UNDERSTANDING THE EFFECT OF THE ENVIRONMENT ON MOBILITY WITH A LOWER LIMB PROSTHESIS

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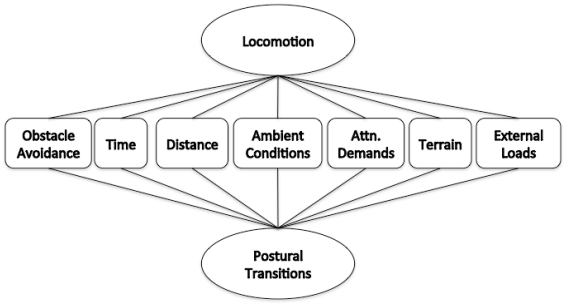
INTRODUCTION

Mobility with a lower limb prosthesis is an important goal of prosthetic rehabilitation. There is a need to develop outcome measurement tools designed to evaluate the effect of lower limb prosthetic technology on the lives of people with amputation(s) (Miller, 2006). Factors that impact mobility must be understood prior to the design of tools intended to measure this construct. The purpose of this study is to identify conceptual gaps in our understanding of the influence of environmental factors on mobility as represented by the framework proposed below.



Results will inform the development of an item bank for measuring self reported mobility with a prosthesis.

METHOD

As a first step toward development of the Prosthetic Limb Users Survey - Mobility (PLUS-M), focus groups were conducted in four different geographic locations (Seattle, WA, Puyallup, WA, Chicago, IL, Miami, FL) representing environments encountered by lower limb prosthetic users.

Participants: Purposive sampling was used to recruit participants who: 1) are 18 years or older 2) have lower limb loss 3) use a lower limb prosthesis, and 4) speak English. Participants were excluded if they had a cognitive condition that would limit their ability to participate in group discussions. Participants were diverse with respect to 1) level of amputation, 2) age, 3) gender, 4) race/ethnicity, 5) amputation etiology, and 6) time since amputation.

Apparatus: Participants completed a survey used to collect demographic information prior to the start of each focus group. Focus group discussions were transcribed by a court reporter.

Procedures: Focus groups of 6-12 people, lasting 1.5 to 2 hours were held in neutral locations. Facilitators used a semi-structured approach to invite discussion of topics related to mobility and use of a prosthesis. The role of the facilitator was to keep the discussion on topic, but was otherwise non-directive. University of Washington IRB approval was obtained to comply with human subjects research requirements.

Data Analysis: Focus group transcripts were analyzed using a phenomenological qualitative approach to understand the lived experience of people who use lower extremity prostheses. A qualitative software package (ATLAS.ti) was used to code the transcripts and create an audit trail of the data analysis process. Two research staff independently coded the transcripts. Two certified prosthetists analyzed the coded data for thematic elements and collaborated in interpretation of the data.

RESULTS

Numerous examples of how the environment impacts post-amputation mobility were given, supporting the proposed framework. One example was how walking (locomotion) on a poorly lit street (ambient conditions) with broken sidewalks (terrain) required additional caution (attentional demands) to avoid falling. The discussions illustrated how mobility with a prosthesis in complex environmental conditions presents additional challenges not present prior to amputation.

Participants also discussed important themes outside of the mobility framework. Some of these themes included personal factors such as faith, motivation, and trust; and body structure (i.e., the impact of amputation level or multiple amputations).

DISCUSSION

Focus group results support the mobility framework proposed as a foundation for development of the PLUS-M measure. No conceptual gaps were identified. Our results also support the development of a conceptual model that encompasses the personal factors that affect mobility with a prosthesis.

CONCLUSION

These findings parallel the clinical decision-making process that recognizes the complex interaction of personal and environmental factors when determining appropriate treatment goals.

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REFERENCES

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