Phenomenological study of challenges and opportunities in using new technologies among the elderly: (A qualitative study)

Extended Abstract

Introduction

h declines in physical, psychological, and social capacities. Globally, the elderly population is growing rapidly, with projections exceeding 2.1 billion by 2050 (WHO, 2021; UN, 2023). In Iran, older adults are expected to comprise over 32% of the population by 2051 (Dehghan Bonadki, 2023), posing challenges for health care, social welfare, and policy.

Innovative technologies, including wearable devices, mobile health apps, smart homes, and social platforms, offer tools to support older adults by enabling health monitoring, social connection, independence, and cognitive stimulation (Chalfant et al., 2021; Fachinetti et al., 2023; Sora et al., 2020).

While prior research often focuses on quantitative or technical aspects, this study examines older adults' lived experiences with technology in Iran, exploring both the challenges they face and the opportunities for improving their quality of life.

Method

This applied study employed a qualitative descriptive phenomenological approach to explore older adults' lived experiences with modern technologies. The research focused on men and women over 60 in Urmia, Iran. Using purposive sampling and based on data saturation, 20 participants with prior exposure to digital tools were selected. Semi-structured interviews (60–90 minutes) were conducted in familiar settings, guided by open questions to elicit perceptions, challenges, and opportunities related to technology use.

Lincoln and Guba's trustworthiness criteria (credibility, transferability, dependability, confirmability) were applied to ensure rigor. Data were analyzed thematically through systematic coding and categorization, enabling the identification of core themes. The findings revealed both barriers and enabling factors shaping older adults' engagement with digital technologies.

Result

The thematic analysis of interviews revealed both challenges and opportunities of technology use among older adults.

Regarding **challenges**, four overarching themes were identified:

1. **Lack of digital literacy** – including unfamiliarity with new technologies, difficulties in use, and challenges in training and learning.
2. **Complexity of user interfaces** – such as technical barriers, device adjustments, and limited accessibility to modern technologies.
3. **Socio-cultural issues** – including mistrust of technology, cultural resistance, physical limitations, and fear of reduced human interactions.
4. **Infrastructure limitations** – such as weak internet coverage, high costs, and insufficient access in disadvantaged areas.
   In total, 14 subthemes and 61 initial codes were extracted, reflecting the diversity of barriers faced.

Regarding **opportunities**, five major themes emerged:

1. **Improving health and well-being** – through telemedicine, health apps, and body monitoring.
2. **Enhancing independence** – with digital reminders, online shopping, smart-home technologies, and reduced reliance on others.
3. **Strengthening social connectedness** – via communication with family and peers, participation in online groups, and reduced loneliness.
4. **Cognitive empowerment** – including learning new skills, digital entertainment, and attending online courses.

5. **Digital services** – such as online banking, e-government services, and convenient access to everyday needs. Altogether, 15 subthemes and 75 initial codes were identified, highlighting how technology can contribute to autonomy, participation, and quality of life in later years.

Conclusions:he study revealed that while older adults encounter considerable barriers—including digital illiteracy, usability issues, cultural resistance, and infrastructural gaps—modern technologies simultaneously hold great potential to improve their health, autonomy, and social engagement. Effective responses require a combination of user-centered design, tailored digital training, intergenerational support, and policy-level interventions to reduce the digital divide in later life.

Practical recommendations include developing accessible and age-friendly technologies, creating training programs adapted to seniors' cognitive and physical needs, and fostering intergenerational initiatives (e.g., grandchildren supporting grandparents in technology use) to strengthen both skills and social value.

Future research should investigate rural, underprivileged, and diverse cultural groups to provide a more comprehensive understanding of digital aging in the Iranian context. It should also be noted that this qualitative study focused on depth rather than generalizability; participants were mostly urban residents with some degree of digital access, which limits broader applicability.