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BRIEFING PAPER

Everyday Technologies for Identifying Loneliness: Opportunities, Challenges and Future Directions.

FUNDED BY THE IRISH RESEARCH COUNCIL, NEW FOUNDATIONS SCHEME 2023, IN PARTNERSHIP WITH ALONE.

Project SMILE

Sensors for Monitoring Isolation and Loneliness among Older People: New Pathways for Early Identification and Support

Researchers: Prof Eleanor Bantry White and Dr Evi Zafeiridi, University College Cork with Dr Aileen O'Reilly, ALONE.

About this briefing paper: The briefing paper reports findings from workshops and focus groups that elicited the perspectives of older adults and support services on the use of everyday technologies for identifying and supporting people experiencing loneliness. These findings were discussed at a symposium on *'Inclusive Dialogue about Sensing Technologies for Loneliness*' held at University College Cork on 19th June 2024. A description of the symposium themes is integrated with the findings presented in this document.

The briefing paper has been written by Professor Eleanor Bantry White and Dr Evi Zafeiridi, School of Applied Social Studies, University College Cork. Dr Aileen O'Reilly, ALONE, had an advisory role in designing, developing and implementing all aspects of the project and supported data collection and dissemination activities.

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WHAT IS PROJECT SMILE ABOUT?

Loneliness is a common experience among older adults in Ireland and impacts people's physical and mental health (Ward et al, 2019). Through smartphones, wearable and ambient sensing technology, it is possible to identify mental health difficulties. Researchers are now investigating whether these technologies can identify loneliness so that supports can be offered before problems arise (Qirtas et al, 2022). However, older adults and support services are often not included in the design of these technologies, meaning important ethical and usability issues are under-investigated.

This project, in partnership with ALONE, aimed to promote dialogue between older adults, services, and researchers on the opportunities and challenges afforded by these technologies for supporting people experiencing loneliness. Two workshops were carried out with 16 older adults, staff and volunteers from ALONE's network. Some members of this network also attended a symposium entitled *Inclusive Dialogue about Sensing Technologies for Loneliness* along with 10 researchers from four European countries. Together, the workshops and symposium identified new insights and questions about the potential of these technologies for supporting people experiencing loneliness, along with challenges and gaps in the research. SMILE aims to ensure these findings inform policy, practice and future research and technology innovation through continued collaborations and actions.

APPROACH AND METHODS

SMILE aimed to identify the views of older adults and support services about the use of smartphones, wearable and ambient sensing technology for identifying loneliness. SMILE also sought to better understand the mechanisms needed to include older adults in decisions about research and service priorities in this area.

Two workshops took place with 16 people who are involved with ALONE, a national organisation that supports people to age at home. The workshops comprised of a presentation and discussion of the capabilities of these technologies which was followed by focus groups. Participants included older adults, staff, and volunteers. The workshops elicited participants' views about the use of these technologies for identifying people experiencing

loneliness. The workshops also sought to gather their ideas about how older adults can be better included in research so their perspectives inform research and technology design. Ethical approval was obtained from the Social Research Ethics Committee, University College Cork – reference #2023-258 – on 20th December 2024. Additionally, a Data Protection Impact Assessment was developed to ensure compliant data management.

A summary of findings from the workshops was produced to inform the symposium *Inclusive Dialogue about Sensing Technologies for Loneliness*. It was disseminated in advance so that the views of older adults and service providers would form the foundation for structured discussion at the symposium. Eleven researchers, eight of which were from UCC, along with three European researchers from Poland, Germany and Sweden and four from ALONE's network participated in the symposium. The researchers were from multiple disciplines including sociology, psychology, human computer interaction, social work, social policy and computer science. Participants from ALONE included people leading out on technology engagement, a researcher and a user of their services.

FINDINGS FROM THE WORKSHOPS

The workshops identified that people would like to use technology for health and social reasons, such as contact with health and social care professionals, saving time, and reducing costs from attending in-person medical appointments. People reported "*helping people get what they need without having to go to the hospital".* Older adults were interested in using technology to connect with people when there is no option to meet in-person. For example, people reflected on how *"zoom got me through COVID…because I live on my own and I spend most of my time without contact".* The technologies themselves could also be a form of social support: for example, describing the *Alexa* device, one person said, *"a lot of people find it good company."* From the discussions, we identified the need for older adults to be provided with training about how to use technology, and for them to have continuous in-person technical support. Many valued having someone to talk through any technical difficulties and explain solutions: "*Just something very simple. That's how you solve the problem. The technology support is important".* The need to make technology, such as smartphones and tablets, simpler and easier to use was also discussed. People explained that there is a need for free or low-cost technology, and that they are willing to use monitoring technologies if

benefits are fully explained. People were also aware of the challenges these technologies can bring. People described how important it is to have control over technology, for example to decide which notifications to turn off from a smartphone application. Older adults were worried about their privacy, how information that is collected through technology is managed, and if their details are shared with other organisations. Some described how inaccessible consent procedures can be: *"so many conditions, you go blind from reading them."*

People also explained that it is not common for older adults to express their feelings and say that they feel lonely. Some described *"shame"* in expressing their loneliness. A suggestion was made for the technology to notify service providers of the need for a person to receive further support, where prior consent is given. These suggestions and concerns should be considered when planning services to support people who feel lonely and when designing technological solutions for older adults.

People also described how older adults are not sufficiently consulted in the design of technologies and that technologies are not designed with the end-user in mind. It was felt that older adults who do not use technology extensively were even less likely to be involved in research: *"people who aren't engaged in the technology…aren't talked to at all"*. Technology was often designed in a way that was unnecessarily complex which then reduced the likelihood of it being used in their daily lives. Their perspectives identified the need for greater efforts to engage older adults in the technology design process which would ensure the technologies address a need identified by older adults and that the technologies are accessible and user-friendly.

SYMPOSIUM DISCUSSION

The symposium comprised of discussion spaces and presentations. Presentations were delivered by Dr Aileen O'Reilly, ALONE on ALONE's use of technology to support older adults. Two presentations were delivered on smart sensing for loneliness by Prof Dirk Pesch, Computer Science, University College Cork and Dr Evi Zafeiridi, Applied Social Studies, University College Cork. Discussion then centred on building participatory approaches and structures that could support this area of research and intervention. Dr Anna Urbaniak, Institute of Sociology, Uniwersytet Jagielloński presented on participatory approaches with

older adults. Dr Arlind Reuter, Applied Gerontology, Lund University presented on digital citizenship perspectives and participatory approaches. Alex Kucharski, Institute for Work and Technology, Westphalian University of Applied Sciences presented on participatory approaches with older people in technology and innovation Research. Discussion also centred on potential future research opportunities especially European research funding calls.

KEY MESSAGES

Key issues that emerged from the workshops and were discussed at the symposium as priorities for research and intervention were barriers to technology adoption. These arose from the stigma of loneliness, privacy concerns, usability, affordability of technologies, and challenges in integrating technology into human-led interventions for loneliness. A second key issue to arise from this project is the the need to build better structures for including older adults as active contributors to research and service development. This is important as it helps to ensure a better fit between the design of the technology and the needs and preferences of those for whom the technology is intended.

RECOMMENDATIONS:

Accessibility and Affordability

- If sensing technologies are deployed by services, there needs to be training and ongoing technical support for older adults who use technology. In-person support and training are particularly valued according to the participants in this project. This support could be personalised to an individual's needs so that it is easier for them to understand, and they will not have to rely on others, such as their children. For research and innovation, technology needs to be accessible by design with usability being a key consideration so that technology can be used independently. Older adults also identified the value of enabling flexibility in technology so that people can decide which features of an application to use.
- Services need to consider how they can support older adults through the provision of free or low-cost technology. For research and innovation, cost considerations need to be built into the design of technologies including having the option to reuse or upgrade existing devices.

Privacy

- Sensing technologies have the capability to generate vast amounts of data about individuals. Services considering using these technologies need to ensure they have robust data management systems and procedures for informed consent on data usage. The older adults in this project emphasised the importance of protecting their privacy and the need to prevent scams by not sharing their details with other organisations. It was noted that information could be shared with other organisations if people have consented, and if it would help themselves and/or their carers. For research and innovation, it is important to recognise that participants in this project were highly critical of overly complex and inaccessible consent information in these technologies. Consent information needs to be made far more accessible so that people can make informed decisions about how their data is used and shared. Researchers and innovators need to pay greater attention to privacy by design: privacy considerations need to be built into technology design decisions so that the responsibility for privacy management does not solely sit with the individual end-user.

Responding to Loneliness

- In parallel with developing sensing technologies, researchers and stakeholders need to explore how these technologies can be effectively integrated into interventions for loneliness. This is to ensure that people receive good quality support after loneliness is identified, for example, if data from people's phones indicate higher levels of loneliness, then social support needs to be offered. Efforts to integrate technology into intervention needs to be sensitive to the potential stigma associated with loneliness and ensure technologies do not reinforce negative stereotypes of people experiencing loneliness.

Including older adults in research and innovation

- Those with responsibility for delivering services need to keep engaging with older adults and other stakeholders to understand their needs, skills, and preferences. This will help services to better understand how technologies can help older adults. Older adults need to have a stronger role in the design of technologies. Researchers need to

deploy more participatory approaches to engage diverse groups of older adults and incorporate their perspectives in technology design.

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