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Exploring gender differences in smartwatch perceptions and adoption among older adults: A focus group study

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Abstract

Background: Wearable devices have grown in popularity, yet adoption among older adults remains comparatively low. Smartwatches may support health behavior monitoring, vital sign tracking, and aging in place; however, usability barriers and limited age-specific design continue to hinder adoption and sustained use.

Research Aims/Question: This study explored factors influencing smartwatch adoption and sustained use among older adults, with attention to gender-related patterns in usability, perceived benefits, barriers, and support needs.

Methods: Six gender-stratified focus groups were conducted with adults aged 55 years and older in The Villages®, Florida, between March and April 2020. Participants completed a survey on technology use, health status, and demographic characteristics. Transcripts were analyzed using iterative thematic analysis. Survey data were used descriptively to characterize the sample and contextualize qualitative findings; exploratory gender comparisons used Fisher's exact tests and Welch's t-tests where appropriate.

Results: The sample included 36 participants: 19 women and 17 men. Seventeen participants were aged 71–80 years (47.2%), and 23/36 (63.9%) had at least a 4-year college degree. Smartwatch use was reported by 15/36 participants (41.7%) and was descriptively higher among men than women (10/17, 58.8% vs. 5/19, 26.3%), although this difference was not statistically significant. Key qualitative themes included usability, comfort, technical support, data sharing, personalization, and healthcare integration. Men more often emphasized technical features and access to health data, whereas women more often emphasized simplicity, aesthetics, and instructional support.

Conclusions: Smartwatch adoption among older adults appears shaped by usability, perceived value, support needs, and gender-related patterns in technology engagement. Simplified interfaces, tailored instruction, personalization, and selective data sharing may support adoption and sustained use. Future studies should evaluate whether perceived benefits translate into sustained engagement, clinically meaningful action, or improved health outcomes.

Keywords: Smartwatches; Older adults; Technology adoption; Usability; Gender differences

Introduction

Background

Wearable devices have become increasingly popular with the proliferation of mobile technologies. Market analyses have projected continued growth in wearable technology, with wrist-worn devices representing a major product category (Grand View Research, 2020). Despite this rapid market expansion, adoption among older adults remains comparatively low. A Pew Research Center survey conducted shortly before the COVID-19 pandemic found that 21% of U.S. adults regularly wore a smartwatch or wearable fitness tracker, with use varying by age, income, education, and gender (Vogels, 2020). More recent AARP survey data indicate that 38% of adults aged 50 years and older owned a wearable device in 2025, suggesting increased uptake while underscoring the continued importance of understanding adoption and sustained use in this population (Kakulla, 2025). Because the present focus groups were conducted in early 2020, near the onset of the COVID-19 pandemic, participants' views provide a useful snapshot of smartwatch perceptions during a period when digital health and remote monitoring technologies were becoming increasingly salient.

Wearables can offer important health benefits for older adults. By monitoring physical activity (e.g., step counts) and vital signs (e.g., heart rate), smartwatches may support health aware-

ness, self-management, and independent living among older adults (Bao et al., 2026). As the older population grows, such devices may have the potential to support healthy aging. However, many wearables are not designed with the needs and preferences of older adults in mind. Small screens, complex interfaces, and limited customizability can make them difficult to use and may diminish adoption (Hydari et al., 2023). Prior research further suggests that wearable activity tracker adoption and use among older adults may vary by sociodemographic characteristics, including age, education, income, and technology experience (Schuster et al., 2023). These disparities highlight the importance of understanding not only whether older adults adopt wearable technologies, but also what support, design features, and perceived benefits may influence sustained use.

Many researchers are proponents of a holistic approach to increasing the adoption of wearable devices in older adults. Lee and Coughlin (2015) identified ten factors that facilitate or deter older adults: value, usability, affordability, accessibility, technical support, social support, emotion, independence, experience, and confidence. Other factors that facilitate adoption include habit formation, social motivation, and goal reinforcement (Kamble et al., 2025). In a study examining the differences between previous users and non-users of wearable devices by Kononova and colleagues, social motivation played a large role in facilitating adoption, encouraging users to sustain engagement (Kononova et al., 2019). Interestingly, non-users were more likely to use a device if it was comfortable, aesthetically pleasing, and had an easy-to-read display (Kononova et al., 2019).

Gender-related patterns may also shape smartwatch adoption and sustained use among older adults. Prior research has found that wearable use and adherence can vary by demographic and clinical characteristics, including gender (Paolillo et al., 2022). Technology acceptance frameworks, including the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT), provide useful constructs for interpreting these patterns, particularly perceived usefulness, perceived ease of use, social influence, and facilitating conditions (Venkatesh & Davis, 1996; Dwivedi et al., 2019). These constructs are especially relevant for older adults because adoption decisions may depend not only on whether a device is perceived as beneficial, but also on whether it is understandable, usable, supported, and compatible with everyday routines. In a longitudinal study of urban older adults in Japan, factors associated with smartwatch interest differed by sex: health-related variables were associated with interest among men, whereas technology literacy and sociodemographic factors were associated with interest among women, suggesting that gender-sensitive adoption strategies may be warranted (Deguchi et al., 2024).

Practical factors

The usability of wearable devices depends on features such as screen size, readability, fit, comfort, setup burden, and the availability of appropriate education and support. These ease-of-use factors are important because sustained use is necessary for wearables to provide meaningful health-monitoring value. Prior research suggests that older adults are more likely to continue using wearable devices when they are comfortable, easy to understand, and compatible with daily routines (Alharbi et al., 2019; Domingos et al., 2022; Manskow et al., 2023).

Clear onboarding, readable instructions, access to wearable information on familiar devices such as laptops or tablets, and comfort-related design features may improve ease of use among older adults (Manskow et al., 2023; Domingos et al., 2022). Prior studies have also identified software and setup challenges that can inhibit adoption and sustained use, including difficulty pairing devices, adjusting to interface changes after updates, managing notifications, and locating desired information (Domingos et al., 2022; Halicka & Surel, 2022). Some older adults may also prefer devices that feel practical and supportive in everyday life rather than overly medicalized (Hughes et al., 2023). Together, these barriers highlight the importance of designing wearable technologies that minimize cognitive and technical burden while supporting comfort, readability, and user control.

Conceptual framework

Consumer wearables are increasingly used in health research and practice, but they differ from medical or research-grade devices in their intended use, data access, validation, and integration into care or research workflows (Dobson et al., 2023). This study focused on consumer-grade smartwatches because these are the devices most commonly available to community-dwelling older adults who may use technology to monitor, maintain, or improve their health. The study was guided by complementary technology acceptance and healthy aging perspectives to examine how older adults evaluate smartwatch usefulness, usability, support needs, and relevance to health maintenance.

The Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT) emphasize perceived usefulness, perceived ease of use, social influence, and facilitating conditions as important determinants of technology adoption. These constructs informed the study's focus on older adults' perceptions of smartwatch benefits, barriers, instructional needs, provider involvement, data sharing, and sustained use. They also provided an interpretive lens for themes related to usability, perceived value, technical support, and healthcare integration.

Lifespan and healthy aging perspectives emphasize that aging is shaped by adaptation, context, and efforts to maintain functioning and well-being over time (Menassa et al., 2023; Trică et al., 2024). These perspectives informed the study's focus on smartwatches as potential tools for supporting independence, compensating for age-related changes, and engaging in prevention-oriented health behaviors. In this context, smartwatch features such as activity tracking, heart-rate monitoring, sleep tracking, alerts, and health summaries were considered relevant not simply as device functions, but as potential supports for health monitoring and proactive self-management in later life.

Together, these frameworks informed the study aims, focus group domains, and interpretation of findings. The qualitative analysis remained primarily thematic, while TAM/UTAUT constructs and lifespan/healthy aging concepts served as sensitizing frameworks for interpreting how participants described adoption, non-adoption, and sustained use. *Figure 1* illustrates this conceptual approach, including how individual and contextual factors shaped participant perceptions and how technology acceptance and healthy aging frameworks informed interpretation of themes related to usability, perceived value, support needs, data sharing, and prevention-oriented health monitoring.

Aims of the study

This study aimed to examine how older adults make decisions about adopting wearable smart technologies and what factors may inform sustained use for health and wellness monitoring. Specifically, we sought to address three research questions: (1) What factors influence smartwatch adoption and sustained use among older adults? (2) How do these factors differ between men and women? And (3) How do older adults perceive smartwatch data as supporting health awareness, self-management, caregiver support, or communication with healthcare providers? These questions guided data collection and analysis and were interpreted using technology acceptance and healthy aging frameworks.

Methods

Study design and setting

This study used a qualitative focus group design supplemented by descriptive survey data. The primary aim was to explore older adults' perceptions of smartwatch adoption, usability, perceived benefits and concerns, decision-making, and potential health-related uses. Survey data were collected to characterize the sample and contextualize focus group findings rather than to support confirmatory hypothesis testing.

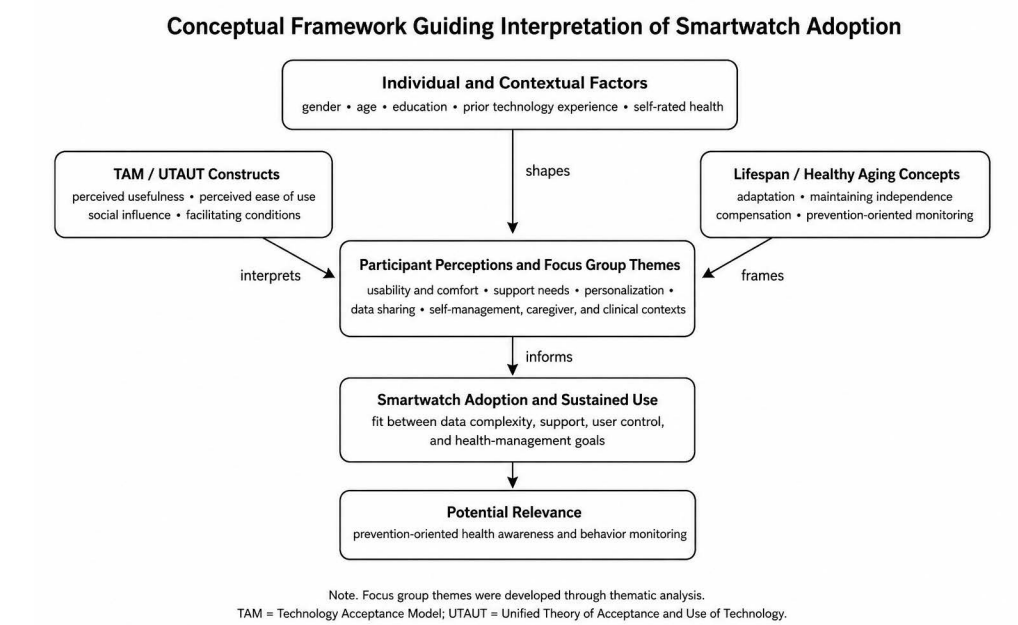
Six gender-stratified focus groups were conducted between March and April 2020 with adults aged 55 years and older residing in The Villages®, Florida, an active lifestyle retirement community in central Florida. Stratifying groups by gender allowed participants to discuss technology use, support needs, and health-related preferences in groups with shared gender identity and supported exploratory comparison of gender-related patterns. Focus groups were selected because they allow for discussion of shared experiences, group-level perceptions, and areas of agreement or disagreement among participants (Kitzinger, 1995). The focus group discussions centered on current smart technology use, factors influencing adoption of new technologies, perceived benefits and concerns of wearable devices, usability preferences, and the use of wearable-generated information for health and wellness.

Prior to the focus group sessions, Institutional Review Board approval was obtained from the University of South Florida Institutional Review Board (IRB #00041287). Written informed consent was obtained from all participants before participation.

Recruitment and participants

Participants were recruited through collaboration with community recreation centers and older adult organizations in The Villages®, Florida, between February and March 2020. Physical flyers were placed at community centers, and electronic flyers were distributed by partner organizations to their members. In addition, a direct email was sent to a listserv of individuals who had previously indicated interest in learning about local research opportunities.

Interested individuals were contacted by telephone by a research staff member. Eligible participants were adults aged 55 years or older who lived in The Villages® or the surrounding community, spoke English, and were able to provide informed consent. Participants signed a consent



Note. Focus group themes were developed through thematic analysis.
TAM = Technology Acceptance Model; UTAUT = Unified Theory of Acceptance and Use of Technology.

Figure 1. Conceptual framework guiding interpretation of smartwatch adoption and sustained use among older adults. Focus group themes were developed through thematic analysis. TAM/UTAUT constructs and lifespan/healthy aging concepts were used as sensitizing frameworks to interpret participant perceptions related to usability, support needs, personalization, data sharing, and the self-management, caregiver, and clinical contexts of smartwatch use.

document before participation and received a handwritten thank-you note and a $25 gift card. The number of individuals who declined participation or did not attend after expressing interest was not systematically recorded.

Focus group guide and survey measures

The semi-structured focus group guide was developed and refined with input from community stakeholders. Questions were designed to elicit participants' experiences with smart technologies, factors influencing adoption decisions, concerns about wearable devices, usability preferences, and views on how information from wearable devices could inform health and wellness. Core questions included: (1) What influences you to try new technology? (2) What concerns do you have with using a wearable device? (3) What would make using a wearable device easier? and (4) How can information from wearable devices be used to inform your health and wellness? Each broad question was followed by probes to encourage elaboration, clarification, and examples. Repeat focus groups or interviews were not conducted.

Participants completed a brief demographic and technology survey at the start of the focus group session (*Appendix Survey 1*). The survey included age category, gender, marital status, level of education, employment status, residence status, self-rated health using a 1 (poor) to 10 (excellent) scale across domains such as physical and cognitive health, comfort using smart technologies, current use of smart technologies, and frequency of device use. These data were used to characterize participants and contextualize focus group findings.

Focus group procedures

A total of six gender-stratified focus groups were conducted with 36 participants. Focus groups took place in a quiet, private conference room and lasted approximately 90 minutes. Focus groups were facilitated by M.R., who was a male doctoral student/research manager at the time of data collection, under the supervision of C.V., a senior investigator with experience in community-based aging research. Two observers/note-takers were present during each session to document group dynamics, nonverbal cues, and contextual details relevant to interpretation. No individuals other than participants and research team members were present during the focus groups.

At the start of each session, participants were informed that the research team was conducting a study on older adults' perceptions of wearable technologies and their potential health and well-

ness uses. Participants were also reminded that the discussion would be audio-recorded for transcription and analysis. The moderator encouraged balanced participation, clarified unfamiliar terms when needed, and redirected discussion to the prepared questions if the conversation moved off topic. The moderator also monitored participation to help ensure that quieter participants had opportunities to contribute. Group composition was tracked by focus group number, gender stratification, and participant characteristics; quote identifiers in the appendix include participant age category, focus group number, and participant number.

Focus groups were conducted during the COVID-19 era and followed safety procedures in place at the time. Participants and research team members wore masks, seating was arranged to maintain physical distancing, hand sanitizer was available, and group sizes were limited in accordance with local guidance.

Research team and reflexivity

The research team included members of the UF Health Precision Health Research Center and collaborators with experience in aging research, health technology, community-based research, and qualitative methods. Members of the research team had prior experience working with older adults in The Villages®, FL community and with community-based research in this setting. Although the research team had an established relationship with community partners, participants did not necessarily have a prior individual relationship with the moderator or observers.

To support reflexivity, the team discussed assumptions and observations before and after focus group sessions and during analysis meetings. These discussions helped the team consider how their professional backgrounds, experience with the community, and expectations about technology adoption could influence interpretation. The Community Advisory Board provided input on the focus group design and materials. This input helped ensure that questions were relevant, understandable, and appropriately framed for the target population. The advisory process also informed the team's approach to discussing technology literacy, comfort, and health-related use of wearable devices with participants.

Qualitative analysis and rigor

Focus group recordings were transcribed verbatim and analyzed using an iterative thematic analysis approach informed by Creswell and Poth's Data Analysis Spiral (Creswell & Poth, 2018). This process included organizing transcripts, reading and memoing initial impressions, coding and classifying data into themes, interpreting patterns across focus groups, and representing themes through narrative summaries and illustrative quotations.

The study team reviewed, organized, coded, and interpreted the transcripts to identify recurring themes related to older adults' attitudes toward wearable devices, perceived benefits and concerns, usability, decision-making, data sharing, and health-related uses.

Three research team members (M.R., E.S., and C.V.) reviewed transcripts and met regularly to compare interpretations, discuss discrepancies, and refine themes through consensus. The team used a working coding framework to organize themes and subthemes, which were refined during analysis. Disagreements were resolved through discussion until consensus was reached. Because no formal reliability statistic was calculated, the process is described as consensus coding rather than inter-rater reliability.

Coding and theme refinement continued across transcripts until no new major themes were identified in the final focus group discussions. During consensus discussions, the team considered variation in participant responses, including comments that complicated or diverged from emerging themes. Formal member checking was not conducted, and transcripts were not returned to participants for comment; this is acknowledged as a limitation. The analytic process was documented through the evolving coding framework, coding summaries, team discussions, and retained quote tables. Longer quote tables were retained in the appendix, while selected illustrative quotations were included in the Results to support key themes.

Qualitative reporting was guided by the Consolidated Criteria for Reporting Qualitative Research (COREQ), with expanded reporting on moderator characteristics, observer roles, group composition, focus group procedures, coding procedures, theme development, consensus meetings, reflexivity, and limitations of the qualitative process (Tong et al., 2007).

Consistent with the conceptual framework, the qualitative analysis was primarily thematic. TAM/UTAUT constructs and lifespan/healthy aging concepts were not used as a rigid deductive coding structure; rather, they served as sensitizing frameworks during interpretation. After initial themes were developed from the focus group data, the team considered how themes related to TAM/UTAUT constructs, including perceived usefulness, perceived ease of use, social influence, and facilitating conditions, as well as lifespan/healthy aging concepts such as adaptation,

Table 1. Demographic characteristics of study participants (N = 36)

Age Distribution	Overall (n/%)	Male (n/%)	Female (n/%)
55-60	3 (8.3)	1 (5.8)	2 (10.5)
61-65	5 (13.9%)	1 (5.9%)	4 (21.1%)
66-70	11 (30.6%)	7 (41.2%)	4 (21.1%)
71-75	10 (27.8%)	4 (23.5%)	6 (31.6%)
76-80	7 (19.4%)	4 (23.5%)	3 (15.8%)
Level of Education	**Overall (n/%)**	**Male (n/%)**	**Female (n/%)**
High School	5 (13.9)	3 (17.6)	2 (10.5)
2 Years College	8 (22.2)	3 (17.6)	5 (26.3)
4 Years of College/University	11 (30.6)	2 (11.7)	9 (52.9)
Postgraduate (Master's, PhD)	12 (33.3)	9 (52.9)	3 (15.8)

maintaining independence, compensation, and prevention-oriented health monitoring.

Quantitative survey analysis

Quantitative data from the demographic and technology survey were entered into Qualtrics and exported for analysis in SPSS 25.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics, including means, standard deviations, frequencies, and percentages, were calculated to characterize the sample and contextualize qualitative findings. Values are reported as n/N (%) for categorical variables and means with standard deviations for self-rated health scores where appropriate. Percentages were calculated using non-missing denominators.

Given the small sample size (N = 36) and sparse cells for some categorical variables, quantitative comparisons were treated as exploratory rather than confirmatory. Fisher's exact tests were used for categorical gender comparisons where expected cell sizes were small. Welch's t-tests were used for exploratory comparisons of self-rated health scores by gender because this approach does not assume equal variances. Exact denominators, missing data, effect sizes, and confidence intervals are reported where applicable.

Results

Sample characteristics

A total of 36 older adults participated in the focus group discussions. The sample included 19 female participants and 17 male participants; no participants selected "other" for gender. Age was collected categorically. Three participants were in the 55–60 age category (3/36, 8.3%), 16 were aged 61–70 years (16/36, 44.4%), and 17 were aged 71–80 years (17/36, 47.2%). Most participants were married (32/36, 88.9%), and 23/36 participants (63.9%) had completed at least a four-year college degree. Given the small sample size and sparse demographic cells, demographic characteristics are reported descriptively. Demographic characteristics are summarized in *Table 1*.

Self-reported health ratings

No statistically significant gender differences were observed in self-rated cognitive health, mental health, physical health, or overall health. Exploratory Welch's t-tests ranged from p = .071 to p = .292. Overall health included one missing female response; therefore, the denominator for overall health was n = 35. Self-reported health ratings by gender are summarized in *Table 2*.

Smart technology usage and comfort

Most participants reported using smart technology daily, including laptops/computers, smartphones, and tablets. Smartwatch use was reported by 15/36 participants (41.7%). Use was descriptively higher among male participants (10/17, 58.8%) than female participants (5/19, 26.3%); however, this exploratory comparison did not reach statistical significance using Fisher's exact test (p = .090; OR = 4.00, 95% CI [0.98, 16.31]). Most participants reported being somewhat or very comfortable using smart technologies (23/36, 63.9%). Smart technology use and comfort ratings are summarized in *Tables 3* and *4*.

Thematic findings across domains

The focus group discussions were organized into six thematic domains: current technology use, perceived benefits, concerns, fit and function, adoption drivers, and health monitoring and prevention-oriented uses. Findings are summarized across the full sample, with gender-related patterns highlighted when they were supported by recurring participant comments or thematic evidence. Additional illustrative quotations by domain and gender are provided in *Appendix Table 1*.

Current technology use

Participants reported regular use of smart devices, including smartphones, laptops, tablets, smart speakers, and smartwatches. However, comfort and depth of use varied. Some participants described limited use of familiar devices, with one woman noting, "I only use 10% of

Table 2. Self-reported health ratings by gender

Health domain	Overall mean (SD), n	Female mean (SD), n	Male mean (SD), n	Welch's t-test	Mean difference female-male (95% CI)	Hedges g
Cognitive health	8.56 (1.36), n=36	8.79 (0.92), n=19	8.29 (1.69), n=17	t(24.09)=1.08, p=.292	0.50 [-0.45, 1.44]	0.36
Mental health	9.22 (1.14), n=36	9.47 (0.90), n=19	8.94 (1.34), n=17	t(27.56)=1.38, p=.180	0.53 [-0.26, 1.33]	0.46
Physical health	8.53 (1.17), n=36	8.84 (0.90), n=19	8.18 (1.33), n=17	t(27.58)=1.74, p=.094	0.67 [-0.12, 1.45]	0.58
Overall health	8.94 (0.95), n=35	9.22 (0.81), n=18	8.65 (1.00), n=17	t(30.86)=1.87, p=.071	0.58 [-0.05, 1.20]	0.62

Note: Health ratings were self-reported on a 1–10 scale, with higher scores indicating better perceived health. Welch's t-tests were used for exploratory gender comparisons. No comparisons reached statistical significance.

Table 3. Self-reported smart technology usage by device type and frequency (N=36)

Device	Overall n/N (%)	Female n/N (%)	Male n/N (%)	Fisher's *p*	OR male vs female (95% CI)
Laptop/computer	34 (94.4%)	17 (89.5%)	17 (100.0%)	.487	5.00 [0.22, 111.87]
Smartphone	35 (97.2%)	18 (94.7%)	17 (100.0%)	1.000	2.84 [0.11, 74.42]
Tablet	34 (94.4%)	17 (89.5%)	17 (100.0%)	.487	5.00 [0.22, 111.87]
Smart speaker	19 (52.8%)	10 (52.6%)	9 (52.9%)	1.000	1.01 [0.27, 3.76]
Medical alarm	1 (2.8%)	0 (0.0%)	1 (5.9%)	.472	3.55 [0.14, 93.02]
Smartwatch/Fitbit	15 (41.7%)	5 (26.3%)	10 (58.8%)	.090	4.00 [0.98, 16.31]
Other smart technology	4 (11.1%)	1 (5.3%)	3 (17.6%)	.326	3.86 [0.36, 41.20]

Note: Fisher's exact tests were used for exploratory gender comparisons because of the small sample size and sparse cells. Smartwatch/Fitbit use was descriptively higher among male participants but did not reach statistical significance.

what's on my phone." Across the focus groups, women more often described relying on family members or spouses for setup and troubleshooting, whereas men more often described taking a technology-support role within the household.

Perceived benefits

Participants identified several potential benefits of smartwatches, including activity tracking, heart-rate monitoring, emergency alerts, and access to health information. Some women framed wearable devices as supports for safety or informal caregiving, with one participant describing a device for her mother as "like a 'caretaker' to help keep an eye on them and respond if something like a fall happened." Men more often emphasized immediate access to health data, with one participant stating, "I like looking at my health stuff every day."

Concerns

Common concerns included privacy, setup difficulty, notification burden, updates, and frustration with device responsiveness. Women often emphasized stress associated with learning new devices; one participant summarized this concern by stating, "Learning a new device seems like homework." Men also expressed frustration with device control and updates, including concerns about unwanted or disruptive notifications.

Fit and function

Usability, comfort, and design were recurring priorities. Participants described concerns about bulky devices, small text, confusing icons, and difficulty locating desired information. Women more often emphasized aesthetics, simplicity, and instructional support, including preferences for printed materials and slow, step-by-step setup guidance. Men more often emphasized integration with other devices, access to detailed health reports, and the ability to export information to a larger screen.

Adoption drivers

Across groups, adoption was influenced by perceived value, ease of use, independence, affordability, and trusted recommendations. Several participants emphasized that the device needed to provide clear value without creating additional burden. One participant noted, "Seeing data that indicates that the hassle is worth it would make me willing to try it." These comments suggest that adoption depends not only on device availability, but also on whether users perceive the information as understandable, useful, and worth the effort required to use the device.

Health monitoring and prevention-oriented data-sharing uses. Participants discussed smartwatch data as potentially useful for monitoring health, promoting activity, supporting emergency response, and communicating with caregivers or healthcare providers. Some participants wanted concise summaries and control over how much information they reviewed, with one participant stating, "I want a summary and more detail if I want it." Others described provider engagement as potentially motivating; one participant said, "I imagine how much more active I would be if I knew my doctor looked at my [smartwatch] results." At the same time, participants recognized practical constraints around clinical integration, including that providers may not have time to review wearable data. These findings suggest that participants viewed

Table 4. Self-reported comfort using smart technologies (N=36)

How comfortable are you using smart technologies?	**Overall (n/%)**	**Male (n/%)**	**Female (n/%)**
Not at all comfortable	6 (16.7)	5 (29.4)	1 (5.3)
Somewhat uncomfortable	2 (5.6)	0 (0.0)	2 (10.5)
Neither comfortable nor uncomfortable	5 (13.9)	2 (11.8)	3 (15.8)
Somewhat comfortable	11 (30.6)	3 (17.6)	8 (42.1)
Very comfortable	12 (33.3)	7 (41.2)	5 (26.3)

Note. Percentages were calculated using the full sample denominator and gender-specific denominators. Comfort ratings are reported descriptively.

smartwatch data as potentially useful for health awareness and prevention-oriented behaviors, but primarily when the information was understandable, actionable, and selectively shareable.

Discussion

Gender differences in smartwatch adoption and use

Gender differences were central to the study aims and emerged most clearly in how participants described smartwatch adoption, support needs, and perceived value. Although survey data showed a descriptive pattern of higher smartwatch use among men, this difference was not statistically significant and should be interpreted cautiously. The qualitative findings provide useful context for this pattern by suggesting that men and women often approached smartwatch adoption through different combinations of perceived usefulness, perceived ease of use, support needs, and preferences for autonomy.

Female participants often described a more cautious approach to wearable technologies and emphasized concerns about data security, usability, device setup, and the learning curve associated with new technologies. Although they recognized potential benefits such as cardiovascular monitoring, fall detection, and support for wellness behaviors, these perceived benefits were often weighed against concerns about complexity and confidence using the device independently. Viewed through TAM/UTAUT, these comments suggest that perceived usefulness alone may be insufficient to support adoption if perceived ease of use and facilitating conditions are weak. Female participants' interest in simple interfaces, step-by-step instructional support, printed materials, privacy assurances, and access to troubleshooting reflects the importance of facilitating conditions in transforming perceived value into sustained use. These findings are consistent with prior work emphasizing usability, confidence, and support as important factors in older adults' adoption of wearable technologies (Lee & Coughlin, 2015; Kononova et al., 2019; Tiersen et al., 2021).

Male participants more often described confidence using technology, interest in immediate access to health metrics, and preferences for detailed health reports. They also emphasized control over how wearable data could be reviewed, exported, or shared with healthcare providers. From a TAM/UTAUT perspective, these comments suggest that perceived usefulness was closely tied to actionable data, device functionality, and integration with health-management routines. For these participants, smartwatch value depended not only on the device's ability to collect data, but also on whether those data could support personal decision-making or be meaningfully shared with clinicians. This aligns with prior research suggesting that perceived value, social motivation, goal reinforcement, and actionable feedback can influence wearable adoption and sustained engagement (Lee & Coughlin, 2015; Kononova et al., 2019; Kamble et al., 2025).

These patterns also align with healthy aging and lifespan-oriented perspectives, which conceptualize healthy aging as multidimensional and shaped by the maintenance of function, autonomy, and well-being over time (Menassa et al., 2023; Trică et al., 2024). Preferences for simplicity, instructional support, customization, and control may reflect adaptive strategies for maintaining independence and managing age-related changes in vision, confidence, memory, or technology experience. For some participants, smartwatch adoption was framed less as technology use for its own sake and more as a tool for maintaining autonomy, monitoring health, and supporting prevention-oriented behaviors. Thus, the central implication is not simply that older adults need easier devices, but that smartwatch adoption depends on matching the level of data complexity, instructional support, and user control to older adults' confidence, support networks, and health-management goals.

Adoption factors and decision-making frameworks

Participants' decision-making around smartwatch adoption reflected a balance between perceived value, usability, support needs, and control. Across focus groups, participants wanted devices that were useful for health monitoring but not overly complex or disruptive. Female participants more often emphasized trust, instructional support, aesthetics, and ease of use, whereas male participants more often emphasized affordability, device functionality, battery life, and access to detailed data. These findings align with prior work identifying value, usability, affordability, technical support, social support, and confidence as important factors shaping technology adoption among older adults (Lee & Coughlin, 2015; Kononova et al., 2019).

The findings also point to practical design considerations that are directly grounded in participant comments. Participants emphasized the importance of simple interfaces, readable displays, comfortable fit, control over notifications, clear summaries of health information, and access to support when learning or troubleshooting devices. These preferences suggest that smartwatch adoption among older adults may be improved

by designs that reduce cognitive burden, allow users to personalize information and alerts, and provide accessible instruction during onboarding and updates. Prior research similarly emphasizes that perceived complexity, usability barriers, and limited support can reduce older adults' willingness to adopt or sustain use of wearable technologies (Tiersen et al., 2021; Bao et al., 2026).

Participants also valued personalization. They wanted greater control over device settings, including notification frequency, font size, and the health metrics displayed. Several participants described frustration when customization options were difficult to locate or adjust, suggesting that personalization should be easy to use rather than another source of complexity. These findings are consistent with user-centered and inclusive design approaches emphasizing clear workflows, accessible information, plain language, and iterative design with older adult users (Amouzadeh et al., 2025; Denecke et al., 2025). Although broader inclusive design and digital equity considerations remain important, the present findings most directly support practical strategies focused on simplicity, personalization, instructional support, and integration with users' existing health routines.

Integration of Smartwatch data across personal, informal, and clinical contexts

Participants described smartwatch data as useful across three overlapping contexts: personal health awareness, informal support, and potential healthcare communication. Some participants valued data for self-management, such as tracking activity, sleep, heart rate, or progress relative to age-based norms. Others described potential caregiving or emergency uses, including fall alerts or the ability for family members to "keep an eye" on an older adult when needed. These comments suggest that participants viewed smartwatch data not only as clinical information, but also as a tool for maintaining independence, safety, and everyday health awareness consistent with prior work on wearable and smart-home technologies for older adults (Tiersen et al., 2021; Ghorayeb et al., 2021; Li et al., 2024).

Participants also saw potential value in provider involvement, but this interest was conditional. One participant noted, "I imagine how much more active I would be if I knew my doctor looked at my [smartwatch] results," while another stated, "I would like the provider to have access to this information, but often providers do not have the time." These comments capture a central implementation challenge: clinician involvement may increase perceived value and motivation, but routine review of consumer-generated data must fit provider workflow and avoid adding burden. Prior research similarly suggests that wearable data may have clinical value, but that meaningful use depends on actionable summaries, workflow fit, and appropriate integration into care processes (Hughes et al., 2023; Denecke et al., 2025).

The practical implication is that smartwatch integration should be selective and purpose-driven. Rather than assuming all data should flow into the clinic, systems should allow users to control what is summarized, what is shared, and with whom. For older adults, the most useful outputs may differ by context: simple feedback for self-management, alerts for caregivers, and concise, clinically relevant summaries for providers. This tiered approach aligns with TAM/UTAUT by strengthening perceived usefulness and facilitating conditions while preserving user autonomy and avoiding unnecessary data burden.

Implications for design and implementation

Taken together, the findings suggest several practical strategies for smartwatch design and implementation among older adults. Devices should support tiered onboarding based on users' technology confidence, allow personalization of notifications and health summaries, provide clear privacy and data-sharing controls, and offer accessible support options such as printed instructions, live assistance, or guided tutorials. For health-related use, smartwatch data should be summarized in ways that are understandable to users and selectively shareable with caregivers or healthcare providers. These strategies are consistent with human-factors approaches to designing technologies for older adults, which emphasize usability, accessibility, cognitive load, and fit with users' abilities and contexts (Czaja et al., 2019).

Limitations

The findings should be interpreted in light of several limitations. First, the sample was drawn from The Villages®, a single, relatively affluent and highly educated retirement community in central Florida. As a result, participants' perspectives may not reflect those of older adults from more socioeconomically, racially/ethnically, geographically, or linguistically diverse populations. This limits the transferability of findings, particularly for older adults with lower levels of education, fewer financial resources, limited access to technology, limited English proficiency, or different experiences with healthcare systems. Because participants self-selected into the study, the sample may also overrepresent individuals with greater interest in technology, health monitoring, or research participation.

Second, the sample size was modest (N = 36), and the study was not powered to detect statistically robust gender differences. Survey findings were therefore used descriptively to characterize the sample and contextualize qualitative themes. Quantitative comparisons should be interpreted as exploratory rather than confirmatory.

Third, the study relied on self-reported survey data and focus group discussions. Participants may have differed in recall, comfort discussing technology use in a group setting, or willingness to disclose uncertainty, frustration, or dependence on others for technical support. Although moderators encouraged balanced participation, focus group dynamics may have influenced which perspectives were emphasized. In addition, formal member checking, transcript return, inter-rater reliability statistics, and formal negative-case analysis were not conducted. The qualitative findings should therefore be interpreted as consensus-based thematic interpretations supported by multiple reviewers, team discussions, observer notes, and illustrative quotations. Fourth, the study did not formally assess digital health literacy, technology proficiency, socioeconomic status, or detailed racial/ethnic background. These factors may intersect with gender to shape smartwatch adoption, support needs, and sustained use. Future research should recruit more heterogeneous samples and directly assess digital literacy, socioeconomic context, and health status to better understand how these factors influence wearable technology adoption. Finally, data were collected during the COVID-19 era, when technology use, health concerns, and attitudes toward remote monitoring may have been changing rapidly. Future studies should examine whether these themes persist in more recent cohorts and should evaluate smartwatch use longitudinally to determine whether perceived benefits translate into sustained use, clinically meaningful action, or prevention-oriented health outcomes.

Conclusion

This focus group study suggests that smartwatch adoption among older adults may be shaped by the fit between perceived usefulness, ease of use, support needs, personalization, and the contexts in which smartwatch data may be used. Gender-related patterns emerged in participants' descriptions of adoption and sustained use, with women more often emphasizing simplicity, aesthetics, privacy, and instructional support, and men more often emphasizing detailed health information, device functionality, and data access. These patterns should be interpreted cautiously given the exploratory design, small sample, and homogeneous study population.

Overall, the findings highlight the importance of designing smartwatch experiences that are understandable, customizable, and supportive of older adults' goals for independence, health monitoring, and prevention-oriented behaviors. Future research should test these design and implementation strategies in larger and more diverse samples, examine long-term use, and evaluate whether perceived benefits translate into sustained engagement, clinically meaningful action, and improved health outcomes.

Conflict of interest

The authors declare no potential conflicts of interest with respect to the research, authorship, and publication of this article.

Data availability statement

The data generated and analyzed during the current study are not publicly available because they include qualitative focus group data and participant-level information that may not be fully de-identifiable. Requests for access to de-identified data may be directed to the corresponding author and will be considered on a case-by-case basis, subject to applicable institutional policies, ethical restrictions, and IRB approval.

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Appendix

Survey 1. Focus Group Intake Survey

Age category: ☐ 55–60 ☐ 61–65 ☐ 66–70 ☐ 71–75 ☐ 76–80

Gender: ☐ Male ☐ Female ☐ Other: _____

Current marital status: ☐ Married ☐ Divorced ☐ Separated ☐ Widowed ☐ Single ☐ Other: _____

Highest education completed: ☐ Middle school ☐ High school ☐ 2-year college ☐ 4-year college/university ☐ Master's ☐ PhD/MD

Currently employed? ☐ Yes ☐ No

Current/previous occupation: _____

Live in The Villages®? ☐ Yes, full-time ☐ Yes, part-time ☐ No

If yes, years lived there: _____ years

On a scale of 1–10, with 1 being poor and 10 being excellent, how would you rate your health?

Health domain	1	2	3	4	5	6	7	8	9	10
Cognitive abilities	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Mental health	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Physical health	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Overall health	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

How comfortable are you using smart technologies?

☐ Not at all comfortable ☐ Somewhat uncomfortable ☐ Neither comfortable nor uncomfortable ☐ Somewhat comfortable ☐ Very comfortable

Please indicate whether you currently use each technology and, if yes, how often.

Device	Currently using?	Multiple times/day	Once/day	Multiple times/week	Once/week	Monthly	Not interested
Laptop/computer	☐ Yes ☐ No	☐	☐	☐	☐	☐	☐
Smartphone	☐ Yes ☐ No	☐	☐	☐	☐	☐	☐
Tablet	☐ Yes ☐ No	☐	☐	☐	☐	☐	☐
Smart speaker (e.g., Alexa)	☐ Yes ☐ No	☐	☐	☐	☐	☐	☐
Medical alarm (e.g., Life Alert)	☐ Yes ☐ No	☐	☐	☐	☐	☐	☐
Smartwatch (e.g., Fitbit)	☐ Yes ☐ No	☐	☐	☐	☐	☐	☐
Other: _____	☐ Yes ☐ No	☐	☐	☐	☐	☐	☐

Thank you for completing this survey. We appreciate your feedback.

Table 1. Focus group highlights by domain and gender with example quotes

Domain	Example quotes from female participants	Example quotes from male participants
Current smart technology usage	*"I do not use any technology devices outside of my phone." [61-70, FG1, 6]*	*"I use my wearable to monitor everything." [61-70, FG2, 7]*
	"I only use 10% of what's on my phone." [71-80, FG1, 2]	*"My wife has an Apple Watch and I teach her how to use it." [71-80, FG3, 16]*
	"I do not use a smartwatch, but my husband loves it." [71-80, FG3, 13]	*"I take care of my wife's technology; she doesn't know how to use it but loves using it." [55-60, FG3, 15]*
Perceived benefits	*"It will let you know when your heart is out of rhythm" [71-80, FG1, 5]*	*"Instant access to information whenever I want it" [61-70, FG3, 14]*
	"I think it is important to have step-tracking data," [61-70, FG3, 19]	*"A button to let someone know if there is an emergency" [71-80, FG1, 5]*
	"[The device for my mom] is like a 'caretaker' to help keep an eye on them and respond if something like a fall happened" [55-60, FG2, 10]	*"I like looking at my health stuff every day." [61-70, FG2, 11]*
Smart technology concerns	*"It is scary that we are now becoming monitored with everything we do" [61-70, FG2, 7]*	*[In response to device sensitivity] "I keep tapping my device, and nothing happens." [71-80, FG3, 15]*
	"I have to feed it information, and it can be frustrating." [61-70, FG1, 1]	*[In response to privacy] "I change my device password every 90 days." [61-70, FG2, 10]*
	"Learning a new device seems like homework" [71-80, FG3, 13]	*"I hate the constant updating, especially without my permission." [61-70, FG2, 7]*
	"I don't want a notification if I want to know something, I will look myself." [61-70, FG2, 9]	*"I need to view the information on my iPad, the text size is too small on the smartwatches." [71-80, FG1, 6]*
	"They all have these icons, but I don't have a clue what they are." [61-70, FG2, 12]	
Fit, function, and adoption drivers	*"I got an iWatch for Christmas, and it was too big and bulky, so I gave it right back." [71-80, FG1, 3]*	*"I want to find the information that I need to find easily." [71-80, FG2, 8]*
	"I want the setup videos to be slow and organized with simple steps so I can pause it on a particular step." [61-70, FG3, 19]	*"I think there should be certain levels of information someone can access based on technology experience." [61-70, FG2, 9]*
	"As much as we are trying to create simplicity, we are complicating it, it creates a lot of stress." [55-60, FG3, 18]	*"I want to be able to export information on my iPad or computer." [71-80, FG3, 17]*

Health monitoring and prevention-oriented uses	*"I imagine how much more active I would be if I knew my doctor looked at my [smartwatch] results." [61-70, FG1, 1]* *"Seeing data that indicates that the hassle is worth it would make me willing to try it." [61-70, FG3, 19]* *"I want a summary and more detail if I want it; let me make my decision based on how much I want to read." [71-80, FG2, 7]* *"Rewards, like gift cards for steps, would be nice and give you an incentive to do better" [61-70, FG1, 6]*	*"I would like the provider to have access to this information, but often providers do not have the time." [55-60, FG1, 4]* *"I would love to have a battery life of 5 days in order to track my sleep during the night," [71-80, FG2, 12]* *"Where I fell on the range for my age, and where I could be" [61-70, FG1, 1]* *"It is discouraging for me that I have bought my Apple Watch and I do not see much advantage to changing [my behaviors] unless there is a carrot in front of me." [71-80, FG2, 8]*

Note. Quote identifiers include collapsed age category, focus group number, and participant number. Collapsed age categories are used to provide broad age context for interpreting participant quotations.