visuAAL

Privacy-Aware and Acceptable Video-Based Technologies and Services for Active and Assisted Living

Navigating Privacy in Healthcare tech for Older Adult Care, User Side of the Story

Tamara Mujirishvili
University of Alicante
Faculty of Health Sciences

Joint visuAAL-GoodBrother Conference on trustworthy video- and audio-based assistive technologies
Alicante, Spain
18-20 June 2024

This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 861091.

Universitat d'Alacant
Universidad de Alicante
Project Coordinator

RWTH AACHEN UNIVERSITY

Stockholm University

Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

TU WIEN

visuAAL

Privacy-Aware and Acceptable Video-Based Technologies and Services for Active and Assisted Living

Research project

Perceptions of personal safety and privacy in older adults, persons with disabilities and their caregivers in the context of video-based AAL technologies

Universidad de Alicante, Spain

This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 861091.

Universitat d'Alacant
Universidad de Alicante
Project Coordinator

RWTH AACHEN UNIVERSITY

Stockholm University

Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

TU WIEN

Project aim

To analyze the acceptance of video-based Active and Assisted (AAL) technologies by their potential users: older adults and their caregivers, formal or informal.

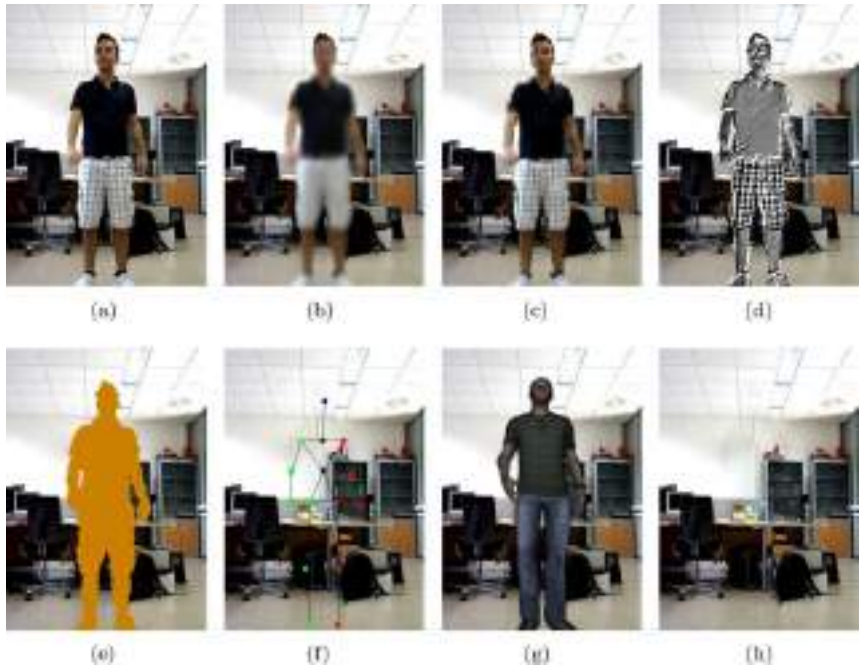
Objective

To have a map of benefits and barriers associated with the use of video monitoring technologies in the senior care context.

Research questions:

- **R1.** What are the main benefits and barriers associated with the use of video monitoring technologies for older adults?
- **R2.** What are main privacy concerns related to video-based AAL technologies and what role do they play in the acceptance of such systems?
- **R3.** What are the user needs and experiences for and wih the video-based AAL technologies? What are the different stakeholder perspectives?

Video based monitoring system with privacy filters

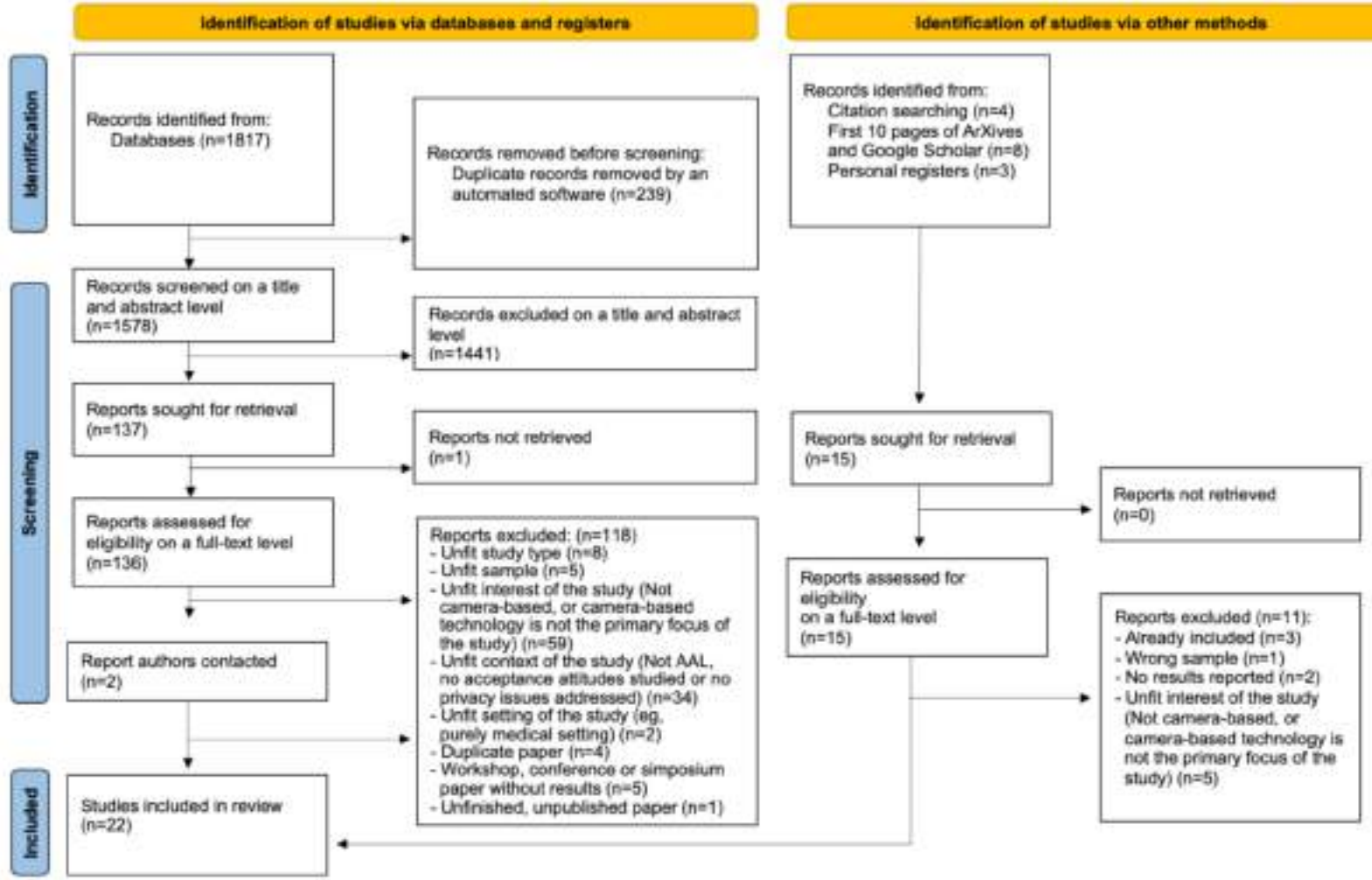


A scoping review ✅

Acceptance and privacy perceptions toward video-based AAL technologies

A scoping review ✅

Acceptance and privacy perceptions toward video-based AAL technologies



A scoping review ✅

Acceptance and privacy perceptions toward video-based AAL technologies

Factors influencing the acceptance of video-based AAL:

Privacy:

- Informational privacy attitudes
- Intrusiveness
- Handling and access to the video material
- Type of obtained information
- Duration of use
- Location of the system
- Control over the system

Necessity:

- The level of care dependence

Social environment and its influence:

- Bystander influences
- Negative effects on caregivers
- Positive effect on caregivers and family members

R2. What are main privacy concerns related to video-based AAL technologies and what role do they play in the acceptance of such systems?

A scoping review ✅

Acceptance and privacy perceptions toward video-based AAL technologies

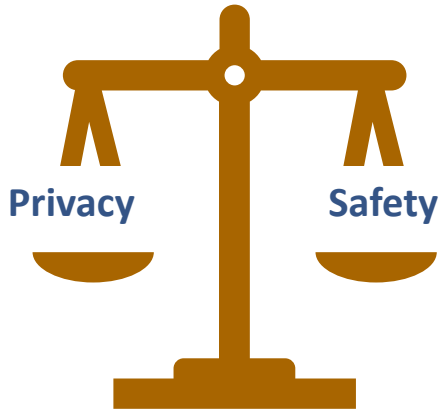
Factors influencing the acceptance of video-based AAL:

Benefits

- Security
- Safety
- Being independent
- Remaining at home
- Caregiving burden alleviation

Barriers

- Privacy threats on dignity and confidentiality
- Feelings of surveillance
- Interference with normal routine
- Cyber dependency
- Decreased human contact



R1. What are the main benefits and barriers associated with the use of video monitoring technologies for older adults?

A scoping review ✅

Acceptance and privacy perceptions toward video-based AAL technologies

- Privacy emerged as the main category, with seven subcategories, however privacy attitudes are conditional and tradeable.
- We shall not undermine the influence of the social environment on acceptance, with social dynamics impacting perceptions.
- The research on video-based Ambient Assisted Living (AAL) technology acceptance is still in its early stages.
- There is a significant lack of user studies.

RESEARCH PROGRESS

A scoping review ✅

Acceptance and privacy perceptions toward video-based AAL technologies

Exploratory interviews sessions with older adults ✅

Perceptions of older adults about the concept of privacy and in terms of video-based AAL technologies

Exploratory interviews sessions with older adults ✅

Perceptions of older adults about the concept of privacy and in terms of video-based AAL technologies

Table 1: Sociodemographic characteristics of the participants (n=12)

Age: Median [Min, Max]	77 [66 to 88 years]
Sex	8 Females
Education	3 University graduates, 9 high school graduates
Comfort with Technology: Median [Min, Max]	1 [1, 3]
Health Condition: Median [Min, Max]	4.5 [1, 8]

Comfort with Technology and the Health Condition were measured with simple Likert-like self-assessment scales from 1 to 10.

Exploratory interviews sessions with older adults ✅

Perceptions of older adults about the concept of privacy and in terms of video-based AAL technologies

- The concept of privacy is not readily understandable.
- Nudity as a significant aspect of privacy for older people, with differences noted between those in private households and care homes. Acceptance of video-based AAL technologies varied, possibly influenced by existing privacy levels in care homes.
- Data security and trust as main concerns with AAL technology, particularly in video-based systems.

R2. What are main privacy concerns related to video-based AAL technologies and what role do they play in the acceptance of such systems?

2022 World Congress of Gerontechnology
October 22-26, 2022. Daegu, Korea

RESEARCH PROGRESS

A scoping review ✅

Acceptance and privacy perceptions toward video-based AAL technologies

Exploratory interviews sessions with older adults ✅

Perceptions of older adults about the concept of privacy and in terms of video-based AAL technologies

Focus groups and in depth interviews sessions with a diversity of stakeholders ✅

Care management, experiences and the need for AT in care provision

Focus groups and in depth interviews sessions with a diversity of stakeholders ✅

Care management, experiences and the need for AT in care provision

Table 2. Sociodemographic characteristics of the familial caregivers and healthcare professionals (N=36)

Role	5 familial caregiver, 3 private caregivers, 13 nurses, 5 case managers of a healthcare center, 3 psychologists, 3 heads of the care home, 2 social workers, 2 nurse coordinators
Age, Median [Min, Max]	52 [29 to 73 years]
Sex	25 females, 11 males
Education	7 secondary school, 11 professional education, 18 university graduates
Experience in care, Median [Min, Max]	14 [3 to 35 years]
Experience with AAL technology	From emergency button to sensors and camera-based AAL technologies
ATI, Median [Min, Max]	2.5 [2.2, 2.8]
ICT owned	From smartphone to PC, Laptop, Tablet

ATI - Affinity for Technology Interaction Score from 1 to 6, from lowest to highest affinity.

Table 1. Sociodemographic characteristics of the senior participants of the study (N=5)

Age, Median [Min, Max]	81 [73 to 85 years]
Sex	4 females, 1 male
Education	3 primary school, 2 high school graduates
Experience with AAL technology	emergency bell in their room
TechPH, Median [Min, Max]	2.5 [2.2, 2.8]
ICT owned	None
CDS, Median [Min, Max]	56 [52, 68]

TechPH - Older People's Attitudes Toward Technology Score from 1 to 5, from lowest to highest technophilia. CDS - Care Dependency Scale, $CDS sumscore \leq 68$ were classified as care-dependent, all others as independent.

Focus groups and in depth interviews sessions with a diversity of stakeholders ✅

Care management, experiences and the need for AT in care provision

- Care management challenges emphasizes the gap between theoretical ideals and real-world practices, particularly in care homes.
- Emotional aspects of care and aging, including societal sensitivity and ageism. Stress, guilt, and the reluctance of older adults to communicate needs, calling for a more proactive and inclusive caregiving approach.
- Various emergencies during care management were discussed, with falls being a major concern.
- The study emphasized the urgency for technological evolution, the contrasting readiness among care providers, and the importance of ethical integration.
- Privacy concerns, the trade-off between privacy and safety, and the need for user-centered design principles were highlighted for successful technology adoption in caregiving.

R2. What are main privacy concerns related to video-based AAL technologies and what role do they play in the acceptance of such systems?

DIGITAL HEALTH is a peer reviewed open access journal which focuses on healthcare in the digital world, bridging the evolution of advances in informatics and technology in medicine, health and all aspects of health care. View full journal description
This journal is a member of the Committee on Publication Ethics (COPE).

A scoping review ✅

Acceptance and privacy perceptions toward video-based AAL technologies

Exploratory interviews sessions with older adults ✅

Perceptions of older adults about the concept of privacy and in terms of video-based AAL technologies

Focus groups and in depth interviews sessions with a diversity of stakeholders ✅

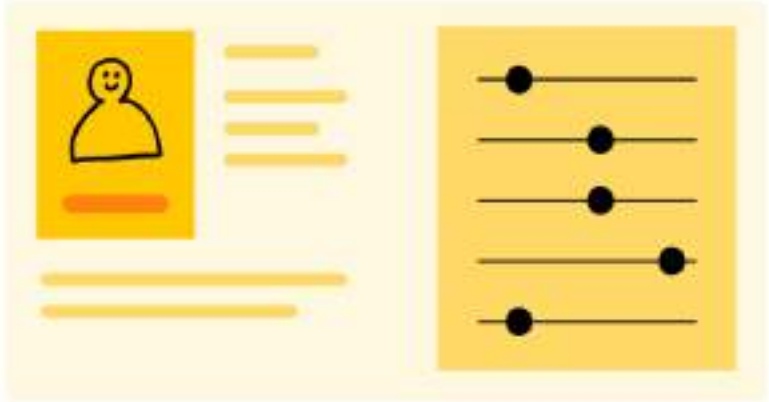
Care management, experiences and the need for AT in care provision

Persona-scenario use cases ✅

Understanding user needs, persona scenarios for privacy-preserving VMS development

Persona-scenario use cases ✅

Understanding user needs, persona scenarios for privacy-preserving VMS development



- Emphasize that interaction is driven by users' motivations and goals and serves as an empathy tool in the system development process.
- Personas should not be a substitute for direct involvement and engagement with end users.

BLUEPRINT PERSONAS

Blueprint on Digital Transformation of Health and Care for the Ageing Society

https://blueprint-personas.eu/

Persona-scenario use cases ✅

Understanding user needs, persona scenarios for privacy-preserving VMS development

Data collection for the persona design:

Four stakeholder category compositions (N=62):
Formal Interview (FI), Focus Group (FG), Informal Interview (II)

Direct Care Receivers	Direct Caregivers	Healthcare Experts	Other Stakeholders
(FI) 6 older adults from private households (FI) 6 older adults from a care home (FG) 5 older adults from a care home	(FI) 6 family caregivers (FI) 3 private caregivers (FI) 3 nurses from a care home (FG) 6 nurses from care a home	(FI) 1 care home manager (FI) 4 case managers (FG) 5 health experts from a care home (FG) 5 health experts from the Alzheimer association (II) 2 care home health professionals	(II) 2 from city hall social services team (II) 2 Red Cross assistive technology team (II) 2 from social technology organization (II) 4 creators of technology

Persona-scenario use cases ✅

Understanding user needs, persona scenarios for privacy-preserving VMS development

Sociodemographic characteristics of the participants

	Direct Care Receivers N=17	Direct Caregivers N=18	Healthcare Experts N=15
Age Median [Min; Max]	80 [66; 87]	54 [29; 73]	53 [34; 63]
Sex	12 Females, 5 Males	13 Females, 5 Males	11 Females, 4 Males
Education	6 Primary 5 Secondary 5 Professional 1 University	9 Secondary 6 Professional 3 University	15 University
TechPH Median [Min; Max]	2.4 [2.1; 3.1]	NA	NA
CDS score Median [Min; Max]	64 [50; 70]	NA	NA
ATI Median [Min; Max]	NA	3.9 [2.2; 5.4]	5.4 [3.7; 5.7]
Experience in healthcare, Years Median [Min; Max]	NA	8 [3; 23]	17 [7; 35]

TechPH - Older People's Attitudes Toward Technology Score from 1 to 5, from lowest to highest technophilia. CDS - Care Dependency Scale, CDSsumscore ≤ 68 were classified as care-dependent, all others as independent. ATI - Affinity for Technology Interaction Score from 1 to 6, from lowest to highest affinity.

Persona-scenario use cases ✅

Understanding user needs, persona scenarios for privacy-preserving VMS development

Example variables for defining persona clusters.

Direct Care Receivers	Other stakeholders
Age	Age
Education	Profession
Living situation	Education
urban/rural	Living / working area
alone/in company	urban/rural
Care dependency	Experience in healthcare
co-morbidities	Experience with tech
functional status	ICT owned
Self-rated health	Affinity for tech
Experience with tech	Work related goals
ICT owned	Work related concerns
Affinity for tech	Personal concerns
Personal concerns	Personal story
Personal story	
Perceived social support	

Persona-scenario use cases ✅

Understanding user needs, persona scenarios for privacy-preserving VMS development

Persona-scenario use cases ✅

Understanding user needs, persona scenarios for privacy-preserving VMS development

BLUEPRINT
DIGITAL TRANSFORMATION OF HEALTHCARE FOR THE AGEING SOCIETY
PERSONAS

Direct Care Receivers

- an older adult living alone
- an older adult living with a spouse
- an older adult living in a care home

Direct Caregivers

- a family caregiver
- a care home nurse

Healthcare experts

- a case manager
- a care home manager

Other stakeholders

- a technology developer

https://blueprint-personas.eu/spin-off-personas/

R3. What are the user needs and experiences for and wih the video-based AAL technologies? What are the different stakeholder perspectives?

visuAAL

aaate
ASSOCIATION FOR THE ADVANCEMENT OF ASSISTIVE TECHNOLOGY IN EUROPE

AAATE 2023 Conference

Assistive Technology: Shaping a sustainable and inclusive world

Paris, Campus Condorcet
30 August – 1 September 202

A scoping review ✅
Acceptance and privacy perceptions toward video-based AAL technologies

Exploratory interviews sessions with older adults ✅
Perceptions of older adults about the concept of privacy and in terms of video-based AAL technologies

Focus groups and in depth interviews sessions with a diversity of stakeholders ✅
Care management, experiences and the need for AT in care provision

Persona-scenario use cases ✅
Understanding user needs, persona scenarios for privacy-preserving VMS development

Prototype testing ✅
Different stakeholder perspectives on a VMS for senior care with inherent privacy protection

Prototype testing ✅

Different stakeholder perspectives on a VMS for senior care with inherent privacy protection

- 13 older adults
- 3 technologists
- 5 occupational therapists
- 2 educators
- 4 psychologists
- 2 managers of the AT center

Prototype testing ✅

Different stakeholder perspectives on a VMS for senior care with inherent privacy protection

Original Blurring Pixelating Avatar Elimination

A context-aware Fall Application model, an automatic change of the visualization once a fall is detected

Prototype testing ✅

Different stakeholder perspectives on a VMS for senior care with inherent privacy protection

"... well, feeling more connected. For instance, if this system is monitored and checked, yes, I feel more connected, someone is watching over me" (Antonella, 69).

"Yes, yes it is acceptable. Under the condition, I repeat, that it is not cold or purely mathematical and inhumane [...] I don´t want to become a number." (Viola, 73)

"It still gives me the impression of being watched, it´s still a camera, it's just surveillance there" (Antonio, psychologist), "

"I would also have some difficulty thinking about having a camera in my house, but if I knew that by using this syst could continue living in my own home, maybe it would even be acceptable" (Elena, 73).

R3. What are the user needs and experiences for and wih the video-based AAL technologies? What are the different stakeholder perspectives?

A scoping review ✅
Acceptance and privacy perceptions toward video-based AAL technologies

Exploratory interviews sessions with older adults ✅
Perceptions of older adults about the concept of privacy and in terms of video-based AAL technologies

Focus groups and in depth interviews sessions with a diversity of stakeholders ✅
Care management, experiences and the need for AT in care provision

Persona-scenario use cases ✅
Understanding user needs, persona scenarios for privacy-preserving VMS development

Prototype testing ✅
Different stakeholder perspectives on a VMS for senior care with inherent privacy protection

Teaching at the University of Alicante ✅

4 different modules on Research Methodology

Teaching at the University of Alicante ✅

4 different modules on Research Methodology

Universitat d'Alacant
Universidad de Alicante

- METODOLOGIA DE LA INVESTIGACION Y PRACTICA BASADA EN LA EVIDENCIA
- LA PRACTICA DE GESTION DE LAS EMOCIONES EN CONSULTA
- METODOLOGÍA DE LA INVESTIGACIÓN APLICADA
- HABILIDADES DE COMUNICACIÓN Y RELACIÓN DE AYUDA EN LA EMERGENCIA

Teaching at the University of Alicante ✅

4 different modules on Research Methodology

What does privacy mean? A theoretical paper ✅

Can we agree on what privacy means? Philosophical, legal, and social context

Teaching at the University of Alicante ✅

4 different modules on Research Methodology

What does privacy mean? A theoretical paper ✅

Can we agree on what privacy means? Philosophical, legal, and social context

Socio-technological collaboration ESR12 & ESR15 ✅

A Privacy-Aware Toileting Assistance Designed for People with Dementia

Teaching at the University of Alicante ✅

4 different modules on Research Methodology

What does privacy mean? A theoretical paper ✅

Can we agree on what privacy means? Philosophical, legal, and social context

Socio-technological collaboration ESR12 & ESR15 ✅

A Privacy-Aware Toileting Assistance Designed for People with Dementia

AALPLIS - Active and Assisted Living Literacy Scale

Developing the Ambient Assisted Living Privacy Literacy Scale (AALPLIS) for UK Residents Aged 60+

Teaching at the University of Alicante ✅

4 different modules on Research Methodology

What does privacy mean? A theoretical paper ✅

Can we agree on what privacy means? Philosophical, legal, and social context

Socio-technological collaboration ESR12 & ESR15 ✅

A Privacy-Aware Toileting Assistance Designed for People with Dementia

AALPLIS - Active and Assisted Living Literacy Scale

Developing the Ambient Assisted Living Privacy Literacy Scale (AALPLIS) for UK Residents Aged 60+

Social and Societal Issues in AAL

Chapter in a book, outcome of a Europe-wide COST project, GoodBrother

Teaching at the University of Alicante ✅

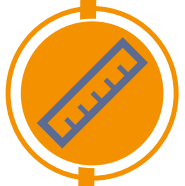
4 different modules on Research Methodology

What does privacy mean? A theoretical paper ✅

Can we agree on what privacy means? Philosophical, legal, and social context

Socio-technological collaboration ESR12 & ESR15 ✅

A Privacy-Aware Toileting Assistance Designed for People with Dementia



AALPLIS - Active and Assisted Living Literacy Scale

Developing the Ambient Assisted Living Privacy Literacy Scale (AALPLIS) for UK Residents Aged 60+

Social and Societal Issues in AAL

Chapter in a book, outcome of a Europe-wide COST project, GoodBrother

A scoping review ✅
Acceptance and privacy perceptions toward video-based AAL technologies

Exploratory interviews sessions with older adults ✅
Perceptions of older adults about the concept of privacy and in terms of video-based AAL technologies

Focus groups and in depth interviews sessions with a diversity of stakeholders ✅
Care management, experiences and the need for AT in care provision

Persona-scenario use cases ✅
Understanding user needs, persona scenarios for privacy-preserving VMS development

Prototype testing ✅
Different stakeholder perspectives on a VMS for senior care with inherent privacy protection

Project aim

To analyze the acceptance of video-based Active and Assisted (AAL) technologies by their potential users: older adults and their caregivers, formal or informal.

Objective

To have a map of benefits and barriers associated with the use of video monitoring technologies in the senior care context.

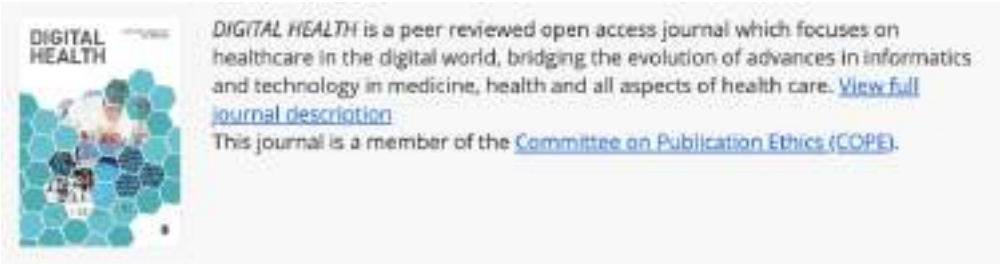
Research questions:

- What are the main benefits and barriers associated with the use of video monitoring technologies for older adults?
- What are main privacy concerns related to video-based AAL technologies and what role do they play in the acceptance of such systems?
- What are the user needs and experiences for the video-based AAL technologies? What are the different stakeholder perspectives?

Journal:

Acceptance and Privacy Perceptions Toward Video-based Active and Assisted Living technologies: Scoping Review
Journal of Medical Internet Research, December 2022
DOI: 10.2196/45297

Navigating the Crossroads of Aging, Caregiving and Technology: Insights from a Southern Spain about Video-based Technology in the Care Context



Research Repository:

Position Paper on Ethical, Legal and Social Challenges Linked to Audio- and Video-Based AAL Solutions
SSRN Electronic Journal, January 2022
DOI: 10.2139/ssrn.4282341

ELSEVIER

SSRN

Conferences:

"I Don't Want to Become a Number": Examining Different Stakeholder Perspectives on a Video-Based Monitoring System for Senior Care with Inherent Privacy Protection (by Design).

CHI 2024
Surfing the World
11-16 May 2024

What Is Privacy? Perceptions of Older Adults in the South of Spain About the Concept of Privacy and in Terms of Video-Based AAL Technologies, 9th International Conference on Information and Communication Technologies for Ageing Well and e-Health, January 2023
DOI: 10.5220/0011984800003476

Understanding User Needs, Persona Scenarios for Privacy-Preserving Visual System Development, In Assistive Technology: Shaping a Sustainable and Inclusive World (pp. 97-104). IOS Press
https://doi.org/10.3233/shti230602

aaate
ASSOCIATION FOR THE ADVANCEMENT OF ASSISTIVE TECHNOLOGY IN EUROPE
AAATE 2023 Conference

Perceptions of older adults about the concept of privacy and in terms of video-based AAL technologies, Gerontechnology, October 2022
DOI: 10.4017/gt.2022.21.s.636.opp7

ISG2022 Daegu, Korea
2022 World Congress of Gerontechnology
October 22-26, 2022. Daegu, Korea

A Literature review

Acceptance and privacy perceptions toward video-based AAL technologies

R1 & R2

Exploratory interviews sessions with older adults

Perceptions of older adults about the concept of privacy and in terms of video-based AAL technologies

R2

Focus groups and in depth interviews sessions with a diversity of stakeholders

Care management, experiences and the need for AT in care provision

R2 & R3

Prototype testing

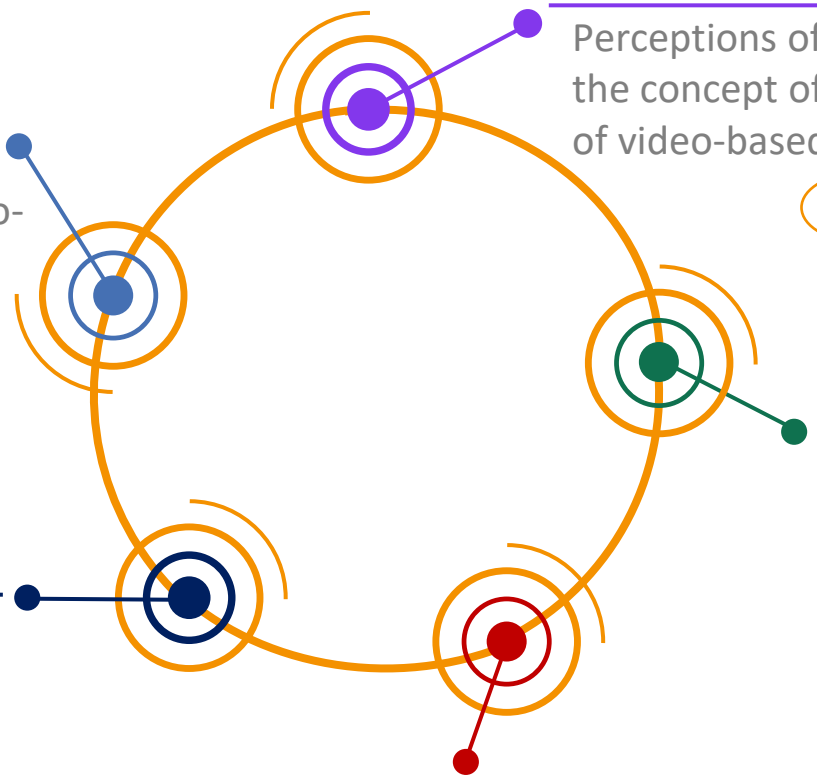
Different stakeholder perspectives on a VMS for senior care with inherent privacy protection

R1 & R3

Persona-scenario use cases

Understanding user needs, persona scenarios for privacy-preserving VMS development

R3



R1. What are the main benefits and barriers associated with the use of video monitoring technologies for older adults?

R2. What are main privacy concerns related to video-based AAL technologies and what role do they play in the acceptance of such systems?

R3. What are the user needs and experiences for and wih the video-based AAL technologies? What are the different stakeholder perspectives?

References:

1. Climent-Pérez P, Spinsante S, Mihailidis A *et al.* A review on video-based active and assisted living technologies for automated lifelogging. *Expert Systems with Applications* 2020;**139**, DOI: 10.1016/j.eswa.2019.112847.
2. Yusif S, Soar J, Hafeez-Baig A. Older people, assistive technologies, and the barriers to adoption: A systematic review. International Journal of Medical Informatics 2016;94:112–6.
3. Davis, Fred D., Richard P. Bagozzi, and Paul R. Warshaw. "User acceptance of computer technology: A comparison of two theoretical models." Management science 35.8 (1989): 982-1003.
4. Climent-Pérez, P., & Florez-Revuelta, F. (2021). Protection of visual privacy in videos acquired with RGB cameras for active and assisted living applications. Multimedia Tools and Applications, 80(15), 23649-23664.
5. https://www.figma.com/community/file/1027357893837345723/User-persona
6. https://saumitranewalkar.medium.com/on-goal-directed-personas-in-ux-product-design-1d6c8babb0fd

This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 861091".

Universitat d'Alacant
Universidad de Alicante
Project Coordinator

RWTH AACHEN UNIVERSITY

Stockholm University

Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

TU WIEN

VISUAAL

Privacy-Aware and Acceptable Video-Based Technologies and Services for Active and Assisted Living

Thank you!

TAMARA MUJIRISHVILU
Marie Curie Early Stage Researcher at the University of Alicante

linkedin.com/in/tamaramujirishvili/

tamar@ua.es

This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Sklodowska-Curie grant agreement No 861091.

Universitat d'Alacant
Universidad de Alicante
Project Coordinator

RWTH AACHEN UNIVERSITY

Stockholm University

Trinity College Dublin

TU WIEN

Extra slides:

Alba

Name
Alba

Age
69

Country
Spain

Area
urban

Life course
retired person

Need
Complex needs

Connectivity
broadband, smart phone, mobile device, tablet, digital TV

Alba is a retiree living in an urban area of Spain with her husband, Eduardo. Lately, Alba has noticed some changes in her cognitive abilities, experiencing occasional memory loss and struggling to perform daily tasks independently. This has had a noticeable impact on her overall quality of life. Meanwhile, Eduardo leads an active life and is involved in various sports and social activities, he is constantly worried about Alba. They are considering adopting a wearable camera integrated with vital sign monitoring, GPS, and an emergency alarm system. Alba and Eduardo see the potential benefits of this technology in helping Alba recall her daily routines and providing them both with a sense of security, knowing that medical alarms can be triggered if necessary. While they eagerly embrace the idea of maintaining Alba's independence and preserving their daily routines, Alba and Eduardo are mindful of the privacy concerns associated with wearable devices. They host frequent gatherings with friends at their home, and they want to ensure that everyone's privacy is respected and that the wearable device does not create any unwanted stigma or discomfort.

Internet usage

Mobile device skills

Affinity to new tech

Digital Health Literacy

Assistance (ICT use)

Carmen

Name
Carmen

Age
87

Country
Spain

Area
suburban

Life course
person aged 80+

Need
Chronic conditions and / or social needs

Connectivity
none

Carmen lives in a care home in Spain. She enjoys being a part of the community and looks forward to engaging in daily activities with fellow residents. It brings her joy and a sense of connection with others. Carmen has a history of falls, especially when trying to get out of bed and also in the bathroom during night-time. These falls have resulted in long and challenging recovery periods, causing Carmen to feel fearful and anxious about her safety. Moreover, these incidents have limited her ability to fully engage with her peers, leading to a sense of isolation and frustration. Recognizing the need to address this risk, the care home is planning to make her part of a new initiative to enhance Carmen's safety by providing her with video monitoring technology that sends immediate alarm signals to the care home personnel in case of a fall. While Carmen appreciates the added safety measures brought by the technology, she's worried that the caregivers might visit her less. She's afraid that the adoption of the system will result in her being abandoned.

Internet usage

Mobile device skills

Affinity to new tech

Digital Health Literacy

Assistance (ICT use)

Lucia

Name
Lucia

Age
55

Country
Spain

Area
urban

Life course
working age adult

Need
Generally well / good wellbeing

Connectivity
broadband, smart phone, mobile device, tablet, digital TV

Lucia is a compassionate and hardworking individual who leads a busy life. Alongside her job as an administrator, she carries the responsibility of caring for her 84-year-old widower father, Pablo, who lives alone. Striving to maintain a balance between work, caregiving, managing her household, and maintaining her own well-being, Lucia faces the challenges of feeling overwhelmed. Despite her dedication, Lucia experiences moments of guilt when she cannot devote as much time as she desires to her father's care, particularly in light of recent emergencies. One incident involved Pablo leaving the stove on, resulting in a fire, while another led to his hospitalization due to a fall. Lucia's attempts to secure a private caregiver for Pablo proved unsuccessful, as he only accepts and trusts the presence of a person who visits him weekly for cleaning. Living in constant anxiety of a reoccurrence of incidents, Lucia contemplates the installation of a monitoring camera. Pablo holds reservations about this decision, fearing that the camera's presence could be intrusive and potentially disrupt his trusted relationship with the cleaning person concerned that it might be perceived as a form of surveillance.

Internet usage

Mobile device skills

Affinity to new tech

Digital Health Literacy

Assistance (ICT use)

Carlos

Name
Carlos

Age
46

Country
Spain

Area
residential (rural)

Life course
working age adult

Need
Generally well / good wellbeing

Connectivity
broadband, smart phone, mobile device, tablet, digital TV

Carlos is a dedicated care home nurse in Spain who has devoted 16 years to his profession. Over the past seven years, he has built a strong sense of community among his colleagues and the care home residents at his current workplace. Recently, the care home management has made the decision to install monitoring cameras in common areas and resident rooms who are prone to risks of falling and other emergencies. This initiative has left Carlos with conflicting emotions, causing him increased anxiety. While he acknowledges the potential for a safer environment with the monitoring system, he worries about the negative impact on the work atmosphere. Carlos fears that the sense of community he has worked hard to build will be hindered and that a constant feeling of scrutiny and surveillance will prevail. Additionally, he is concerned that the camera footage may be misinterpreted, leading to distorted perceptions and misunderstandings. Moreover, most of his fellow nurses seem to support the initiative, which further disempowers Carlos from expressing his concerns, as he fears being seen as someone with something to hide.

Internet usage

Mobile device skills

Affinity to new tech

Digital Health Literacy

Assistance (ICT use)

visuAAL

Isabel

Name
Isabel

Age
51

Country
Spain

Area
rural

Life course
working age adult

Need
Generally well / good wellbeing

Connectivity
broadband, smart phone, mobile device, tablet, digital TV

Isabel, a care home manager in rural Spain, is deeply committed to providing quality care to the residents. With over two decades of experience, she has a profound understanding of the needs and concerns of older adults. Recently, Isabel has been contemplating the implementation of a monitoring camera system throughout the care home. The main reasons for making this decision are the detection of emergency incidents such as falls and wandering behaviors, as well as the improvement of the quality of care to ensure the safety and well-being of the residents. Isabel recognizes the challenges associated with this decision. She understands that privacy concerns may arise among residents and their families. Furthermore, the process of installing and maintaining a monitoring camera system can be quite costly and complex, associated with bureaucratic and legal difficulties. Isabel is mindful that introducing a monitoring system may be met with resistance from certain care home staff members, especially regarding the usage and handling of the captured camera footage. To address these concerns, she promotes open communication and collaboration among the team, ensuring their full understanding of the initiative's purpose and benefits. In her pursuit of providing the highest standard of care, Isabel aims to balance modern technology for safety with resident and personnel privacy and dignity.

Internet usage

Mobile device skills

Affinity to new tech

Digital Health Literacy

Assistance (ICT use)

Manuel

Name
Manuel

Age
59

Country
Spain

Area
urban

Life course
working age adult

Need
Generally well / good wellbeing

Connectivity
broadband, smart phone, mobile device, tablet, digital TV

Manuel has spent over two decades working in the healthcare sector. For the past nine years, he has served as a case manager in a public health center in Spain. In his role, he skilfully manages the diverse array of public health services, integrating and coordinating the social and healthcare aspects of patient care. As a reference figure in the care process, Manuel acts as a guiding presence for patients, conducting thorough assessments to understand their individual needs and the available resources. He is dedicated to ensuring continuity of care for his patients, serving as their main advocate throughout their healthcare journey. Recognizing the changing demographics, Manuel understands the need for healthcare to adapt. He was an early supporter of integrating emergency buttons into public care for older adults, believing that modern technological solutions can greatly enhance the provision of care. However, his extensive experience has also highlighted the challenges of implementing healthcare technologies in a public healthcare setting. Nevertheless, Manuel remains proactive and eager to collaborate with researchers and policymakers. He continuously seeks opportunities to contribute to the advancement of healthcare practices and strives for improved outcomes for his patients.

Internet usage

Mobile device skills

Affinity to new tech

Digital Health Literacy

Assistance (ICT use)

Luis

Name
Luis

Age
41

Country
Spain

Area
urban

Life course
working age adult

Need
Generally well / good wellbeing

Connectivity
broadband, smart phone, mobile device, tablet, digital TV

Luis, an applied researcher in the field of Active and Assistive Living technologies, has spent over a decade developing innovative solutions to support the daily living activities of older adults and individuals with disabilities. His primary focus is on enhancing care provision through the use of assistive technologies. Luis firmly believes in the transformative power of technological advancements in care practices. Recognizing the rapid pace of technological progress, Luis remains vigilant about the potential data security risks that accompany these advancements. He dedicates significant effort to strengthening privacy protection mechanisms within these systems, ensuring maximum security and safeguarding individuals' privacy. However, he faces a constant challenge due to the lag in regulatory laws, which struggle to keep pace with the rapid evolution of technological solutions. Balancing the needs and perspectives of various stakeholders is rather challenging in this process. Luis strives to find a common ground where the benefits of technological progress can be applied while addressing the concerns and interests of all involved parties. By navigating these complexities, Luis aims to push the boundaries of care provision and create a future where assistive technologies truly transform the lives of individuals in need.

Internet usage

Mobile device skills

Affinity to new tech

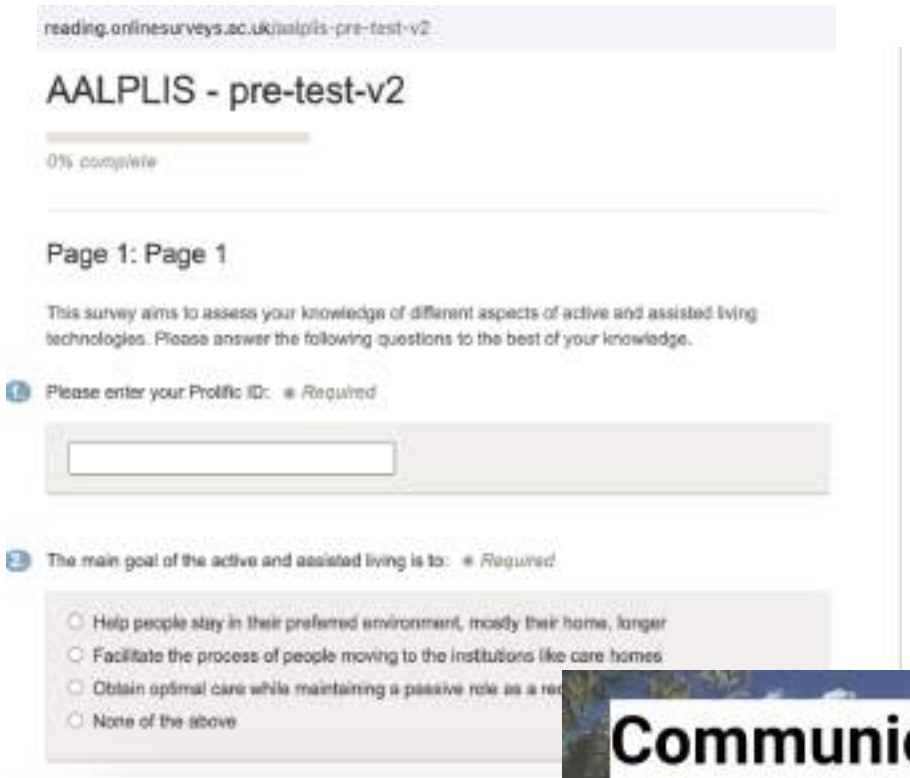
Digital Health Literacy

Assistance (ICT use)

AALPLIS - Active and Assisted Living Literacy Scale ✅

Developing the Ambient Assisted Living Privacy Literacy Scale (AALPLIS) for UK Residents Aged 60+

AALPLIS Active and Assisted Living Literacy Scale



Henley Business School
UNIVERSITY OF READING

good brother

VISUAAL

What does privacy mean? A theoretical paper ✅

Can we agree on what privacy means? Philosophical, legal, and social context

Can we agree on what privacy means? Philosophical, legal, and social context

Abstract. An accurate definition can make all the difference. When it comes to working in an interdisciplinary context, understanding what other researchers mean is invaluable. Privacy is a complex feature. There are numerous ways to describe, conceptualize, and explain privacy, and it is rather difficult to find a definitive answer to the question as to what it truly is. On the one hand, privacy is a state of affairs, a quality of a situation, and, in some instances, a benefit for those who have it. On the other hand, it is a legal obligation in some contexts and a preferential asset in others. This paper presents a composite definition of privacy spanning three scientific disciplines: Philosophy, Law, and Social Science. We will present privacy from each of these perspectives, summarise important work of the respective field, and integrate our insights into an agreement on what privacy means to form a practical tool with which we can address privacy related issues.

Keywords: Privacy · Privacy Definition · Informational Privacy · Personal Data · Theoretical Paper · Philosophy · Law · Social Sciences

Socio-technological collaboration on Dementia care ✅

A Privacy-Aware Toileting Assistance Designed for People with Dementia

RITA: A Privacy-Aware Toileting Assistance Designed for People with Dementia

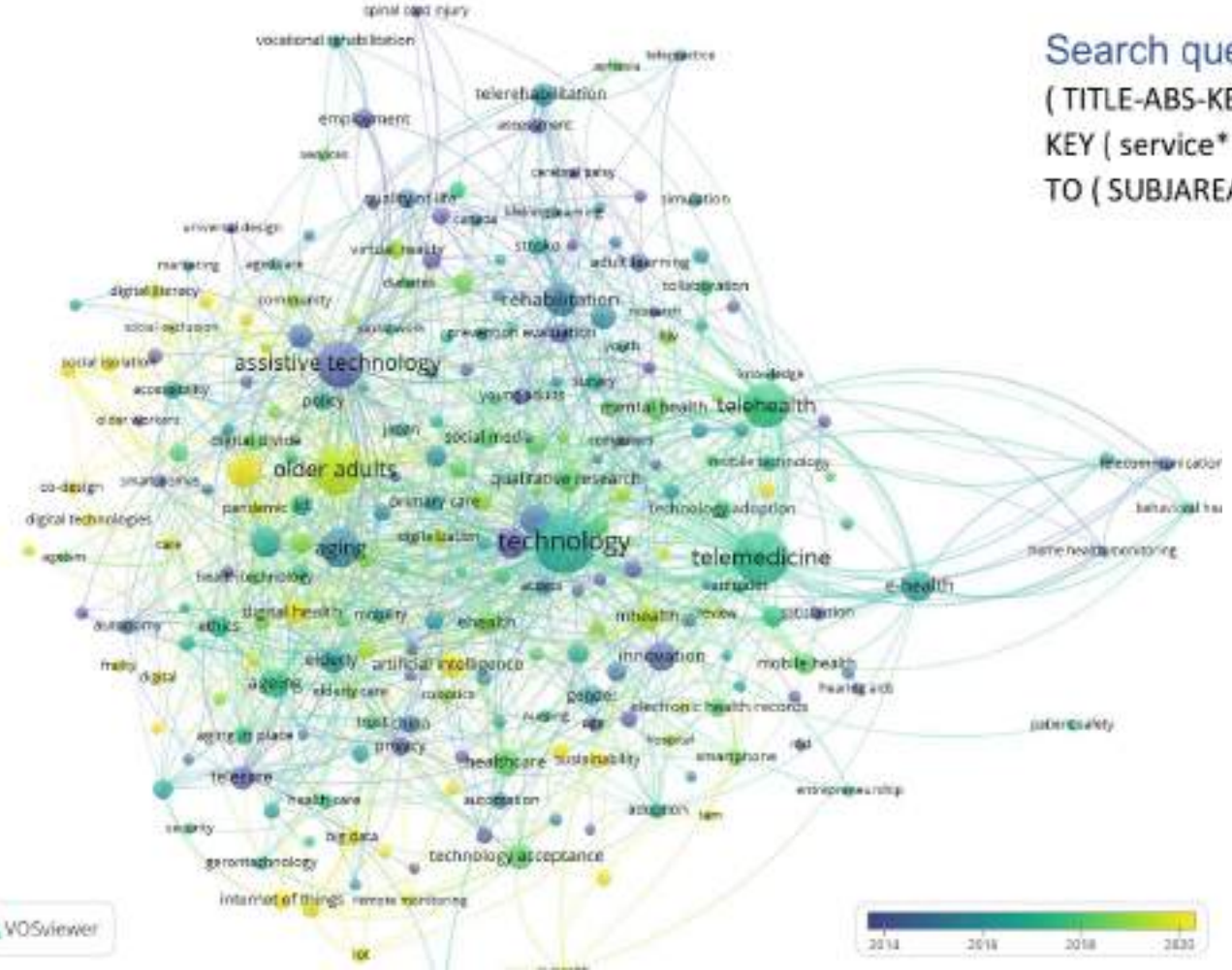
Irene Ballester[1(✉)], Tamar Mujirishvili[2], and Martin Kampel[1]

[1] Computer Vision Lab, TU Wien, Vienna, Austria
{irene.ballester,martin.kampel}@tuwien.ac.at
[2] Department of Nursing, University of Alicante, Alicante, Spain
tamar@ua.es

arty without

Bibliometric review

Healthy ageing and the service industries



Search query

(TITLE-ABS-KEY (ageing OR "healthy ageing" OR "old adult" OR older OR adult*) AND TITLE-ABS-KEY (service* OR industry) AND TITLE-ABS-KEY (technology)) AND (LIMIT-TO (SUBJAREA , "soci") OR LIMIT-TO (SUBJAREA , "heal") OR LIMIT-TO (SUBJAREA , "busi"))

Emerging themes

- Covid-19
- Artificial intelligence
- Big data
- Remote monitoring
- Social isolation
- Internet of things
- Co-design