## Impact of Digitization on Elderly People

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### ABSTRACT

*The digital revolution has significantly impacted various demographics, including the elderly population, reshaping how they communicate, access information, and manages their health. However, challenges such as limited digital literacy, device complexity, and security concerns often hinder the adoption of technology among older adults. This research investigates the impact of digitization on the elderly, focusing on technology adoption, usage patterns, barriers faced, and the benefits derived from digital tools. A survey of 100-200 elderly individuals was conducted to assess factors such as age, gender, living situation, and health status, examining how these factors influence technology use. The study reveals that smartphones are the most commonly used device, with many elderly individuals leveraging digital tools to stay connected with family, manage health, and engage in entertainment. Barriers such as limited digital literacy and security concerns remain prevalent, suggesting the need for targeted digital literacy programs. The findings highlight the transformative potential of digital technologies in improving the quality of life for older adults, but also emphasize the importance of addressing challenges to ensure digital inclusion. This research provides a holistic view of the elderly's interaction with digital technologies, offering insights into both the advantages and barriers of digitization, while considering the ethical implications of digital access and inclusion.*

## INTRODUCTION

In recent years, the digital revolution has transformed almost every aspect of life, and the elderly population has been no exception. Technology, particularly digital tools and platforms, has become an integral part of daily life, affecting how people communicate, access information, manage their health, and perform daily tasks. However, the elderly population often faces unique challenges when it comes to embracing digital technologies. These challenges include limited exposure to digital devices, lack of digital literacy, and concerns over security and privacy. Despite these barriers, there is growing evidence that technology can significantly enhance the quality of life for older adults, especially in areas such as healthcare, social connection, and overall independence. For example, technology can help them to stay connected with their family and friends reducing the feeling of isolation and loneliness, they can also become self-reliant and can have better access to necessities through online delivery platforms. Finally, the study will consider the ethical implications of digital technology in the lives of older adults, including concerns related to data privacy and the potential for increased digital exclusion among elderly individuals who may not be able to afford certain devices or have consistent internet access. By addressing these ethical and socioeconomic factors, this research seeks to provide a holistic view of the digital landscape for older adults, highlighting both the transformative potential of technology and the steps necessary to make digital inclusion a reality for the elderly population. This research aims to explore the impact of digitization on the elderly population, focusing on how older adults interact with digital technologies, the benefits they derive, and the barriers they face. Through this study, we seek to understand whether digital tools improve the elderly's quality of life or whether the challenges outweigh the advantages. By conducting a survey of elderly individuals, the study also

explores factors such as age, gender, living situation, and health status, aiming to draw a comprehensive picture of the relationship between the elderly and digital technology.

## RESEARCH OBJECTIVES

1. To assess the level of technology adoption among the elderly population, identifying the most commonly used digital devices and platforms.
2. To examine the reasons for using digital technology, such as staying in touch with family, accessing health information, or engaging in entertainment.
3. To understand the barriers to technology adoption faced by elderly individuals, including lack of digital literacy, complexity of devices, and security concerns.
4. To investigate the impact of technology on the social lives and health management of older adults.
5. To explore future attitudes towards technology, particularly regarding the likelihood of adopting new digital tools and platforms.

## LITERATURE REVIEW

1. **Digital Health Interventions for Seniors:** This comprehensive review analyzes various digital health interventions tailored for senior citizens, including telehealth services and mobile health applications. The review explores how these technologies have revolutionized health management by enabling remote health monitoring and fostering increased engagement between patients and healthcare providers. Key benefits discussed include enhanced management of chronic health conditions and overall improvements in healthcare delivery. However, the review also addresses significant obstacles, such as issues related to the accessibility of these technologies and their user- friendliness for elderly users, which can impact their effectiveness and adoption.

2. **Aging population and digital inclusive finance, a natural experiment from china:** This paper studies the role played by the digitization level of inclusive finance for the aging population. We leverage an unexpected Chinese national strategy that promotes mobile internet and other internet related integration in China to identify the impact of changes in state policies on the digitization level for inclusive finance in a regression discontinuity design. Although aging population is negatively correlated with the digitization level of inclusive finance, our empirical analysis reveals that the policy shock significantly increased the digitization level of inclusive finance among the aging population. We also find two opposite mechanisms: the income effect and the caring effect. Finally, our study suggests that the economic and social outcomes of the digitization level among aging population are bifurcated: happiness decreased but real estate investment increase.

3. **Enhancing Elderly Mobility with Digital Technology:** This review explores how digital technologies can enhance mobility for elderly individuals, focusing on tools such as navigation aids, ride- sharing apps, and transportation management systems. It discusses how these technologies facilitate greater independence and access to services. The review also examines challenges related to the usability of these technologies and their integration with existing transportation systems, highlighting areas for improvement to better support elderly mobility.

4. **Strategies for Improving Digital Inclusion in the Elderly:** This literature review explores various strategies designed to enhance digital inclusion among older adults. It evaluates successful programs and initiatives aimed at increasing digital literacy, providing access to technology, and fostering engagement. The review highlights the importance of community-based approaches and collaborative efforts to bridge the digital divide and promote greater digital participation among seniors.

## RESEARCH METHODOLOGY

### Research Design:
The research adopts a quantitative research design, centered on collecting numerical data from elderly individuals through surveys. The primary goal is to explore how digitization impacts the elderly population, particularly in terms of their engagement with digital technologies. By using structured questionnaires, the study aims to measure various aspects, such as the frequency of digital technology use, the perceived ease or difficulty in using these tools, and the challenges or benefits the elderly encounter in adapting to technology.

The study targets elderly individuals aged 60 years and above, as this demographic is often the most affected by the digital divide. To ensure a comprehensive view of the elderly population, purposive sampling is used, focusing on individuals from diverse backgrounds. This includes differences in socioeconomic status, educational level, and previous exposure to technology. The sample size is expected to include around 100 to 200 participants, a number large enough to provide statistically significant results while still being manageable for the scope of the study.

### Questionnaire Survey:
The study employs a structured questionnaire as the exclusive data collection tool. The questionnaire is specifically designed to capture quantitative data regarding various aspects of digital technology use among the elderly. It covers questions on frequency of digital device usage, access to the internet, comfort levels with technology, and the challenges that elderly users face when interacting with digital tools. The questionnaire is carefully structured to ensure clarity and ease of understanding for older participants, with straightforward language and response options that do not overwhelm the respondents.

### Data Analysis Technique (Percentage Analysis):
The collected survey data will be analyzed using percentage analysis, which allows for the presentation of data in a simplified, easily interpretable format. This method involves calculating the percentage of respondents who select each answer choice for every question. By focusing on percentages, the study will be able to highlight trends and patterns in the data, such as the proportion of elderly individuals who regularly use digital devices, the percentage that face barriers, and the percentage who report feeling comfortable or confident in using technology. This approach provides a clear, straightforward summary of the responses and facilitates comparison across different demographic groups

### Data Analysis Approach:
The data analysis for this study will primarily rely on percentage analysis of the responses obtained from the survey. This approach will provide clear insights into the elderly population's use of digital technologies, highlighting trends, preferences and common obstacles to technology adoption. By converting survey responses into percentages, the data can be easily interpreted, and the results will be presented using charts to facilitate comparison and understanding.

### Data Organization and Preparation:
Upon collecting the survey responses, the data will be systematically organized in a spreadsheet. Each question will have its own column, with responses from individual participants arranged in rows. This structure will ensure that the data is clear and easy to analyze. Any incomplete or inconsistent answers will be reviewed to ensure the dataset's accuracy and completeness.

### Percentage Analysis (Calculating Percentages):
For each survey question, the number of respondents selecting each possible answer will be tallied. These frequencies will then be converted into percentages to show the proportion of respondents who selected each option

**Charts and Graphs:**
The results of the percentage analysis will be visualized through various types of charts, which will help to illustrate the data more effectively. These visual aids include-
➢ **Bar charts:** Used to compare responses for each question, such as the percentage of elderly respondents who own smartphones or use the internet for social media.
➢ **Pie charts:** Ideal for single-answer questions, such as "What digital device do you use most often?"
➢ **Stacked bar charts:** To compare multiple groups, such as age ranges or different levels of technology usage within the elderly population.

These charts will make the data more accessible, allowing for quick comparisons and helping to highlight trends such as the most common barriers or advantages of digital technology use among the elderly.

## ANALYSIS

**1. Age Group:** The majority of the respondents (30.67%) fall into the 80-90 age group, followed closely by the 70-80 age group at 30%. The 60-70 age groups makes up 25.33% of the responses, and the smallest group is 50-60, accounting for 14%. This indicates that a significant portion of the elderly participants are in the older age brackets, with a noticeable concentration in the 70-80 and 80-90 age categories.

**2. Gender:** Of the 150 participants, 54.67% are female, while 44% are male. Only a small percentage (1.33%) opted not to disclose their gender. This suggests that the survey had a larger representation of women, which could be reflective of the overall population of elderly individuals engaging in digital technology, or simply the sample distribution.

**3. Living Situation:** A predominant 60% of participants live with family, while 20% live alone and another 20% reside in a retirement community. This suggests that the majority of elderly individuals surveyed benefit from family support and are likely to have access to assistance with technology, whereas a smaller portion either lives independently or in retirement settings.
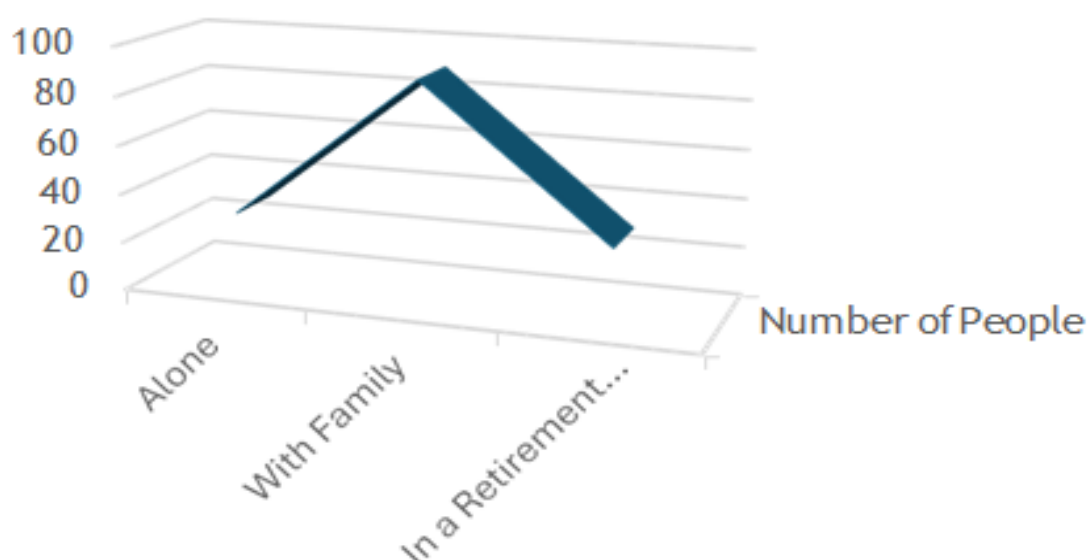


**4. Which of the following devices do you use?** Smartphones are the most commonly used device, with 80% of respondents reporting usage. Computers follow at 33.33%, and tablets are used by 32% of participants. A small 3.33% reported using other devices. This indicates that

smartphones dominate the elderly's digital habits, possibly due to their portability and ease of communication functions.

**5. What is your primary reason for using digital technology?** Staying in touch with family is the most common reason for using digital technology, with 56.67% of respondents selecting this option. Accessing health information and entertainment are equally cited by 30% of participants each, showing that digital tools are primarily used for social connection, followed by health management and entertainment. Only 3.33% used technology for other purposes.

**6. Do you feel that digital tools have helped you manage your health better?** Half of the respondents (50%) believe that digital tools have somewhat helped them manage their health, while 13.33% feel they have significantly improved health management. However, 36.67% of respondents reported no improvements in managing their health through digital tools, indicating that while some have experienced benefits, many have not found technology to be significantly helpful in this area.

**7. How has using technology affected your social life?** For 40% of participants, technology has somewhat improved their social life, while 30% feel it has significantly improved their social interactions. A smaller group (23.33%) reported no change, and 6.67% felt it made their social life worse. This suggests that technology has a positive impact on social connections for the majority of elderly users, though some may not experience significant changes.
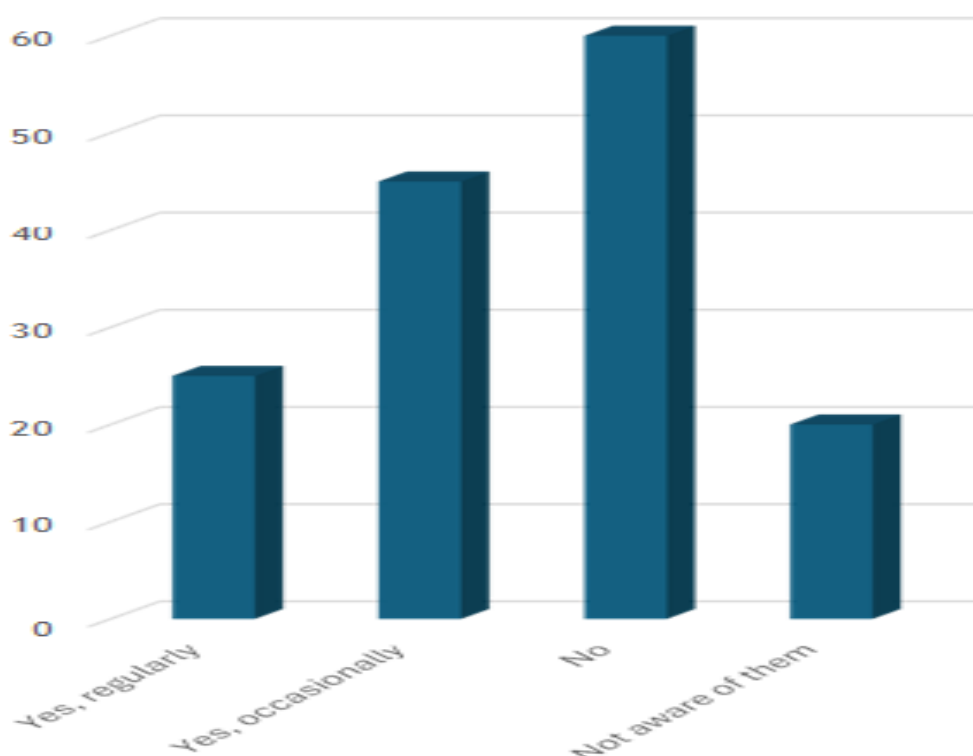


**8. Have you participated in any online communities or forums for seniors?** The majority of respondents (40%) have not participated in any online communities or forums for seniors. Of those who have, 30% participate occasionally, and 16.67% engage regularly. The remaining 13.33% are unaware of such communities. This indicates that while some elderly individuals are aware of and involved in online communities, a significant portion is either not participating or unaware of these resources.

**9. What barrier affects elderly people in using technology?** The complexity of devices is the primary barrier for 36.67% of participants, followed by a lack of training (33.33%) and attitude towards technology (26.67%). Only a small percentage (3.33%) identified other barriers. This

suggests that technical challenges and the lack of adequate training are the key issues hindering the adoption of technology by the elderly.

## Number of People



- ■ Lack of training
- ■ Complexity of devices
- ■ Attitude towards technology
- ■ Other
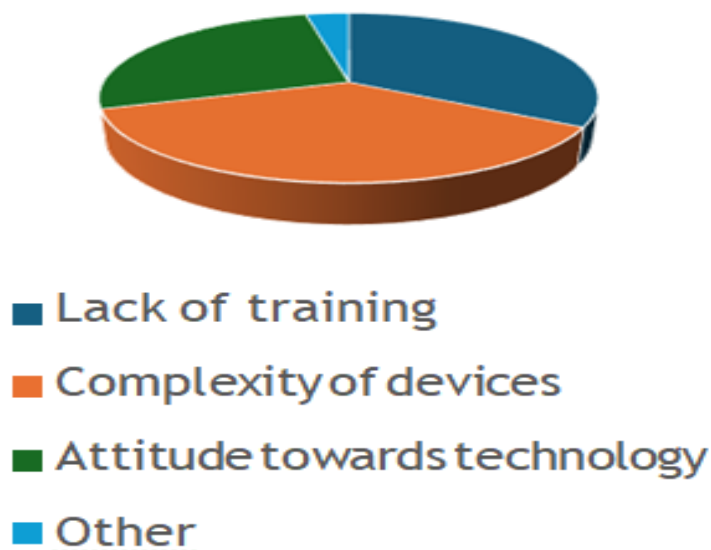
**10. What is the biggest drawback of technology for elderly people?** Security and privacy concerns are the biggest drawback for 40% of participants, followed by difficulties in learning new tools (30%). Increased isolation from non-digital interactions is a concern for 23.33% of respondents. This shows that while the majorities are concerned about digital safety, learning difficulties and social isolation are also important issues affecting the elderly's use of technology.

**11. How likely are you to try new digital tools or platforms in the future?** A significant portion of participants (50%) is very likely to try new digital tools or platforms, while 30% are somewhat likely. However, 20% are less likely, with 6.67% indicating that they would not try new digital tools at all. This suggests that there is a strong interest among the elderly in exploring new technologies, though there remains a portion of the population who are hesitant to adopt new tools.

## Number of People
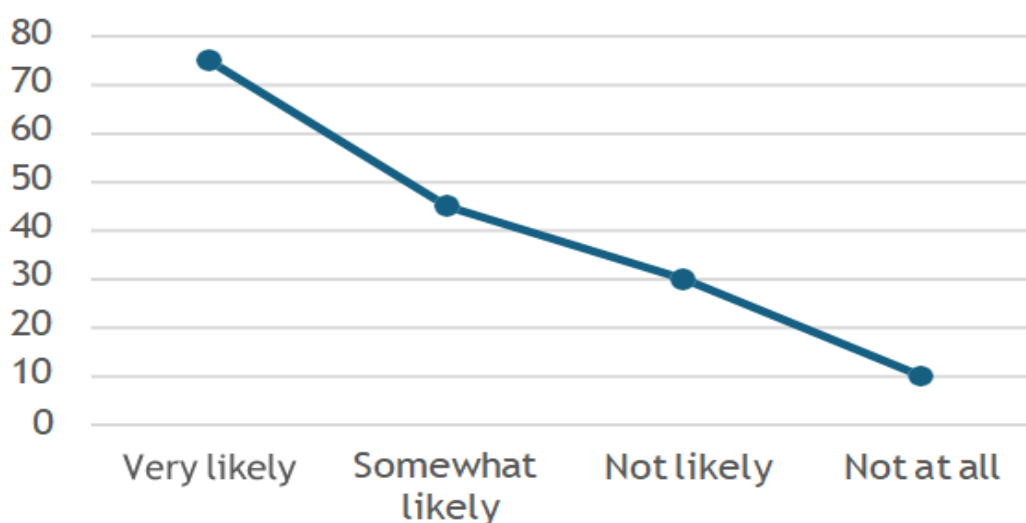
**12. How do you feel about the use of technology in accessing social services?** Access to social services via technology is viewed positively by most respondents, with 40% considering it very helpful and another 40% finding it somewhat helpful. A smaller portion (13.33%) found it not very helpful, and only 6.67% felt it was not helpful at all. This indicates that the elderly population generally perceives technology as a useful tool in accessing essential services, though there is room for improvement.

**13. Do you feel that technology has increased your independence in daily tasks?** A total of 40% of participants feel that technology has somewhat increased their independence, while 33.33% believe it has significantly enhanced their ability to perform daily tasks. However, 20% feel that technology has had little impact, and 6.67% do not feel any increased independence at all. This shows that technology plays a positive role in increasing independence for many elderly people, although its impact varies.
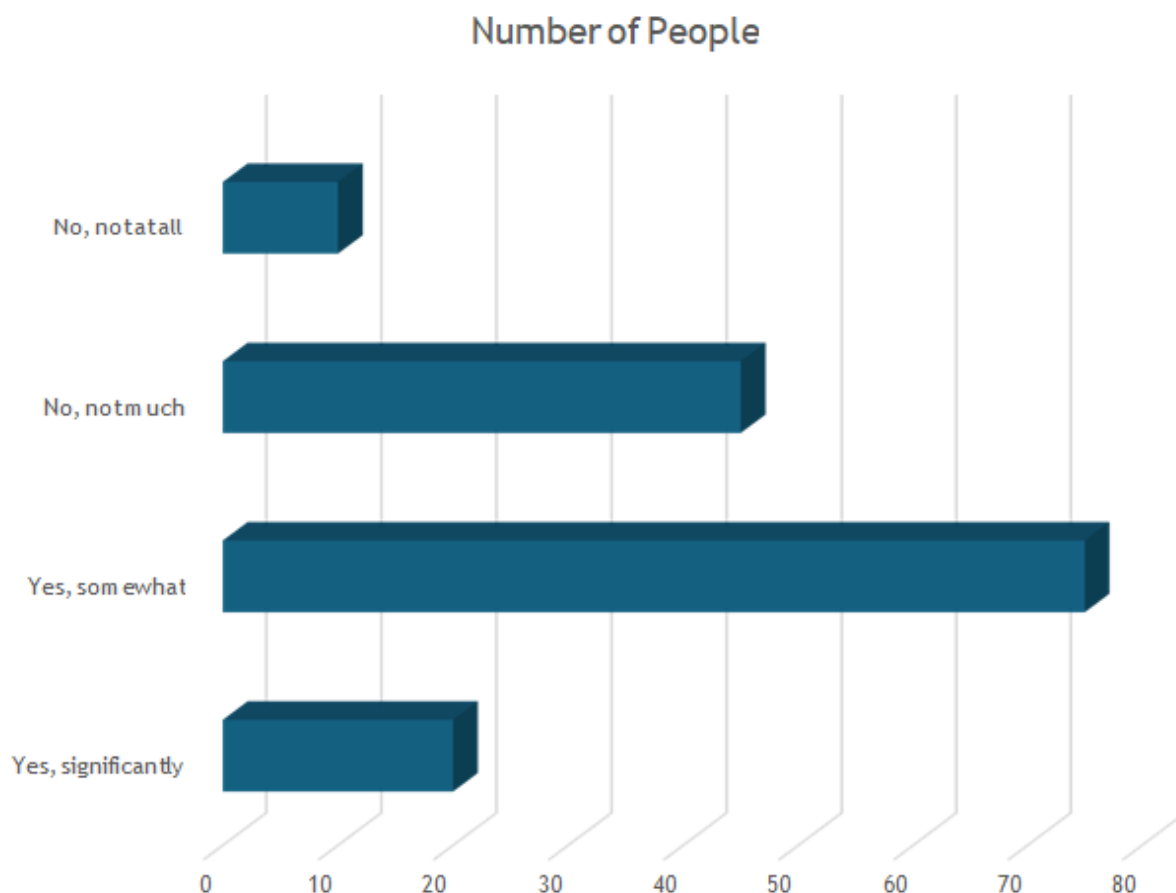


**CHALLENGES IN THE RESEARCH**

While conducting this research on the impact of digitization on the elderly population, several challenges were encountered. These challenges not only influenced the research process but also provided valuable insights into the barriers that older adults face when adopting and using digital technologies. The key challenges faced during the research are outlined below-

1.  **Sample Representation**: One of the primary challenges was ensuring a diverse and representative sample of the elderly population. Given the varying levels of technological exposure, health conditions, and living environments, it was important to capture responses from people in different age groups, genders, and living situations. However, reaching elderly participants in rural or isolated areas, who might have limited access to technology, proved to be difficult. These individuals were underrepresented in the survey, which may have impacted the generalizability of the findings.

2. **Technological Literacy of Participants:** Another significant challenge was the varying levels of technological literacy among the elderly participants. Some individuals had no prior experience with digital tools, while others were highly skilled. This disparity made it difficult to standardize the questions and ensure that all respondents had an equal understanding of what was being asked, particularly with questions involving specific digital tools or technical terms. The lack of prior digital knowledge also meant that some participants could not fully engage with the survey, leading to incomplete responses.

3. **Barriers to Technology Access:** Access to digital technology itself was a major challenge. Many elderly individuals do not own smartphones, tablets, or computers, particularly those from lower socioeconomic backgrounds. This lack of access could skew the results, as the survey predominantly captured responses from individuals who were already familiar with or had access to digital devices. Those without access may have felt excluded, and their needs or challenges regarding digitization were not adequately represented.

4. **Participant Engagement and Survey Completion:** Engaging elderly participants in an online survey proved to be a challenge. Many individuals were either unfamiliar with online survey tools or preferred traditional paper- based methods. For those who did participate online, some found the digital survey format intimidating or difficult to navigate. Additionally, some respondents struggled to complete the entire survey, either due to fatigue, cognitive challenges, or difficulty understanding certain questions. Ensuring higher completion rates required simplifying the survey and providing assistance where possible.

## INTERPRETING THE RESULTS

After performing the percentage analysis and generating visualizations, the results will be examined to identify key patterns and trends. For instance, if a large percentage of participants report challenges in using digital tools, this may point to the need for more targeted digital literacy initiatives. On the other hand, if many respondents indicate they use digital devices mainly for staying connected with family and friends, the study may explore how technology helps alleviate social isolation among the elderly.

## CONCLUSION

The research on the impact of digitization on the elderly population sheds light on how digital tools and technologies are influencing the daily lives of older adults, both positively and negatively. The study, based on responses from 150 elderly individuals, explored various aspects of technology adoption, including usage patterns, barriers to adoption, the impact on social lives, health management and overall independence.

## KEY FINDINGS

1. **Technology Usage**: The majority of the elderly participants have adopted smartphones, tablets, and computers, with smartphones being the most commonly used device. This reflects the growing role of mobile devices in everyday life, as they provide essential access to communication, health information and entertainment.

2. **Primary Reasons for Using Technology:** The most prominent reason for using digital technology was staying in touch with family, indicating that technology is viewed primarily as a tool to reduce social isolation. A substantial number also use technology for accessing health information and entertainment, further highlighting its role in enhancing quality of life.

3. **Impact on Social Life**: While some elderly respondents reported that technology has significantly improved their social life, others noted that it had no impact or had even worsened their social interactions. This division underscores that while technology has the

potential to connect individuals; it may not fully substitute in-person interactions or could lead to increased isolation if not used properly.

4. **Health Management**: The survey revealed that a considerable portion of participants felt that digital tools helped them manage their health, particularly by providing easier access to medical information and health services. However, there was still a notable portion who felt that these tools had little impact on their health management.

5. **Barriers to Technology Adoption**: The research highlighted that the primary barriers preventing the elderly from fully utilizing technology include the complexity of devices, lack of adequate training, and a general reluctance toward adopting new technologies. These findings point to the need for tailored educational programs and simplified devices to make technology more accessible.

6. **Participation in Online Communities**: Despite the potential of digital platforms to provide a sense of community, many elderly individuals are not participating in online forums or communities. This lack of engagement may stem from a lack of awareness or difficulty navigating online platforms. This highlights a significant gap in utilizing digital tools to foster social connections among seniors.

7. **Independence and Future Technology Adoption**: A significant portion of the elderly respondents felt that technology has enhanced their independence, particularly by simplifying daily tasks. Moreover, the likelihood of trying new digital tools in the future remains high among many, suggesting a growing openness to adopting newer technologies. This willingness, however, is tempered by concerns about usability and security.

The research suggests that while technology has great potential to enhance the lives of the elderly, its benefits are not universally experienced. The impact of digital technology is contingent upon factors such as individual familiarity, device usability, and access to training. To maximize the benefits, there is a clear need for initiatives that provide digital literacy training, simplify user interfaces, and raise awareness about the benefits of technology for health and social connections. By addressing these challenges, it is possible to further empower the elderly population, helping them lead more independent, connected, and healthier lives.

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