

# Older Adults' Intent to Utilize Apple Watch-Based Fall Detection Technology

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## 1. INTRODUCTION

- One in four older adults experiences at least one fall each year.
- Technology may be useful in mitigating negative fall-related outcomes.
- It is not well understood how older adults perceive wearable fall detection technology and what factors may limit or encourage them to utilize such technology.
- The Theory of Planned Behavior (TPB) can provide a useful structure for understanding older adults' decision-making regarding wearable fall detection technology.

## 2. OBJECTIVES

- To elicit the beliefs of older adults regarding wearable fall detection technology.

## 3. METHODS

### Recruitment and Procedure

- Participants were recruited from an older adult participant pool (Wyoming Older Adult Research Pool) through two large mailings.
- Participants were aged 60 years and older and had previously agreed to be contacted for research opportunities by the Wyoming Center on Aging.
- A semi-structured interview was completed by telephone.

### Instruments

- A semi-structured interview comprising a sociodemographic form, emergency response device interview, and salient beliefs questionnaire created by the researchers was used.

### Analysis

- SPSS version 24 was used to examine demographics.
- Thematic analysis was utilized to identify common themes.
- A codebook was developed from coded telephone interviews. Saturation was achieved.

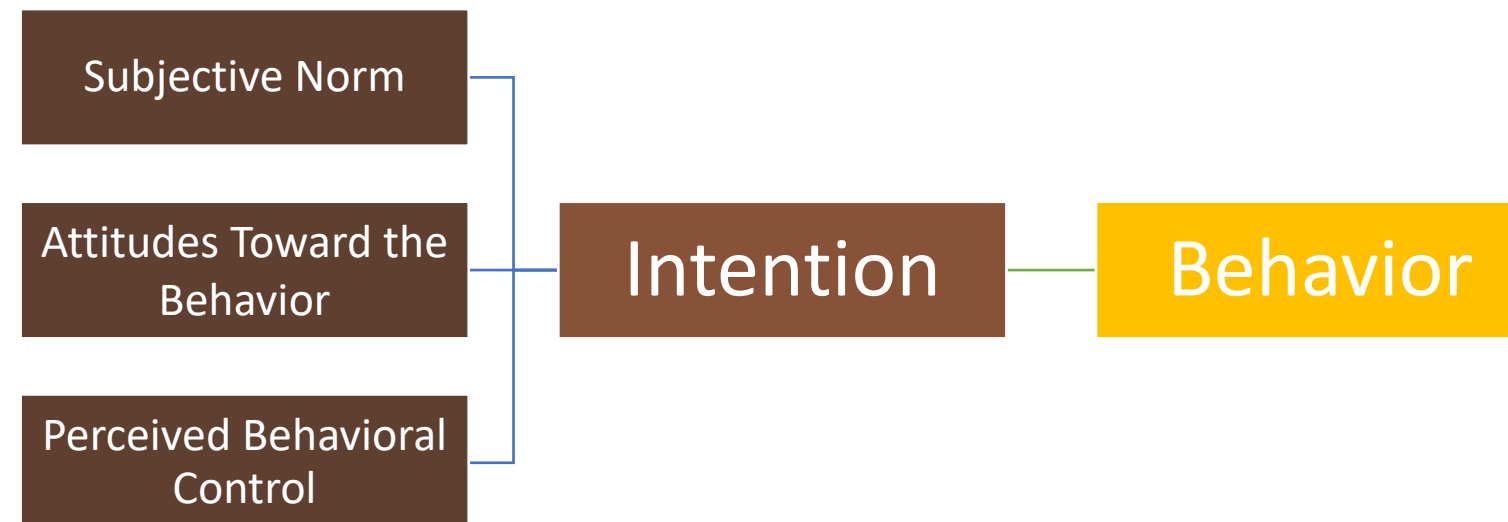


Figure 1. Theory of Planned Behavior.

<b>Subjective Norm</b> <i>Perceptions of fall detection technology as influenced by others</i>	<p>"All of my children and friends would encourage me to wear a fall detection device. Nobody in my life would [disapprove]."</p> <p>"My mother and my in-laws would approve of me wearing this. I don't think anybody would reject my choosing to wear this for myself."</p>
<b>Attitudes Toward the Behavior</b> <i>Evaluation of and attitudes toward wearing fall detection technology</i>	<p>"If I were to fall and be unconscious it would be quite helpful."</p> <p>"It could be a lifesaver. If you have no way to contact someone, you could be there for hours."</p>
<b>Perceived Behavioral Control</b> <i>Beliefs about ability to wear fall detection technology</i>	<p>"[Wearing the technology] totally depends on individual capacity."</p> <p>"I would be likely to wear this if I contracted an illness or was involved in an accident or if I became more susceptible to falls."</p>
<b>Tech Factors</b> <i>Device-specific factors that contribute to decision to wear fall detection technology</i>	<p>"I prefer the option that asks you first [before calling emergency services]. You do not always need emergency services for every fall, and it would be nice to have the option."</p> <p>"Other devices have a short range but the watch is consistent wherever you go."</p>

Table 1. Themes and Associated Participant Responses.

## 4. RESULTS

### Participant Characteristics

- Wyoming residents ( $n = 23$ ) with mean age of 73.5 years ( $SD = 7.8$ ).
- Majority non-Hispanic ( $n = 21, 91.3\%$ ) and female ( $n = 16, 69.6\%$ ).
- "Very good" ( $n = 11, 52.4\%$ ) or "excellent" ( $n = 2; 8.7\%$ ) self-reported health ratings.
- Majority ( $n = 21; 91.3\%$ ) familiar with fall detection devices but had not used one themselves.

### Themes

- Responses were consistent with TPB constructs, along with a theme corresponding to technology-specific factors.
  - Subjective Norms
  - Attitudes Toward the Behavior
    - Ideas about using wearable fall detection technology
    - Comparison to similar technologies
  - Perceived Behavioral Control
    - Perceived vulnerability/control
    - Familiarity/ease of use
    - Cost/accessibility
  - Technology-Specific Factors

## 5. CONCLUSIONS

- Results revealed favorable beliefs of older adults towards wearable fall detection technology.
- Theory of Planned Behavior constructs in conjunction with technology-specific factors are useful in understanding the decision-making process of older adults regarding such wearable fall-detection technology.
- Future research will include developing and testing a Theory of Planned Behavior questionnaire to measure intention to use wearable fall detection technologies like the Apple Watch.