



Developing a Low-Vision Community Access and Travel Kit for Individuals with Diabetic Retinopathy

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Introduction

- Diabetic retinopathy (DR) is the leading cause of blindness in U.S. adults, with advanced stages severely impacting vision.
- DR disrupts occupational engagement and community access, contributing to social isolation and reduced quality of life.
- Management of DR combines diabetes control with compensatory strategies, such as adaptive equipment (AE), to address vision loss.
- Barriers like cost, availability, and training limit AE use, highlighting the need for affordable, accessible tools tailored to clients' functional needs..
- This project aims to develop a low-cost, portable travel kit of assistive devices to help individuals with DR navigate and engage in daily life.

Methods

Research Design

This qualitative study explored the lived experiences of persons with DR concerning mobility and travel. Semi-structured telephone interviews lasting about 20 minutes were conducted. Participants were consented and informed of their rights. All personal identifiers were removed to maintain confidentiality. The interview guide was developed using the AOTA Practice Framework 4 (AOTA, 2020), expert feedback, and peer-reviewed literature.

Participants

Twelve English speaking adults (age >18) diagnosed with DR stages 2, 3, or 4 participated, excluding those with confounding health conditions. There were no exclusions based on race, gender, or sexual orientation.

Recruitment

Participants were primarily recruited through the UAB Center for Low Vision Rehabilitation with one participant from a public support group. Convenience and quota sampling methods were utilized to identify 59 eligible participants. Additional recruitment via low vision-related events yielded one participant.

Data Collection and Analysis

Qualitative data were gathered via informal interviews focusing on travel experiences and occupational engagement. Interviews were recorded, transcribed, and verified for accuracy. Thematic analyses were performed, identifying common themes related to travel and mobility, which were visualized in a word cloud matrix, emphasizing the role of assistive devices in promoting independence and community engagement.

Results

- 12 participants (n=12) voluntarily participated in the interviews, with no drop-outs.
- Four key themes were identified with frequency of reference: "occupational disruption" (32), "adaptive equipment dependency" (19), "health literacy"(11), and "public embarrassment"(9).
- Essential tools included sunglasses, magnifiers, and white canes.

Table 1 Major Themes Identified

Theme	Example Quotes
Health Literacy	<ul style="list-style-type: none"> • "But I didn't know I had diabetes or whatever. They just looked into my eyes and told me maybe I had it." • I thought it was just something in my eye, you know, blinking and rubbing and whatever and it would never go away. An uh, the next day I got up and went to the doctor and they said 'oh, it looks like you have diabetes'"
Occupational Disruption	<ul style="list-style-type: none"> • "All of it. I can't work anymore; I didn't do this for a living, but I like to work on old cars. I can't do that anymore." • "And I never go anymore. I'm pretty much just homebound. I can't drive, you know, these sorts of things are very limiting."
Public Embarrassment	<ul style="list-style-type: none"> • "And being in commercial real estate it's just embarrassing to be around your peers just trying to read your computer screen." • "I went inside to tell the person I was on pump 7 and there was a guy behind that went 'no man, I'm on 7' and we went outside, and he had to show me I was on pump 17. It was embarrassing or whatever, to a point."
AE Dependency	<ul style="list-style-type: none"> • "Dark sunglasses when I walk. Because without dark sunglasses and going outside when it's bright, I can't see nothing. Everything is just white." • I don't carry it with me, but I'd use magnifying glass regularly around the house. When I'm trying to read the address if where a letter has come from when it comes in."

Figure 1 Qualtrics Cloud Visualization (Support Factors)



Discussion

Health Literacy Gaps: Many participants lacked awareness of their diabetes diagnosis and its connection to DR, highlighting the need for improved health literacy and education to support better diabetes management and reduce DR risk.

Adaptive Equipment Dependency: Participants demonstrated significant dependence on adaptive equipment (AE) like sunglasses, magnifiers, and long canes for daily tasks, emphasizing the importance of accessible and affordable tools to support functional mobility and participation.

Low Vision Community Access Kit: The development of a low vision travel kit, including tools such as sunglasses, magnifiers, and smartphone apps, can enhance community access and mobility for individuals with DR, though further research is needed to refine the kit and explore advanced technologies.



Potential items to include in the kit

Conclusion

Individuals with diabetic retinopathy rely on adaptive equipment for community access and independent travel, but face barriers from limited tool availability, education, and health literacy. Light sensitivity and reading difficulties are the primary challenges to mobility. Research on kit implementation and cost-effectiveness is needed.

References



Acknowledgement & Contact information

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