Interest in Technology and Need Analysis for the Adoption of Chatbots by the Elderly

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Abstract

Studies suggest that by 2050, 22% of the human population will be over 60 years old. (Kanasi et al., 2016) In today's rapidly expanding technological era, integrating technology with the lives of older adults is vital. In order to explore the adoption of chatbots by the elderly, find the best features of a chatbot to assist them, and determine the best way to adopt these technologies, a survey was conducted in-person between the researcher and the respondents at a local care home. Results showed that the respondents were not interested in using a chatbot, with concerns about incorrect outcomes and an invasion of privacy. For respondents, there is a willingness to consider utilising chatbots, provided it has voice control, and the model has the ability to speak clearly and slowly. Additionally, the results also pointed out that respondents might be interested in learning how to use the chatbot only if someone teaches them how to do so. In particular, older adults seem to be more hesitant to utilise technology they have never used before, despite being confident in their current limited daily technology usage, which is primarily the use of the TV. This indicates that motivation may be a bigger barrier than skills, and it may be that people need to be convinced to further trust technology.

Keywords

Chatbots, elderly, tech adoption, care homes, well-being, artificial intelligence

1. Introduction

Large language models (LLMs) have the ability to significantly increase productivity and decrease the time taken to complete tedious tasks. The technology has progressed to a level that a command can be given to an LLM using natural language. (Brachman et al., 2025) The global LLM market in 2023 was valued at $4.5bn, which is projected to grow to $82.1bn by 2033. (Ariffud, 2025) Technology in healthcare has been a great enabler in the personalisation of resources for patients. The nursing industry (Care Homes) have been revolutionised with recent technological advancements like Electronic Health Records (EHRs), portable diagnostic devices, and robotic assistance to make patient care more tailored and efficient. (*ANA*, 2024)

Artificial intelligence (AI) offers a crucial role in healthcare, not solely to automate procedures and problem-solving but also to assist medical professionals in making important decisions and using reasoning on a far greater level than humans can. (*ANA*, 2024) One popular form of AI is chatbots, which employ AI to stimulate human conversations, understand user queries, and provide automated responses to questions. (*Zendesk*, 2025) Older adults face major challenges in maintaining their health and mental well-being, especially when living alone. This can be addressed through chatbots which provide

interactive and personalised platforms for communication and emotional support, adapting to user preferences. (Chin et al., 2023)

1.1 Literature Review

However, there is limited evidence as to how ICT (Information and Communication Technologies) can support healthcare aides and nurses whose job is to provide care to older adults. The aim was to explore the various limitations and advantages of using ICT by healthcare professionals to manage and organise the delivery of care for their patients. The research identified 5 key areas that would benefit from the implementation of ICT: Improve everyday tasks, access medical records digitally, allow for client assessment and care planning, enhance communication, and provide care remotely. They also identified 128 barriers relating to the adoption of ICT, most related to incomplete hardware and software features as well as perceived lack of value in ICT. However, they also identified 130 advantages relating to the adoption of ICT, which outweighed the drawbacks. (Perez et al., 2022)

One popular application of ICT, which is already becoming common in healthcare are AI chatbots which simulate human-like conversations. Research on middle-aged adults' acceptance of AI chatbots is limited, so the aim was to explore their acceptance, influencing factors, and test the high reliability of the chatbots. Results showed that perceived ease of use, social influence and user image significantly impact intentions to use AI chatbots, with perceived usefulness balancing the social influence effect. Acceptance was moderate, highlighting the need for tailored changes. The study stresses customising AI technology for middle-aged adults and improving their technology skills to support aging in today's world. (Wang et al., 2024)

At an older age, it is harder to find companions in a similar age group, increasing the prevalence of loneliness. Therefore, chatbots can be used as tools to reduce loneliness in older adults, improving their wellbeing and positively impacting their health. The authors conducted qualitative research through interviews and focus groups with older adults, in order to conclude with feasible recommendations for developing user-friendly interfaces that encourage the active participation of older adults in chatbots. The study found that we must tailor chatbots to specific users' preferences and needs, with the primary aim of mitigating their experience of loneliness alongside other critical areas of life. The chatbot must be personalised for the users as per their personality, interests and cultural background. (Rodríguez-Martínez et al., 2023)

With a substantial increase in the overwhelming amount of technology, it is important to understand the adoption and the need for the elderly to adopt these technologies. This paper aims to understand how chatbots can best be integrated into elderly people's lives. Chatbots have the potential to significantly improve and enhance a person's quality of life if tailored correctly, hence this paper analyses what are the best features for a chatbot.

2. Methodology

2.1 Aim

The aim of the study is to understand the technology adoption of the elderly population and to explore the functionalities required for a chatbot to assist the elderly.

The objectives of the research are as follows:

1. Understand the functionalities required for a chatbot to aid the elderly.
2. How best to implement the functionalities into a chatbot?
3. Understand how best the elderly can adapt to technology.

2.2 Research Design

The participants who were residents in a local care home completed a form with the researcher who visited them. The researcher introduced themselves, discussed the study they are working on, and asked for their consent to participate in this study. After the consent was granted, a survey form was presented to the participant, with the responses registered by the participant. (Wolfe et al., 2024)

2.3 Participants

The 19 participants were all residents of a Residential Care Home in Hertfordshire, United Kingdom, where they all require 24 hour care, and were all aged between 60-100.

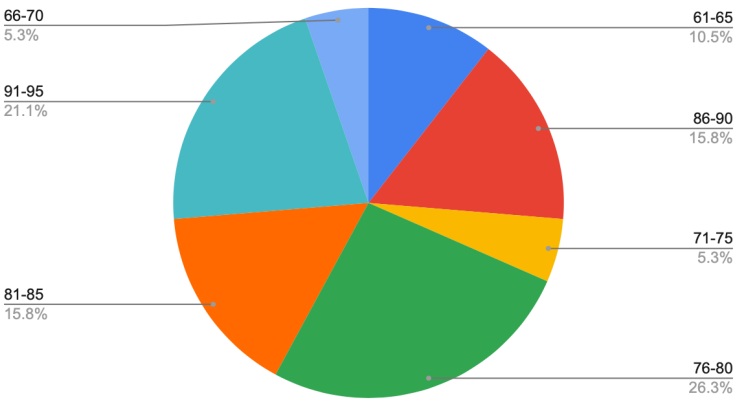

Figure 1: Count of responses for the Question "What is your age?" (N = 19)

In Figure 1, it can be seen that most of the respondents were aged between 76-80, with the second highest category of people being aged 91-95.

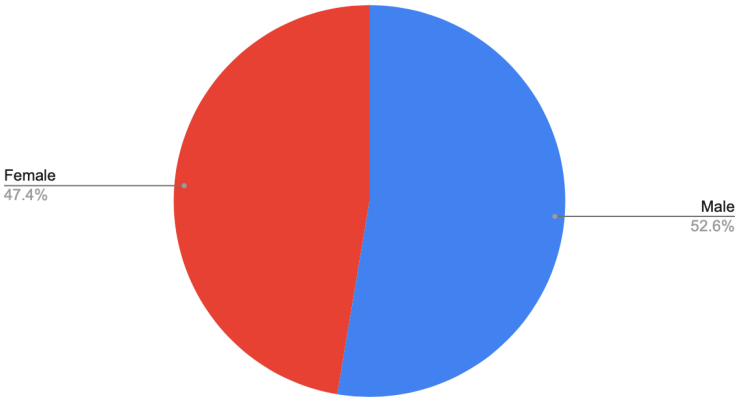

Figure 2: Count of responses for the Question "What is your gender?" (N = 19)

In Figure 2, it can be seen that nearly half of the respondents are male (52.6%), with the remainder female (47.4%).

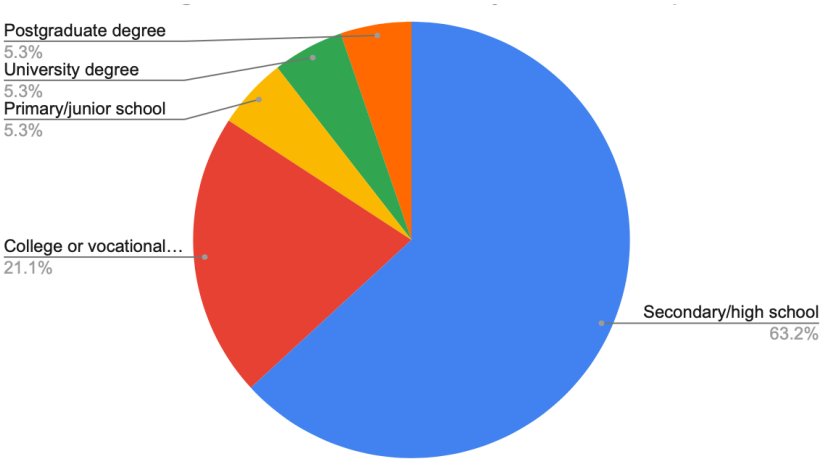

Figure 3: Count of responses for the Question "What is the highest level of education you have completed?" (N = 19)

Figure 3 shows that the vast majority of respondents' highest level of completed education is secondary/high school (63.2%), with college or vocational training (21.1%) as the next category of respondents.

2.4 Data collection

The data was collected with a survey form, with the in-person presence of the researcher and the respondents. The participants had the option to fill out the form either digitally or using a paper form. If the respondent chose to use a paper form, the researcher meticulously copied the data from the paper form into the digital form using Google Forms. In order to improve the functionality and simplicity of the form, the researcher ensured that all of the questions except for the last were either multiple choice or ranking on a linear scale. This decision was taken to make answering simpler for the elderly respondents.

2.5 Survey

The following questions were asked to get relevant and accurate information.

a. **Demographics**
    i. What is your age? (inclusive)
    ii. What is your gender?
    iii. What is the highest level of education you have completed?
    iv. What area(s) did/do you work in?
b. **Interest in Technology**
    i. What technologies do you use on a daily basis?
    ii. What do you use technology for most often?
    iii. How comfortable do you feel using technology for everyday tasks?
    iv. Do you usually get help from someone when using technology?
    v. Who usually helps you with technology?
    vi. Do you know what a chatbot is
c. **Chatbots in Caregiving**
    i. Have you ever used a chatbot or virtual assistant?
    ii. Would you be interested in using a chatbot for any of the following tasks? (select up to 6)
    iii. Would you like a chatbot that can have simple conversations with you?
    iv. What accessibility features would make a chatbot easier for you to use? (select up to 3)
    v. Would you be interested in learning how to use a chatbot if someone guided you?
    vi. What are your concerns related to chatbots for caregiving? (select up to 3)
    vii. Any other thoughts on chatbots in caregiving? (feel free to write as much as you would like)

2.6 Data Analysis

2.6.1 Quantitative Analysis

Once all 19 responses were collected and copied onto the digital form, the data was analysed through infographics to better visualise the responses. Google Sheets software was used to create these charts.

2.6.2 Qualitative Analysis

Qualitative analysis was used when reviewing the final question: Any other thoughts on chatbots in caregiving? (feel free to write as much as you would like), to better gauge the respondent's thoughts and feelings.

2.7 Ethics

While collecting responses, ethical concerns were considered. Any directly personal data, such as email addresses or names, was not collected in order to protect the privacy of the respondent. All data that was collected was kept confidential. Respondents were not forced to answer any questions; the survey was answered voluntarily by the respondents.

3. Results

3.1 Interest in Technology

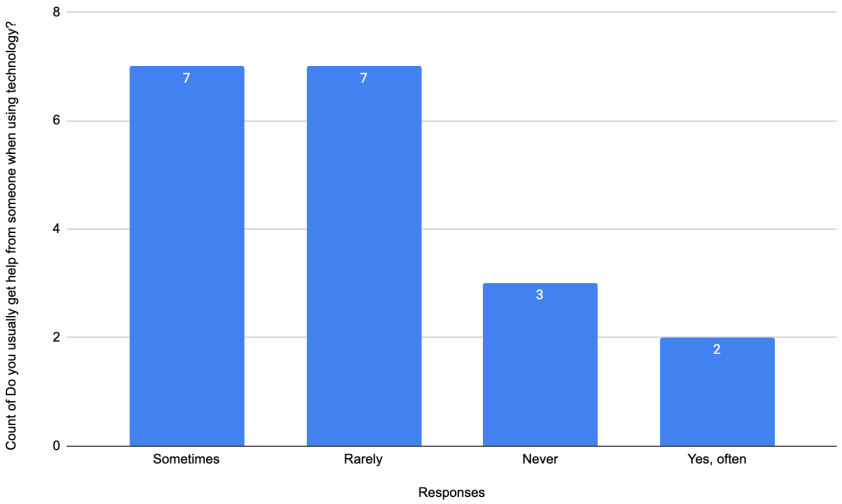

Figure 4: Count of responses for the multiple choice question "*Do you usually get help from someone when using technology?"* (N = 19)

In Figure 4, it can be seen that most of the respondents get help from someone sometimes (N=7/19) or rarely (N= 7/19) when using technology.

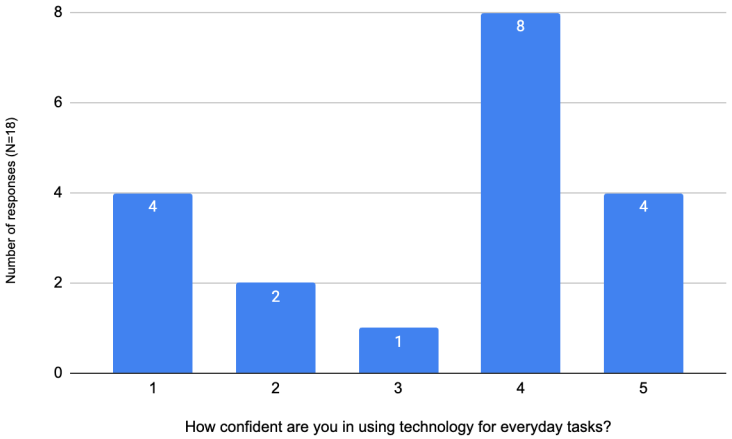

Figure 5: Count of responses for the ranking on a Likert scale from 1 to 5, where 1 is *"not at all confident"* and 5 is *"very confident",* with the question being "*How confident are you in using technology for everyday tasks?"* (N = 19)

When asked about "*How confident are you in using technology for everyday tasks?"* most of the respondents rate themselves a 4 out of 5 (N= 8/19) in terms of confidence when using

technology for everyday tasks. For them, the main uses of technology were TV (N=18/19) and smartphones (N=6/19)

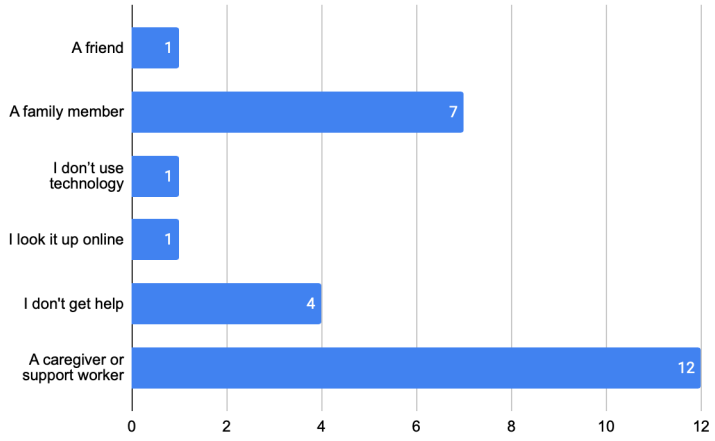

Figure 6: Count of responses for the multiple answer question "*Who usually helps you with technology?"* (N = 19)

In Figure 6, most of the respondents receive help from a caregiver or support worker when they encounter a technological problem (N = 12/19); the nearest to a caregiver was a family member (N = 7/19). These results are also evidence that many elderly people are heavily reliant on others and struggle to find answers themselves.

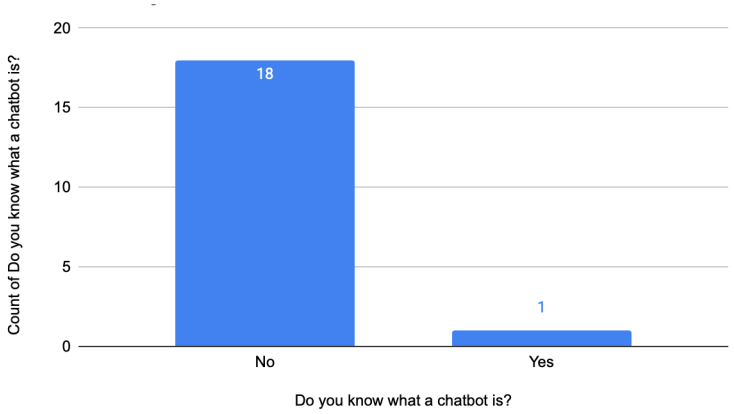

Figure 7: Count of responses for the Question "Do you know what a chatbot is?" (N = 19)

In Figure 7, it can be seen that all but 1 of the respondents selected "No", indicating they did not know what a chatbot was.

After understanding the interest in technology among the elderly and their awareness regarding technology, their responses were collected to understand the suitability and need for chatbots in caregiving by the elderly.

3.2 Chatbots in Caregiving

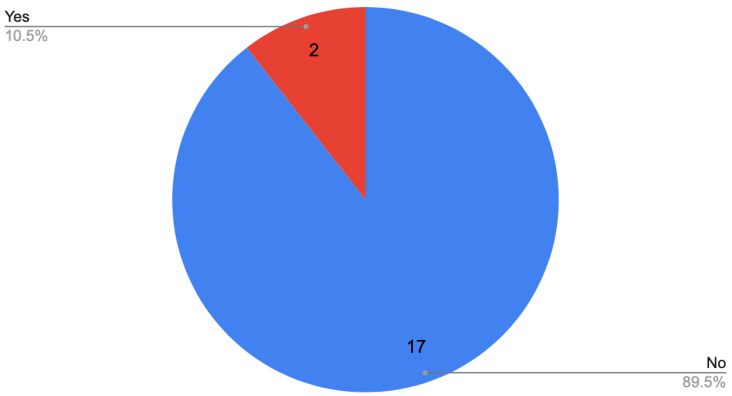

Figure 8: Count of responses for the multiple choice question "Have you ever used a chatbot or virtual assistant? " (N = 19)

In Figure 8, it can be seen that all but 2 of the respondents selected "No" (89.5%), indicating they had never used a chatbot or virtual assistant. This suggests that the elderly do not have much experience using newer technologies such as chatbots.

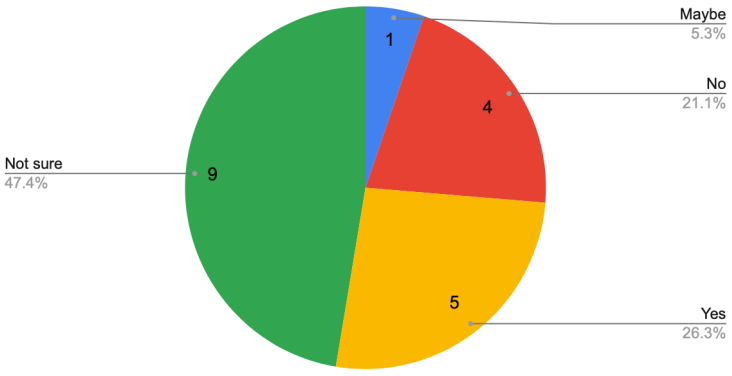

Figure 9: Count of responses for the multiple choice question "Would you like a chatbot that can have simple conversations with you?" (N = 19)

Figure 9 shows that 47.4% of the respondents selected "No", indicating they would not like a chatbot that could have simple conversations with them.

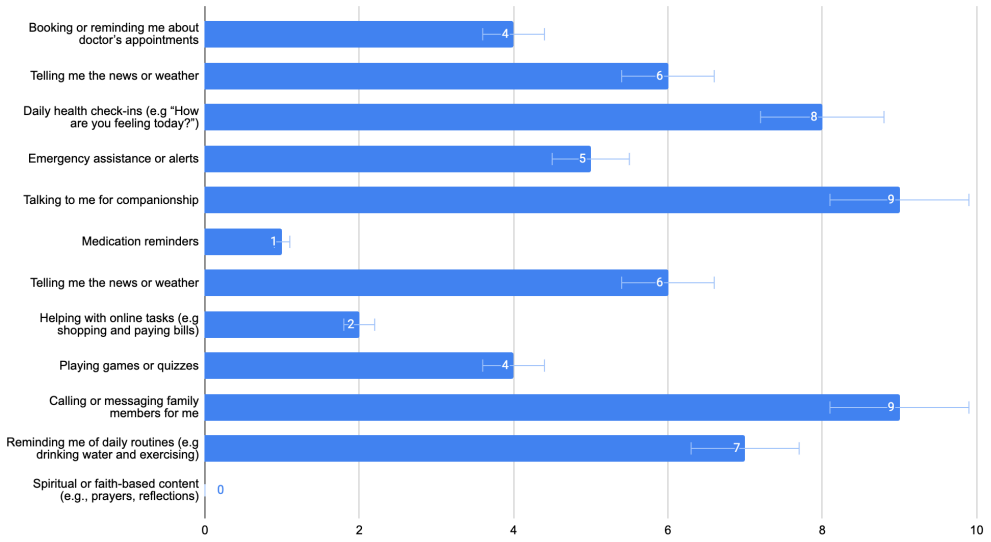

Figure 10: Count of responses for the multiple answer question "Would you be interested in using a chatbot for any of the following tasks? (select up to 6)*"* (N = 19)

In Figure 10, it can be seen that most of the respondents would be interested in using a chatbot for companionship (N = 9/19) or communication with family (N = 9/19), showing that elderly people may regularly feel lonely and need something to talk to.

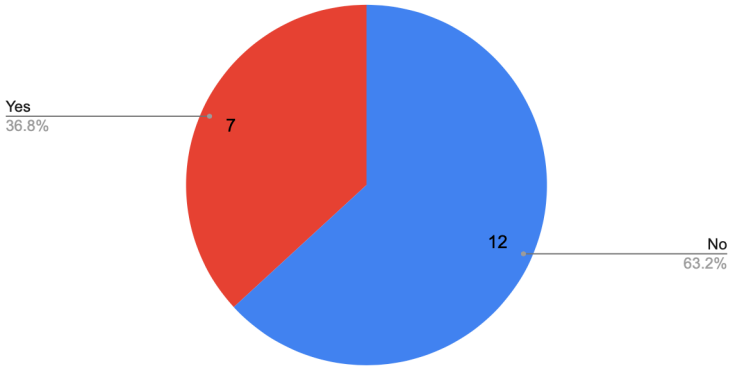

Figure 11: Count of responses for the multiple choice question "Would you be interested in learning how to use a chatbot if someone guided you?" (N = 19)

In Figure 11, it can be seen that the majority of the respondents would not be interested in learning how to use a chatbot if someone guided them (N = 12/19). This may make it challenging to adopt chatbots as a lot of motivation will be required to encourage the elderly.

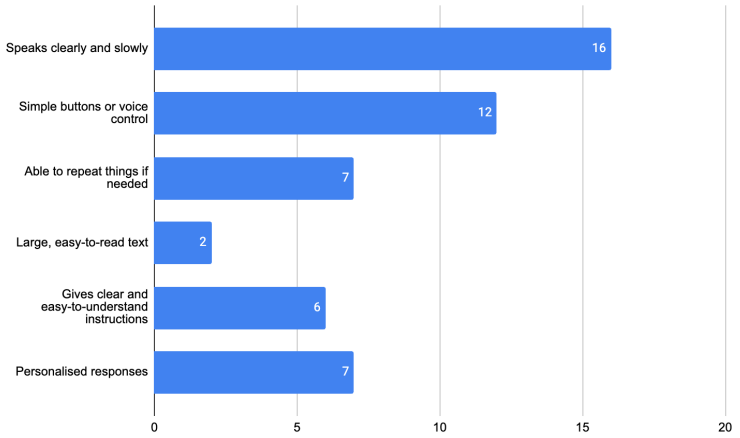

Figure 12: Count of responses for the multiple answer question "What accessibility features would make a chatbot easier for you to use? (select up to 3)" (N = 19)

In Figure 12, it can be seen that most of the respondents would find a chatbot easier to use if it is able to speak clearly and slowly (N = 16/19) or has simple buttons or voice control (N = 12/19).

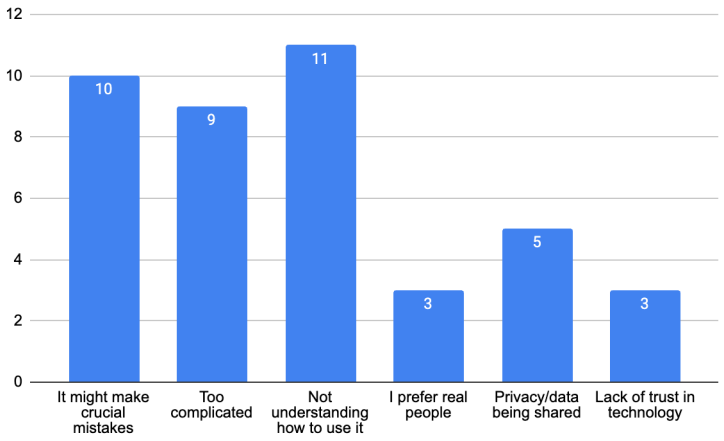

Figure 13: Count of responses for the multiple answer question "What are your concerns related to chatbots for care-giving? (select up to 3)" (N = 19)

In Figure 13, it can be seen that most of the respondents' biggest concerns are that they will not understand a chatbot (N = 11/19) and that it may make crucial mistakes (N = 10/19), especially in healthcare.

4. Discussion

The survey demonstrated older adults (predominantly aged 61–95) had very low awareness and experience of chatbots. Technology use was mostly limited to the TV, those who use the TV daily (N=18/19) and smartphones (N=6/19). Confidence in technology dropped with age, especially 86+, and many preferred real people over chatbots. (McDonald, 2022) One of the major themes that emerged in a study conducted by Heinz and Margrett et. al, about perception of technology among older adults was frustrations, limitations, and usability concerns. More than 50% of the participants had concerns such as the chatbot making mistakes, N (It will make mistakes) = 10/19, complexity, privacy, and lack of trust. Wilczweski et. al reported in their study that some older adults commented about security concerns or feeling that the chatbot was "intrusive". There were several comments relating to the trust, safety, and privacy of using the chatbot for data collection of protected health information. (Wilczewski et al., 2023) Accessibility features like clear instructions, N (clear speech) = 6/19, simple buttons or voice control, N (simple buttons or voice control) = 12/19, and repetition, N (Able to repeat things if needed) = 7/19, were seen as vital amongst the respondents, as confirmed in literature as well. (Huang et al., 2025) The elderly wanted chatbots to be conversational systems that are proactive in their interactions, for example, asking follow-up questions.

These results match the literature showing that older adults adopt ICT less and value ease of use (Rodríguez-Martínez et al., 2023), N (Not understanding how to use it) = 11/19, and trust, N (It might make crucial mistakes) = 10/19. As shown in previous studies, they wanted simple, reliable tools and worried about errors such as that supported by Bertolazzi et. al, which says that technology must have a simple design, with a clear presentation of information to aid the elderly in healthcare. Limited use of technology for basic tasks also reflects known barriers such as incomplete features and low perceived value, shown by one respondent who commented that chatbots seem too artificial and are unnecessary. (Bertolazzi et al., 2024)

Many respondents reported high confidence (4–5/5) with technology, N (those who selected either a 4/5 or 5/5 when asked how confident they are in using technology for everyday tasks) = 12/19, but still rejected chatbots, N (those who selected "No" or "Not sure" for the question Would you like a chatbot that can have simple conversations with you?) = 13/19. The papers that were analysed in the literature suggest ease of use improves adoption, but these respondents seemed to prefer human contact.(Wang et al., 2024) Another surprise was the low willingness to learn even with support, N (those who selected no when asked if they would be interested in learning how to use a chatbot if someone guided them) = 12/19, showing people may need to be incentivised to adopt chatbots.

5. Conclusion

Older adults (those aged over 60 years) still show noticeable hesitation towards using chatbots, despite being more confident with more basic forms of technology such as the TV. Concerns about mistakes, privacy, and complexity remain high. Advanced accessibility features are essential, but may not be sufficient to influence the elderly. As one respondent explained, they "mumble and are deaf in one ear" – highlighting the need for highly intelligent chatbots that can interpret speech accurately and respond appropriately.

The study was conducted in a care home, where residents are less reliant on themselves as staff manage daily tasks such as medication. Many participants were quite old and showed little interest in learning new technology. The care home also specialises in dementia, so memory challenges may have affected responses.

Larger-scale studies are needed to explore how different chatbot designs perform with older adults with varying socio-economic and cultural backgrounds. Future research should also investigate how to build trust and encourage this group to try unfamiliar technologies. Importantly, future work must include older adults who live independently, as they are more reliant on themselves and may respond differently.

6. Timeline

Sections in chronological order of writing.	Number of Hours
Literature review	4
Methodology	2
Introduction	3
Data Collection	6
Data Analysis	4
Writing Results	4
Writing Discussion	4
Writing Abstract and Conclusion	4
Adding References	2
Submission to CREST	1
Total	34

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