The Use of Assistive Technology with clients who have a dementia: ethical considerations

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SUMMARY
Systematic Reviews
- Informal carers’ experience of assistive technology use in dementia care at home: a systematic review (8)
- Intelligent Assistive Technology for Alzheimer's Disease and Other Dementias (20)
- Assistive technology for memory support in dementia. Cochrane Systematic Review (22)
- A review of contemporary work on the ethics of ambient assisted living technologies for people with dementia. (27)
- Ethics of using assistive technology in the care for community-dwelling elderly people: an overview of the literature (38)

SEARCH RESULTS
Abstract: Technology can be used to support healthy ageing and to support those who are living with disabilities. With the ageing of populations globally there is increasing interest in the role that technology can potentially play in supporting older persons. This paper analyses the role of technology in supporting everyday living, social engagement, and mobility by older persons, including those living with dementia. It argues for a human rights-based approach to assessing the role that technology can potentially play, arguing for a consideration of: decision-making in relation to use of technology; whether the technology protects privacy, dignity and liberty; whether it fosters mobility and social engagement; and whether it is accessible to all who need it on an equitable basis. Copyright; 2019


Abstract: Assistive technologies became pervasive and virtually present in all our life domains. They can be either an enabler or an obstacle leading to social exclusion. The Fondation Médéric Alzheimer gathered international experts of dementia care, with backgrounds in biomedical, human and social sciences, to analyze how assistive technologies can address the capabilities of people with dementia, on the basis of their needs. Discussion covered the unmet needs of people with dementia, the domains of daily life activities where assistive technologies can provide help to people with dementia, the enabling and empowering impact of technology to improve their safety and wellbeing, barriers and limits of use, technology assessment, ethical and legal issues. The capability approach (possible freedom) appears particularly relevant in person-centered dementia care and technology development. The focus is not on the solution, rather on what the person can do with it: seeing dementia as disability, with technology as an enabler to promote capabilities of the person, provides a useful framework for both research and practice. This article summarizes how these concepts took momentum in professional practice and public policies in the past 15 years (2000-2015), discusses current issues in the design, development and economic model of assistive technologies for people with dementia, and covers how these technologies are being used and assessed.


Abstract: Background: Use of monitoring technologies (e.g. wearable or environmental sensors) in long-term care generates extensive ethical debate, primarily about their potential to enhance resident safety weighed against concerns about their impacts upon resident autonomy. There are a number of other ethical aspects which are far less debated, including questions about the monitoring of the workforce, and equality of access to technologies. In this paper, we explore the extent to which remote monitoring of the workforce, and equality of access to technologies, were seen to influence the implementation of monitoring technologies within long-term care facilities. Method(s): An embedded multiple-case study design was used with three dementia-specialist care facilities in England that had experience using a range of monitoring technologies. Data were collected through 175 h’ observation of daily practice, semi-structured interviews with 36 staff, residents and relatives, and examination of organisational documentation and technology manufacturer literature. Data were analysed using Framework Analysis. Result(s): Use of technologies for workforce monitoring was understood in relation to the ethical obligations to fulfil a duty of care to residents. There was little recognition of any negative implications for the workforce, but staff were susceptible to rumours that technologies were being used for performance management even when this was not the case. There were questions about how far data collected by monitoring technologies could constitute ‘evidence’ of appropriate care delivery. Equality and access to technologies involved a need to compromise between generic designs that were not universally suitable, but were more affordable than bespoke designs. Contracts with suppliers imposed limitations on product choice. Conclusion(s): There is an urgent need for greater consideration of the ethical and legal implications that remote technological monitoring might have upon workforce morale, recruitment and retention. Ensuring variety of technological design to facilitate equitable access for residents is financially extremely challenging. It is possible that considerations of equitable access are not deemed a priority due to the current generation of residents’ low levels of technological familiarity and expectation. It might be
overstated and unrealistic to view expensive technologies as the pinnacle of innovative practice in care homes. Copyright 2019 The Author(s)


Abstract: Assistive technologies became pervasive and virtually present in all our life domains. They can be either an enabler or an obstacle leading to social exclusion. The Fondation Mederic Alzheimer gathered international experts of dementia care, with backgrounds in biomedical, human and social sciences, to analyze how assistive technologies can address the capabilities of people with dementia, on the basis of their needs. Discussion covered the unmet needs of people with dementia, the domains of daily life activities where assistive technologies can provide help to people with dementia, the enabling and empowering impact of technology to improve their safety and wellbeing, barriers and limits of use, technology assessment, ethical and legal issues. The capability approach (possible freedom) appears particularly relevant in person-centered dementia care and technology development. The focus is not on the solution, rather on what the person can do with it: seeing dementia as disability, with technology as an enabler to promote capabilities of the person, provides a useful framework for both research and practice. This article summarizes how these concepts took momentum in professional practice and public policies in the past 15 years (2000-2015), discusses current issues in the design, development and economic model of assistive technologies for people with dementia, and covers how these technologies are being used and assessed.


Abstract: Objectives: This study is a cluster-randomised controlled trial exploring the effect of a therapeutic companion robot (PARO) compared to a look-alike plush toy and usual care on dementia symptoms of long-term care residents. Complementing the reported quantitative outcomes, this paper provides critical reflection and commentary on individual participant responses to PARO, observed through video recordings, with a view to informing clinical practice and research. Method: A descriptive, qualitative design with five participants selected from the PARO intervention arm of the trial. The trial is registered with the Australian New Zealand Clinical Trials Registry (ACTRN12614000508673). Results: The five participants and their responses to PARO are presented in terms of three issues: i.) Different pre-intervention clinical presentations and different responses; ii.) Same individual, different response - the need for continual assessment and review; and iii.) The ethics of giving and retrieving PARO. Implications for clinical practice and future research are discussed in relation to each issue. Conclusion: The findings suggest that one approach does not fit all, and that there is considerable variation in responses to PARO. A number of recommendations are discussed to aid the delivery of psychosocial interventions with PARO in practice, as well as to guide future research.


Abstract: Background: As the global prevalence of dementia rises, care costs impose a large burden on healthcare systems. Technology solutions in dementia care have the potential to ease this burden. While policies exist to guide and govern the use of dementia care technologies, little is known about how ethical considerations are incorporated into these documents. Objective(s): The goal of this study was to examine ethics-related content in dementia care technology policies. Method(s): We used a two-step data mining approach to collect a sample of dementia technology policies. Policy documents were analyzed using emergent content analysis. Following the coding of the sample, thematic categories were organized using the principles of biomedical ethics as a framework. Result(s): A total of 23 policy documents from four Alzheimer associations in four countries were included in our analysis. General ethics considerations and themes related to beneficence were mentioned in 96% of the documents. Thematic categories related to justice were present in 74% of the sample, themes related to non-maleficence appeared in 52% of documents, and themes related to autonomy appeared in 43% of the sample. Conclusion(s): While ethical considerations are present in existing policies for dementia care technology, these
considerations revolve primarily around the benefit of the technologies. Further efforts are needed to provide formal guidance that incorporates both benefits and potential harms.


Abstract: Earlier literature on “welfare technologies”* - in general - and the use of GPS devices in dementia care in special - has been overwhelmingly focused on either individual (user-centric), technical or ethical challenges related to technology implementation. This paper argues for a relational analysis to supplement and adjust shortcomings in the existing research literature and introduces the concept of “techno-organizational networks” for the task. Through an analysis of a post-pilot period of a pilot-project with GPS-tracking of dementia patients, it is shown how a relational approach contributes to a better understanding of the dynamics and obstacles of developing technology-assisted health-care services. An original contribution of the article is also the argument for studying transitional, post-project or in-between project phases of technology implementation, which as a rule tend to be project driven, also in terms of research.


Abstract: Background: Dementia is a health and care priority globally. Caring for persons with dementia is a challenge and can lead to negative psychological, physiological and financial consequences for informal carers. Advances in technology have the potential to assist persons with dementia and their carers, through assistive technology devices such as electronic medication dispensers, robotic devices trackers and motion detectors. However, little is known about carers’ experience and the impact of these technologies on them. This review aims to investigate the outcomes and experience of carers of persons with dementia, who live at home and use assistive technology. Methods: A systematic search in seven databases and manual searches were carried out using pre-defined inclusion and exclusion criteria to identify studies on carers of persons with dementia involving the use of assistive technology. The search identified 56 publications with quantitative, qualitative and mixed-method designs. Results: The studies reported positive and negative findings and focused on a wide variety of assistive technology devices. There were large differences in the uses of assistive technology, outcome measures used and the quality of studies. Knowledge and acceptence, competence to use and ethical issues when using assistive technology were themes that emerged from the studies. Carers generally appreciated using assistive technology and their experience of use varied. Conclusions: The intention of this systematic review is to list and classify the various types of assistive technology used by carers of persons with dementia and explores the positive and negative aspects, knowledge, acceptence and ethical issues in the use of assistive technology by carers of persons with dementia. This study recommends the use of a standard and person-centred system of classifying and naming assistive technology devices and systems and for future research efforts in assistive technology to incorporate a family/carer centred model.


Abstract: The rapidly expanding aging population presents an urgent global challenge cutting through just about every dimension of worldly life, including the social, political, cultural, and economic. Developing innovations in health and assistive technology (AT) are poised to support effective and sustainable health care in the face of this challenge, yet there is scant (but growing) discussion of the ethical issues surrounding AT for older persons with dementia. Demands for ethical frameworks that can respond to frontline dilemmas regarding AT development and provision, and how the needs of aging persons themselves are defined throughout this development process, are increasing. This article suggests that fulfilling the promises of AT to provide effective and ethically informed solutions may demand shifting away from standard bioethical analyses that centralize the principle of respect for autonomy. An autonomy-centric paradigm is dubiously equipped to theorize the foundational ethical issues in dementia care and to effectively guide AT development and implementation. An agency-centered approach to dementia care, which could engage more adaptively with the
perspectives and choices of older persons themselves while offering strong support to AT research and stakeholders, may offer an attractive alternative.

(10) Bachle M, Daurer S, Judt A, Mettler T. Assistive technology for independent living with dementia: Stylized facts and research gaps. Health Policy and Technology 2018; 7(1):98-111. Abstract: Background: Recent advancement in assistive technologies (AT) have fueled the debate on new, IT-reliant ways of providing cure and care of dementia. Still the impact on practice has been little. With this paper, we want to find out to which extent current studies have discussed the impacts of AT for dementia. Method(s): We conduct a scoping review of the literature on impacts of AT usage in the context of dementia. We search disciplinary (ACM, EMBASE, PsycInfo) as well as cross-disciplinary databases (EBSCO, Web of Science). Based on the identified relevant papers, we extract a list of original statements, which we aggregate to stylized facts. The method of stylized facts is a common research method to derive knowledge in the form of generalized and simplified statements describing interesting characteristics and relationships concerning empirically observable phenomena. <br/>Result(s): We identify n=539 unique articles, out of which n=36 report impacts of AT usage in the context of dementia. We aggregate 6 stylized facts that describe common findings. Furthermore, we identify research gaps in this domain. There is little known about the suitable design of social systems around assistive technologies. Conclusion(s): While the identified stylized facts indicate how much evidence there is behind certain common statements in the reviewed literature, we additionally find that studies in the area of AT for dementia often neglect the socio-economic and ethical dimension. These are important research gaps for future work.

(11) Billis A, Mantziari D, Zilidou V, Bamidis PD. Co-Creation of an Innovative Vocational Training Platform to Improve Autonomy in the Context of Alzheimer’s Disease. Stud Health Technol Inform 2018; 251:309-312. Abstract: Support of autonomy, at the onset and while Alzheimer’s Disease progresses, is of utmost importance for both older adults and their caregivers. AD-Autonomy project aims at co-creating an innovative training platform with and for elderly people and their caregivers. Main aim of the project is to increase the competencies of older adults and their caregivers to cope with the disease effects, by leveraging existing ICT tools and applications, while transferring their applicability in real life contexts and activities. Initial anecdotal feedback is collected through a co-creation session, where all above themes were discussed and analyzed between seniors, family caregivers and professionals.

(12) Gold M, Soares H, Amatniek J, Carrillo MC, Hendrix JA, Cedarbaum JM et al. Digital technologies as biomarkers, clinical outcomes assessment, and recruitment tools in Alzheimer’s disease clinical trials. Alzheimer’s and Dementia: Translational Research and Clinical Interventions 2018; 4:234-242. Abstract: Digital technology is transforming the development of drugs for Alzheimer’s disease and was the topic of the Alzheimer’s Association’s Research Roundtable on its May 23-24, 2017 meeting. Research indicates that wearable devices and unobtrusive passive sensors that enable the collection of frequent or continuous, objective, and multidimensional data during daily activities may capture subtle changes in cognition and functional capacity long before the onset of dementia. The potential to exploit these technologies to improve clinical trials as both recruitment and retention tools as well as for potential end points was discussed. The implications for the collection and use of large amounts of data, lessons learned from other related disease areas, ethical concerns raised by these new technologies, and regulatory issues were also covered in the meeting. Finally, the challenges and opportunities of these new technologies for future use were discussed.

(13) Ienca M, Wangmo T, Jotterand F, Kressig RW, Elger B. Ethical Design of Intelligent Assistive Technologies for Dementia: A Descriptive Review. Sci Eng Ethics 2018; 24(4):1035-1055. Abstract: The use of Intelligent Assistive Technology (IAT) in dementia care opens the prospects of reducing the global burden of dementia and enabling novel opportunities to improve the lives of dementia patients. However, with current adoption rates being reportedly low, the potential of IATs might remain under-expressed as long as the reasons for suboptimal adoption remain unaddressed. Among these, ethical and social considerations are
critical. This article reviews the spectrum of IATs for dementia and investigates the prevalence of ethical considerations in the design of current IATs. Our screening shows that a significant portion of current IATs is designed in the absence of explicit ethical considerations. These results suggest that the lack of ethical consideration might be a codeterminant of current structural limitations in the translation of IATs from designing labs to bedside. Based on these data, we call for a coordinated effort to proactively incorporate ethical considerations early in the design and development of new products.

PT - Review


Abstract: BACKGROUND The burgeoning field of gerontechnology, which is the interdisciplinary field of applying technology to ageing issues, has focused primarily on "active ageing" and maintaining independence for older adults. To date, there has been less focus on people who develop dementia. Here, we argue for the field of gerontechnology to have a greater emphasis on clinical applications for dementia. This can be captured under the rubric of "psychogeritechnology," a term we have coined to describe the range of technology approaches to the prevention, prediction, screening, assessment, diagnosis, management, and monitoring of people at risk of, or living with, dementia. AIM Using Japan as the world's leading 'super-aged' nation as a paradigm, the purpose of this paper is to provide a narrative review of the use of innovative technology for the diagnosis, management and support of people at risk of, or living with, dementia. METHODS By following the "life course" of dementia, we will use clinical exemplars and case studies of psychogeritechnological applications from a Japanese context, specific to each stage of dementia, from the preclinical to the advanced stage. In the preclinical stage, the focus will be on prevention and early detection of degenerative cognitive-functional trajectories. In the early-stage of dementia, we will outline examples of screening, assessment, diagnosis, and clinical monitoring, as well as the use of technology to support independent living and autonomy. In the moderate stage, examples of safety monitoring systems, and assistive technology to foster independence, quality of life will be outlined. Finally, in the advanced stage of dementia, our focus will be on assistive technology in the care home setting, and the need to foster secure and efficient communication among care providers. We will discuss these applications in terms of the evolution of the "technological roadmap" for dementia, and the need for a theoretical underpinning for the field, a meaningful and flexible evaluation framework, and consideration of the "wider perspective" including safety-critical issues, ethical issues, and the relation to policy and health economics. CONCLUSIONS Japan, as a rapidly ageing society, is on the forefront of developing technology to support people with dementia. The new field of psychogeritechnology must harness the potential of such developments, while furthering the methodology to implement and evaluate the changes.


Abstract: BACKGROUND: Occupational therapists use technologies to manage wandering-related risks to promote safety and independence among individuals with dementia living in the community. PURPOSE: The purpose of this review was to examine types of technologies used to manage wandering behaviour. METHOD: Using a modification of Arksey and O'Malley's methodology, we systematically searched peer-reviewed and grey literature on technologies used in home or supportive care environments for persons with dementia at risk for wandering. Data from the studies were analyzed descriptively. FINDINGS: The literature described 83 technologies. Nineteen devices were clinically tested. Interventions ranged from alarm products to mobile locator devices. Benefits included reductions in risk and caregiver burden. IMPLICATIONS: Occupational therapy strategies include technologies to enhance function in persons with dementia. Technologies can also reduce risks of wandering and should be affordable. Ethical issues of the use of technology must be addressed. More research is needed to increase levels of evidence.

PT - Review

Abstract: It is a common experience among care professionals that persons with dementia often say 'no' to conventional caring measures such as taking medication, eating or having a shower. This tendency to say 'no' may also concern the use of assistive technologies such as fall detectors, mobile safety alarms, Internet for social contact and robots. This paper provides practical recommendations for care professionals in home health care and social care about how to respond to such resistiveness towards assistive technologies. Apart from the option of accepting the 'no', it discusses a number of methods for influencing persons with dementia in order to overcome the 'no'. These methods range from various non-coercive measures including nudging to coercion. It is argued that while conventional caring measures like those mentioned are essential for survival, health or hygiene, assistive technologies are commonly merely potentially beneficial supplements. With this in mind, it is concluded that care professionals should be more restrictive in using methods of influence involving some degree of pressure regarding assistive technologies than regarding conventional caring measures.


Abstract: INTRODUCTION: Technology interventions are showing promise to assist persons with dementia and their carers. However, low adoption rates for these technologies and ethical considerations have impeded the realization of their full potential. METHODS: Building on recent evidence and an iterative framework development process, we propose the concept of "ethical adoption": the deep integration of ethical principles into the design, development, deployment, and usage of technology. RESULTS: Ethical adoption is founded on five pillars, supported by empirical evidence: (1) inclusive participatory design; (2) emotional alignment; (3) adoption modelling; (4) ethical standards assessment; and (5) education and training. To close the gap between adoption research, ethics and practice, we propose a set of 18 practical recommendations based on these ethical adoption pillars. DISCUSSION: Through the implementation of these recommendations, researchers and technology developers alike will benefit from evidence-informed guidance to ensure their solution is adopted in a way that maximizes the benefits to people with dementia and their carers while minimizing possible harm.


Abstract: The sustainable development goals (SDGs) adopted by the United Nations in 2015 include a new target for global health: SDG 3 aims to "ensure healthy lives and promote well-being for all at all ages.” Dementia care of good quality is particularly important given the projected increase in the number of people living with the condition. A range of assistive technologies have been proposed to support dementia care. However, the World Health Organization estimated in 2017 that only one in 10 of the 1 billion or more people globally who could benefit from these technologies in some way actually has access to them. For people living with dementia, there has been little analysis of whether assistive technologies will support their human rights in ways that are consistent with the United Nations Convention on the Rights of Persons with Disabilities. The aim of this paper is to examine the relevant provisions of the convention and consider their implications for the use of assistive technologies in dementia care. Assistive technologies can clearly play an important role in supporting social engagement, decision-making and advance planning by people living with dementia. However, concerns exist that some of these technologies also have the potential to restrict freedom of movement and intrude into privacy. In conclusion, an analysis of the implications of assistive technologies for human rights laws is needed to ensure that technologies are used in ways that support human rights and help meet the health-related SDG 3.


Abstract: Background Ageing societies and a rising prevalence of dementia are associated with increasing demand for care home places. Monitoring technologies (e.g. bed-monitoring...
systems; wearable location-tracking devices) are appealing to care homes as they may enhance safety, increase resident freedom, and reduce staff burden. However, there are ethical concerns about the use of such technologies, and it is unclear how they might be implemented to deliver their full range of potential benefits. Objective This study explored facilitators and barriers to the implementation of monitoring technologies in care homes. Design Embedded multiple-case study with qualitative methods. Setting Three dementia-specialist care homes in North-West England. Participants Purposive sample of 24 staff (including registered nurses, clinical specialists, senior managers and care workers), 9 relatives and 9 residents. Methods 36 semi-structured interviews with staff, relatives and residents; 175 h of observation; resident care record review. Data collection informed by Normalization Process Theory, which seeks to account for how novel interventions become routine practice. Data analysed using Framework Analysis. Results Findings are presented under three main themes: 1. Reasons for using technologies: The primary reason for using monitoring technologies was to enhance safety. This often seemed to override consideration of other potential benefits (e.g. increased resident freedom) or ethical concerns (e.g. resident privacy); 2. Ways in which technologies were implemented: Some staff, relatives and residents were not involved in discussions and decision-making, which seemed to limit understandings of the potential benefits and challenges from the technologies. Involvement of residents appeared particularly challenging. Staff highlighted the importance of training, but staff training appeared mainly informal which did not seem sufficient to ensure that staff fully understood the technologies; 3. Use of technologies in practice: Technologies generated frequent alarms that placed a burden upon staff, but staff were able to use their contextual knowledge to help to counter some of this burden. Some technologies offered a range of data-gathering capabilities, but were not always perceived as useful complements to practice. Conclusion Implementation of monitoring technologies may be facilitated by the extent to which the technologies are perceived to enhance safety. Implementation may be further facilitated through greater involvement of all stakeholders in discussions and decision-making in order to deepen understandings about the range of potential benefits and challenges from the use of monitoring technologies. Staff training might need to move beyond functional instruction to include deeper exploration of anticipated benefits and the underlying rationale for using monitoring technologies. Copyright 2017 The Authors

(20) Ienca M, Fabrice J, Elger B, Caon M, Scoccia PA, Kressig RW et al. Intelligent Assistive Technology for Alzheimer's Disease and Other Dementias: A Systematic Review. J Alzheimers Dis 2017; 56(4):1301-1340. Abstract: Intelligent assistive technologies (IATs) have the potential of offering innovative solutions to mitigate the global burden of dementia and provide new tools for dementia care. While technological opportunities multiply rapidly, clinical applications are rare as the technological potential of IATs remains inadequately translated into dementia care. In this article, the authors present the results of a systematic review and the resulting comprehensive technology index of IATs with application in dementia care. Computer science, engineering, and medical databases were extensively searched and the retrieved items were systematically reviewed. For each IAT, the authors examined their technological type, application, target population, model of development, and evidence of clinical validation. The findings reveal that the IAT spectrum is expanding rapidly in volume and variety over time, and encompasses intelligent systems supporting various assistive tasks and clinical uses. At the same time, the results confirm the persistence of structural limitations to successful adoption including partial lack of clinical validation and insufficient focus on patients' needs. This index is designed to orient clinicians and relevant stakeholders involved in the implementation and management of dementia care across the current capabilities, applications, and limitations of IATs and to facilitate the translation of medical engineering research into clinical practice. In addition, a discussion of the major methodological challenges and policy implications for the successful and ethically responsible implementation of IAT into dementia care is provided

PT - Review
PT - Systematic Review

dementia safe and support them and their caregivers during getting lost events. This paper summarizes mainly technological contributions to support the target group in these events. Moreover, important aspects of the getting lost phenomenon such as its concept and ethical issues are also briefly addressed. METHODS: Papers were selected from scientific databases and gray literature. Since the topic is still in its infancy, other terms were used to find contributions associated with getting lost e.g. wandering. RESULTS: Trends of applying localization systems were identified as personal locators, perimeter systems and assistance systems. The first system barely considered the older adult's opinion, while assistance systems may involve context awareness to improve the support for both the elderly and the caregiver. Since few studies report multidisciplinary work with a special focus on getting lost, there is not a strong evidence of the real efficiency of localization systems or guidelines to design systems for the target group. CONCLUSIONS: Further research about getting lost is required to obtain insights for developing customizable systems. Moreover, considering conditions of the older adult might increase the impact of developments that combine localization technologies and artificial intelligence techniques. Implications for Rehabilitation: Whilst there is no cure for dementia such as Alzheimer's, it is feasible to take advantage of technological developments to somewhat diminish its negative impact. For instance, location-based systems may provide information to early diagnose the Alzheimer's disease by assessing navigational impairments of older adults. Assessing the latest supportive technologies and methodologies may provide insights to adopt strategies to properly manage getting lost events. More user-centered designs will provide appropriate assistance to older adults. Namely, customizable systems could assist older adults in their daily walks with the aim to increase their self-confidence, independence and autonomy.

(22) Van der Roest H. Assistive technology for memory support in dementia. Cochrane Systematic Review 2017. Abstract: The sustained interest in electronic assistive technology in dementia care has been fuelled by the urgent need to develop useful approaches to help support people with dementia at home. Also the low costs and wide availability of electronic devices make it more feasible to use electronic devices for the benefit of disabled persons. Information Communication Technology (ICT) devices designed to support people with dementia are usually referred to as Assistive Technology (AT) or Electronic Assistive Technology (EAT). By using AT in this review we refer to electronic assistive devices. A range of AT devices has been developed to support people with dementia and their carers to manage their daily activities and to enhance safety, for example electronic pill boxes, picture phones, or mobile tracking devices. Many are commercially available. However, the usefulness and user-friendliness of these devices are often poorly evaluated. Although reviews of (electronic) memory aids do exist, a systematic review of studies focusing on the efficacy of AT for memory support in people with dementia is lacking. Such a review would guide people with dementia and their informal and professional carers in selecting appropriate AT devices.

(23) Ienca M, Jotterand F, Vica C, Elger B. Social and assistive robotics in dementia care: Ethical recommendations for research and practice. International Journal of Social Robotics 2016; 8(4):565-573. Abstract: The steadily growing number of older adults with dementia worldwide poses a major challenge for global public health. The integration of robotics into both formal and informal dementia care opens up new possibilities for improving the life of patients and alleviating the burden on caregivers and the healthcare services. However, ethical, legal and social implications should be considered early in the development of assistive and social robots for dementia to prevent slow adoption, incorrect implementation and inappropriate use. This paper delineates the ethical landscape and provides recommendations for design and use aimed at protecting users and maximizing the benefit in assisting such vulnerable population. (PsycINFO Database Record (c) 2017 APA, all rights reserved) (Source: journal abstract)

(24) Altendorf A, Schreiber J. Assistive technology in dementia care: Methodological issues in research design. Journal of Assistive Technologies 2015; 9(1):38-47. Abstract: Purpose - The purpose of this paper is to illustrate some of the ethical issues and methodological obstacles encountered when trialling and using safer walking technologies and monitoring devices in dementia care. Design/methodology/approach - Using a number of
recent studies as examples statistical, methodological and ethical issues are illustrated, which impact on the feasibility of randomised controlled trials or quasi-experimental designs. Findings - Much has already been achieved in using technology to aid people with memory and related problems. However, statistical evidence for the effectiveness of safer walking and monitoring devices in dementia care is still lacking. Careful considerations such as "treat the client as you would like to be treated" should be applied, when making a decision about a particular device. Originality/value - Safer walking and monitoring technology for people with memory and related problems is a rapidly advancing field of research. This is an updated discussion on methodological, statistical and ethical issues.Copyright Emerald Group Publishing Limited


Abstract: AIM: The study aims to investigate the caregivers' context-specific perceived usefulness of available assistive technology (AT) devices and the professionals' perspectives on the usefulness indicators of AT devices for home-dwelling individuals with mild-to-moderate dementia. METHODS: A total of 72 caregivers completed a questionnaire rating 82 AT devices with a high-perceived usefulness (HPU) or low-perceived usefulness (LPU). A total of 21 experts rated 10 usefulness indicators of these devices. We compared the mean of each indicator between the HPU and LPU groups. RESULTS: Most caregivers, who are generally amenable to using AT devices, thought they were useful for helping to care for home-dwelling older adults with mild-to-moderate dementia. The level of perceived usefulness from the experts' perspectives depends on specific design indicators (e.g. familiarity) and the context in which the AT is used (e.g. in everyday life or in emergencies). Indicators for HPU devices were: allows selective accident prevention, has an intuitive interface, is familiar, offers ease of use and simplifies activities. LPU devices featured client prompting. There were no significant differences between HPU and LPU devices with indicators of: is automated, informs caregiver, preserves privacy and preserves autonomy. Safety issues were considered important, and sometimes overshadowed ethical dilemmas, such as privacy and autonomy concern. CONCLUSIONS: The present study provides insight into how caregivers perceived the usefulness of AT devices, and how that varied with context. Indicators of devices perceived as useful can serve as guidelines for modifying existing devices and designing new devices. Future application could also incorporate the points of view from the persons with dementia.

PT - Comparative Study


Abstract: This guidance is for those considering the use of technology to assist with care and maintain independence when the individual concerned may lack the capacity to make the decision. It examines the human right and legal implications of assistive technology and sets out key principles of good practice. These are: the intervention must provide a benefit that cannot otherwise be achieved; it must be the least restrictive in relation to the person's freedom in order to achieve the desired benefit; the past and present wishes of the person must be taken into account; the views of relevant others should be taken into account; and the intervention should encourage the person to use existing skills and develop new ones. The document examines the use of electronic location devices and the use of CCTV to monitor the actions of an adult or of staff. A brief overview of assistive technology currently available is also included

Notes: Full text available if you register with Social Care Online: https://www.scie-socialcareonline.org.uk/


Abstract: Ambient assisted living (AAL) technologies can provide assistance and support to persons with dementia. They might allow them the possibility of living at home for longer whilst maintaining their comfort and security as well as offering a way towards reducing the
huge economic and personal costs forecast as the incidence of dementia increases worldwide over coming decades. However, the development, introduction and use of AAL technologies also trigger serious ethical issues. This paper is a systematic literature review of the on-going scholarly debate about these issues. More specifically, we look at the ethical issues involved in research and development, clinical experimentation, and clinical application of AAL technologies for people with dementia and related stakeholders. In the discussion we focus on: (1) the value of the goals of AAL technologies, (2) the special vulnerability of persons with dementia in their private homes, (3) the complex question of informed consent for the usage of AAL technologies

PT - Review
PT - Systematic Review

Abstract: In this paper, I will argue that there is a deep connection between home-based care, technology, and the self. Providing the means for persons (especially older persons) to receive care at home is not merely a kindness that respects their preference to be at home: it is an important means of extending their selfhood and respecting the unique selves that they are. Home-based technologies like telemedicine and robotic care may certainly be useful tools in providing care for persons at home, but they also have important implications for sustaining selfhood in ways that are of value to individuals and those who care for them. I will argue, by appealing to Hilde Lindemann's notion of "holding" persons' identities in place, that technological interventions are not only useful tools for improving and sustaining health and good care at home, but that they may also help to extend our personal identities and relational capacities in ways that are practically and ethically good. Because of these important goods, I will claim that there is a prima facie moral duty to do this "holding" work and that it is best done by family members and loved ones who are well suited to the job because of their history and relationship with the individual that needs to be "held" in place

Abstract: Purpose: The purpose of this paper is to highlight the complexity surrounding the implementation of advanced electronic tracking, communication and emergency response technologies, namely, an extended safety and support (ESS) system for people with dementia (pwd) living at home. Results are presented from a Swedish demonstration study (2011-2012) conducted in 24 municipalities. Design/methodology/approach: It is a descriptive intervention study with a pre-post test design. Questionnaires were administered to pwd, carers and professionals at the outset and eight months later. ESS logging data were analyzed. Findings: ESS usage rates varied widely. A total of 650 alerts were triggered, mainly when the pwd was outdoors. Activities were reduced amongst pwd, most likely due to a progression of their disease. Carers noted that pwd were more independent than previously on those occasions when they engaged in outdoor activities. Staff considered that nearly half of pwd could remain living at home due to the ESS, compared with a third amongst carers. In total, 50 per cent of carers felt it was justified to equip their relative with an ESS without their explicit consent, compared to one in eight staff. Research limitations/implications: A limitation is the amount of missing data and high drop-out rates. Researchers should recruit pwd earlier in their illness trajectory. A mixed-methods approach to data collection is advisable. Practical implications: Carers played a crucial role in the adoption of ESS. Staff training/supervision about assistive devices and services is recommended. Social implications: Overall, use of ESS for pwd living at home was not an ethical problem. Originality/value: The study included key stakeholder groups and a detailed ethical analysis was conducted

Abstract: Background: In the European Rosetta project three separate, previously developed, ICT systems were improved and integrated to create one modular system that helps community-dwelling people with mild cognitive impairment and dementia in different stages of the disease. The system aims to support them in daily functioning, monitor (deviations from)
patterns in daily behaviour and to automatically detect emergency situations. The study aimed to inventory the end users’ needs and wishes regarding the development and design of the new integrated Rosetta system, and to describe the to be developed Rosetta system. Method(s): Qualitative user-participatory design with in total 50 persons: 14 people with dementia, 13 informal carers, 6 professional carers, 9 dementia experts, 7 care partners within the project, and 1 volunteer. In the Netherlands user focus group sessions were performed and in Germany individual interviews. Dementia experts were consulted by means of a questionnaire, an expert meeting session, and interviews. Result(s): Persons with dementia and informal carers appreciated the following functionalities most: help in cases of emergencies, navigation support and the calendar function. Dementia experts rated various behaviours relevant to monitor in order to detect timely changes in functioning, e.g. eating, drinking, going to the toilet, taking medicine adequately, performance of activities and sleep patterns. No ethical issues regarding the use of sensors and cameras were mentioned. Conclusion(s): The user participatory design resulted in valuable input from persons with dementia, informal carers and professional carers/dementia experts, based on which a first prototype Rosetta system was built.


Abstract: BACKGROUND: With an ever-growing ageing population, dementia is fast becoming the chronic disease of the 21st century. Elderly people affected with dementia progressively lose their autonomy as they encounter problems in their Activities of Daily Living (ADLs). Hence, they need supervision and assistance from their family members or professional caregivers, which can often lead to underestimated psychological and financial stress for all parties. The use of Ambient Assistive Living (AAL) technologies aims to empower people with dementia and relieve the burden of their caregivers. The aim of this paper is to present the approach we have adopted to develop and deploy a system for ambient assistive living in an operating nursing home, and evaluate its performance and usability in real conditions. Based on this approach, we emphasise on the importance of deployments in real world settings as opposed to prototype testing in laboratories.

METHODS: We chose to conduct this work in close partnership with end-users (dementia patients) and specialists in dementia care (professional caregivers). Our trial was conducted during a period of 14 months within three rooms in a nursing home in Singapore, and with the participation of eight dementia patients and two caregivers. A technical ambient assistive living solution, consisting of a set of sensors and devices controlled by a software platform, was deployed in the collaborating nursing home. The trial was preceded by a pre-deployment period to organise several observation sessions with dementia patients and focus group discussions with professional caregivers. A process of ground truth and system’s log data gathering was also planned prior to the trial and a system performance evaluation was realised during the deployment period with the help of caregivers. An ethical approval was obtained prior to real life deployment of our solution. RESULTS: Patients' observations and discussions allowed us to gather a set of requirements that a system for elders with mild-dementia should fulfil. In fact, our deployment has exposed more concrete requirements and problems that need to be addressed, and which cannot be identified in laboratory testing. Issues that were neither forecasted during the design phase nor during the laboratory testing surfaced during deployment, thus affecting the effectiveness of the proposed solution. Results of the system performance evaluation show the evolution of system precision and uptime over the deployment phases, while data analysis demonstrates the ability to provide early detection of the degradation of patients' conditions. A qualitative feedback was collected from caregivers and doctors and a set of lessons learned emerged from this deployment experience. CONCLUSION: Lessons learned from this study were very useful for our research work and can serve as inspiration for developers and providers of assistive living services. They confirmed the importance of real deployment to evaluate assistive solutions especially with the involvement of professional caregivers. They also asserted the need for larger deployments. Larger deployments will allow to conduct surveys on assistive solutions social and health impact, even though they are time and manpower consuming during their first phases.
Relatives could facilitate joint decision-making regarding the use of ICT in dementia care. Early information about ICT is regarded as useful in solving everyday problems. The decision to use or not use ICT should be made jointly by the person with dementia, their family, and professional caregivers. Design/methodology/approach: People with dementia, at home or in residential care, and carers were allocated equipment and consulted about ethics. A qualitative study, data were collected using semi-structured interviews and vignettes and content-analysed to establish themes. Finding(s): AT in person-centred dementia care requires meticulous assessment, reliability and availability in rapidly evolving situations. Users displayed insight, logic and empathy in ethical evaluation. They disliked remote monitoring and surveillance, whereas carers were pragmatic, prioritising safety. Research limitations/implications: This research provides further evidence that users with dementia can be included in research. It demonstrates a significant potential role for AT in dementia care, with an ethical checklist to help professionals evaluate ethical dilemmas. Originality/value: AT potentially increases wellbeing, enabling users to remain longer at home, delaying or avoiding moves to or between homes. 

CONCLUSION

The decision to use or not use ICT, the opportunity to create a safe and secure environment overshadows potential behavioral disturbances in dementia. Today people with dementia can be aided by easily accessible assistive technologies, such as tracking devices using Global Positioning Systems (GPS). Attitudes toward these technologies are still inconclusive and their use with people with dementia raises ethical concerns. The lack of ethical consensus on the use of GPS for people with dementia underlines the need for clearer policies and practical guidelines. METHODS

Here we summarize qualitative and quantitative findings from a larger research project on the ethical aspects of using GPS for tracking people with dementia. RESULTS

The findings are formulated in a list of recommendations for policymakers as well as for professional and family caregivers. Among other points, the recommendations indicate that the preferences and best interests of the people with dementia should be central to the difficult decisions required in dementia care. Further, no-one should be coerced into using tracking technology and, where possible, people with dementia must be involved in the decision-making and their consent sought. CONCLUSION

The decision whether, when and how to use GPS for tracking people with dementia should be made at the time of diagnosis jointly by the person with dementia, his/her family and professional caregivers. This decision should be made in formal structured meetings facilitated by a professional team.


Abstract: Purpose: Uncertainty over ethical impact may hinder uptake of assistive technology (AT) in dementia. This study aims to examine whether AT contributes to person-centred care, whether users can participate in research and to explore ethical dilemmas with users, family and professional carers. Design/methodology/approach: People with dementia, at home or in residential care, and carers were allocated equipment and consulted about ethics. In a small, qualitative study, data were collected using semi-structured interviews and vignettes and content-analysed to establish themes. Finding(s): AT in person-centred dementia care requires meticulous assessment, reliability and availability in rapidly evolving situations. Users displayed insight, logic and empathy in ethical evaluation. They disliked remote monitoring and surveillance, whereas carers were pragmatic, prioritising safety. Research limitations/implications: This research provides further evidence that users with dementia can be included in research. It demonstrates a significant potential role for AT in dementia care, with an ethical checklist to help professionals evaluate ethical dilemmas. Originality/value: AT potentially increases wellbeing, enabling users to remain longer at home, delaying or avoiding moves to or between homes. 


Abstract: BACKGROUND: Problems with out-of-home mobility are among the more common behavioral disturbances in dementia. Today people with dementia can be aided by easily accessible assistive technologies, such as tracking devices using Global Positioning Systems (GPS). Attitudes toward these technologies are still inconclusive and their use with people with dementia raises ethical concerns. The lack of ethical consensus on the use of GPS for people with dementia underlines the need for clearer policies and practical guidelines. METHODS: Here we summarize qualitative and quantitative findings from a larger research project on the ethical aspects of using GPS for tracking people with dementia. RESULTS: The findings are formulated in a list of recommendations for policymakers as well as for professional and family caregivers. Among other points, the recommendations indicate that the preferences and best interests of the people with dementia should be central to the difficult decisions required in dementia care. Further, no-one should be coerced into using tracking technology and, where possible, people with dementia must be involved in the decision-making and their consent sought. CONCLUSION: The decision whether, when and how to use GPS for tracking people with dementia should be made at the time of diagnosis jointly by the person with dementia, his/her family and professional caregivers. This decision should be made in formal structured meetings facilitated by a professional team.


Abstract: AIM: The present paper reports on a study aimed at describing relatives' reflections on different kinds of information and communication technology (ICT) devices that are used or can be used in the daily care of people with dementia. BACKGROUND: Many persons with dementia continue living in their own homes, which requires the support of their relatives. One way to meet the needs of relatives and persons with dementia is to use ICT. METHODS: An interview study was conducted in Sweden (2007-2008) with a purposive sample of 14 spouses of a person with dementia. Qualitative content analysis was used to identify categories and themes in the data. FINDINGS: Relatives' reflections on the use of ICT were described as ICT – a support in daily life, ICT – internal and external conditions and ICT – the decision to use or not use. Based on these categories, a theme was revealed: shifting between different perspectives: my, your and our needs for safety and security. CONCLUSION: Relatives struggle to create a situation of safety and security in daily life for themselves and the persons with dementia. ICT devices with the right functionality and used at the right time are regarded as useful in solving everyday problems. In the decision to use or not use ICT, the opportunity to create a safe and secure environment overshadows potential ethical problems. Providing early information about ICT to persons with dementia and their relatives could facilitate joint decision-making regarding use of ICT.
Abstract: Purpose: The purpose of this paper is to ascertain the views of people with intellectual disabilities (PWID) and people with dementia (PWD) on the ethical issues around assistive technology and telecare (AT&T). Design/methodology/approach: Two focus groups were convened twice to discuss and validate the topic areas/results of a Delphi study on the ethical issues around telecare. The focus groups comprised five PWID and five PWD, respectively. Finding(s): Participants' ratings indicated that they felt there were important ethical issues around seven areas related to AT&T: motivation for telecare, risk, assessment and review, consent, privacy, social isolation and equipment installation. Research limitations/implications: This is an exploratory study with relatively few participants so the results cannot be generalised. Originality/value: People receiving AT&T have strong opinions on the related ethical issues and it is important that these views are heard. This study provides that opportunity. © Emerald Group Publishing Limited

Abstract: This paper investigated who should decide about the use of GPS tracking for older people with dementia. Two hundred and ninety six cognitively intact older people, family carers, social workers, professionals, and social work students rated nine potential decision-makers to make this decision. Findings revealed that family members, particularly the spouse or the most involved family carer, were perceived more important in the decision-making process than those outside the family. The person with dementia was ranked third in the order of the figures. Since the decision to use GPS for tracking raises ethical issues over personal safety versus autonomy and privacy, the findings indicate that the reluctance of professional caregivers to assist family caregivers to make this decision is experienced as frustrating. The authors suggest that in order to reach a balance between the wishes and interests of people with dementia and their informal carers, there is a need for active involvement of the professional carers to aid in the decision-making process

Abstract: While the advantages of Global Positioning Systems (GPS) technologies to help monitor persons with dementia are clear, making use of them raises a number of ethical dilemmas. Social workers may be called upon to assist families in making decisions regarding the use of GPS; therefore their attitudes on this issue are important. In this study, 55 social workers and 61 social work students completed a questionnaire including the following items: attitudes toward tracking; knowledge of Alzheimer’s disease (AD) symptoms; familiarity with persons who have AD; and ratings of who should be involved in the decision-making process regarding GPS use. Results indicated that the highest-scored attitude factor was respecting older peoples’ autonomy, while the lowest-scored factor opposed GPS use. The older people and their spouses were rated as important decision-makers. Students gave a higher rating to respecting older peoples’ autonomy than social workers. Implications for social work education are discussed

Abstract: OBJECTIVES: This article provides an overview of the international literature on the most important ethical considerations in the field of assistive technology (AT) in the care for community-dwelling elderly people, focused on dementia. METHOD: A systematic literature review was performed. RESULTS: A total of 46 papers met the inclusion criteria. Three main themes were found. The first theme, personal living environment, involves the subthemes privacy, autonomy and obtrusiveness. The second theme, the outside world, involves the subthemes stigma and human contact. The third theme, the design of AT devices, involves the subthemes individual approach, affordability and safety. The often referred to umbrella term of ‘obtrusiveness’ is frequently used by many authors in the discussion, while a clear description of the concept is mostly absent. CONCLUSION: When it comes to AT use in the care for elderly people living at home, ethical debate appears not to be a priority. The little discussion there relies heavily on thick concepts such as autonomy and obtrusiveness which
seem to complicate the debate rather than clarify it, because they contain many underlying ambiguous concepts and assumptions. Most encountered ethical objections originate from the view that people are, or should be, independent and self-determinant. It is questionable whether the view is correct and helpful in the debate on AT use in the care for (frail) elderly people. Other ethical approaches that view people as social and reciprocal might be more applicable and shed a different light on the ethical aspects of AT use.

PT - Review
PT - Systematic Review

Abstract: Many people with a cognitive impairment are likely to become lost at some stage of their illness; this can cause great distress to individuals and to their relatives. A range of different GPS location devices has become available recently. Although the technology itself is not complicated, it introduces a number of problems including battery management, device selection and returning the individual when they have become lost. This article describes good practice procedures based on experience of provision of GPS systems in Croydon for people with dementia. Practice procedures were developed relating to: referral; assessment; ethical considerations; integrated processes; review; geo-fences; and response procedures. Following these procedures, the response to the use of GPS by carers has been overwhelmingly positive, with self-reported increased peace of mind, and improved quality of life for both people with dementia and carers.

Abstract: The national Telecare Development Programme for Scotland was launched in 2006. Training and raising awareness are key issues for this programme. This article describes four practice and training guides published in 2010 by the Telecare Development Programme designed to promote the effective and ethical use of telecare for people with differing needs. The four guides are: Telecare and Learning Disability; Telecare and Dementia; Telecare and Physical Disability; and Telecare and Sensory Impairment. This article summarises the background to this initiative and the content of the guides. Several issues, such as the focus on specialist areas of need, the generic content and the apparent demand for this kind of publication, are discussed. The article concludes with some ideas for further publications, and reflection on the potential for converting these texts into an e-learning resource.

Abstract: BACKGROUND: The issue of using advanced tracking technologies such as Global Positioning Systems (GPS) is part of a wider debate on the acceptability of assistive technology to older people with dementia. The use of GPS can enhance the personal safety of older people by alerting caregivers to potential dangers or adverse events that might threaten the individual's health and safety, but at the same time it raises ethical concerns. This study examines the attitudes of cognitively intact older people toward the use of tracking devices for people with dementia. METHODS: The analysis is based on quantitative data from a convenience sample (n = 42) and qualitative data gathered from two focus groups of cognitively intact older people in Israel. RESULTS: Whereas cognitively intact older people clearly differentiate between themselves and people with dementia, they support the use of tracking devices when dementia is either formally diagnosed or its signs are evident. They value the safety of people with dementia above preserving their autonomy. Although they perceive the decision to use tracking devices as an intra-family issue, they expect guidance from professional caregivers of people with dementia. The acceptability of tracking devices is dependent on their appropriate weight, size and ease of use. CONCLUSIONS: Cognitively intact older people favor the idea of tracking people with dementia. To facilitate family decision-making on the use of tracking devices, structured meetings guided by professionals and including persons with dementia and their family caregivers are suggested.

Abstract: Approximately 40% of people with dementia wander from their home and become lost on at least 1 occasion and 5% repeatedly get lost. Global positioning system (GPS) tracking provides a possible means of locating the lost person with dementia, but throws up several ethical issues. This small study aimed to elicit a description of how GPS tracking is used by familial carers of people with dementia in domestic settings and to generate hypotheses about usage and impact. The sample was recruited through a single commercial GPS device provider. Qualitative interviews with 10 carers were completed to generate an in-depth description of how the devices were used and the perceived impact. The findings showed that most carers preferred to use tracking as a back-up to other strategies of management, particularly supervision by a carer and locked doors. In cases where the carers perceived the risk of harm from getting lost to be low, tracking was used to preserve the independence of the person with dementia. The carers reported that tracking gave them reassurance and also enhanced the sense of independence both for themselves and for the person with dementia. The poor reliability of the device was identified as a substantial limitation. The article concludes that larger studies are needed to assess the safety and clinical value of GPS tracking, and these should explore the views of people with dementia. Assessment tools and occupational therapy support could assist carers in decisions about suitability and usage.

(43) Robinson L, Brittain K, Lindsay S, Jackson D, Olivier P, Robinson L et al. Keeping In Touch Everyday (KITE) project: developing assistive technologies with people with dementia and their carers to promote independence. International Psychogeriatrics 2009; 21(3):494-502. Abstract: Background: The role of technology to facilitate independent living for people with dementia is not fully realized, with initial attempts (e.g. tracking devices) being considered unacceptable from a practical and ethical perspective. The aim of this study is to create acceptable and effective prototype technologies to facilitate independence for people with dementia through a user-centered design process involving them and their carers. Method: The study comprised a three-stage participatory design process: scoping stage (five focus groups, 10 people with dementia and 11 carers); participatory design stage (five workshops, 22 participants) and prototype development stage (four meetings with two people with dementia and one carer). Focus groups and workshops were digitally recorded, fully transcribed and subjected to constant comparative analysis. Results: People with mild to moderate dementia enjoy a variety of activities both on their own and with their families; however, concerns included getting lost, a loss of confidence with curtailment of usual activities, and carer anxiety. Existing technologies (mobile phones) were used intermittently. Participants felt strongly that future devices should be disguised and be integrated easily into their daily routines. Suggested areas for functional improvement included two-way communications, flexibility of function as the illness progresses, and something to "guide" them home when out walking or driving. Attention should also be focused on minimizing the size, weight and visibility of devices to reduce stigmatization. Conclusion: Prototypes for two devices (armband and electronic notepad) were developed. The study showed that involving people with dementia in the process of participatory design is feasible and could lead to devices which are more acceptable and relevant to their needs.
OR "DEMENTIA, VASCULAR"

2 CINAHL "ALZHEIMER'S DISEASE" 28885

3 CINAHL (1 OR 2) 62567

4 CINAHL "ASSISTIVE TECHNOLOGY" 3242

5 CINAHL exp "ASSISTIVE TECHNOLOGY DEVICES" 31922

6 CINAHL ("self* help device*").ti,ab 9

7 CINAHL (4 OR 5 OR 6) 34500

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9 CINAHL "HUMAN RIGHTS"/ OR "PATIENT RIGHTS"/ 18329

10 CINAHL (ethic*).ti,ab 56527

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12 CINAHL (3 AND 7 AND 11) 21

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