degree, to help address the quality of life and self-management of type 2 diabetes in adults ages 40-60 years who live in rural areas (Atler et al., 2018; Blackford et al., 2016; Hunt, Henderson, & Chapman, 2018; Hrena & Noce, 2018; Swiaotoniowska, Sarzynska, Chabowska-Szymanska, & Jankowska-Polanska, 2019). Presently, occupational therapy can help address the current need for better management of type 2 diabetes in rural areas. Telehealth should be considered as a possible format for interventions. However, more research is needed to determine the most effective interventions and delivery model for this population.



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