

Jotterand, F., Ienca, M., Elger, B., & Wangmo, T. (Eds.). (2019). *Intelligent assistive technologies for dementia: Clinical, ethical, social, and regulatory implications*. Oxford University Press, 320 pp. ISBN-13:9780190459802

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Edited by Fabrice Jotterand, Marcello Ienca, Bernice Elger and Tenzin Wangmo, this book is a comprehensive compendium aimed at providing an up-to date overview of the current situation in the art and science of intelligent assistive technologies (IAT) for dementia care. In the introductory chapter, the editors aimed at raising awareness of the use of IAT in dementia care and setting up a forum for developing international regulatory and policy framework.

Part I provided an overview of public health challenges associated with population ageing and the increase in the prevalence of dementia, the clinical aspects of dementia care, the associated costs and the potential benefits of IATs to overcome these challenges. Part II sought to critically discuss the psychological implications linked to the use of IATs in dementia care. Part III, critically discussed the major ethical and regulatory implications associated with the use of IATs in dementia care. Since this book is quite extensive, this review will critically discuss the most salient points that could be extracted from some of the chapters.

Astell and Semple, in Chapter 4, sought to answer whether the use of these technologies can meet the future global demands of dementia. After highlighting the main categories of technology innovation for dementia care, the authors argued that the potential of these technologies have been underexplored especially in low- and middle-income countries (LMIC), whilst most of these technologies have been developed and tested in high income countries. They argued that low-tech options such as smartwatches and mobile technology (e.g., mHealth), have the greatest potential in LMIC as they are desirable objects with good penetration and are relatively inexpensive.

In Chapter 6, Tenzin Wangmo sought to critically review the potential benefits of intelligent assistive technologies in reducing caregiver burden. According to the author, although there are many effective technologies such as Internet based and smartphone-based applications that have been found to reduce caregiver burden, many potential users do not know that these products exist or do not know how to access them partly due to digital illiteracy. Moreover,

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most of these applications usually do not include enough the views of the end-users such the views of persons with dementia and their informal and formal caregivers (e.g., health care professionals). It is interesting to note that whilst this book was being edited and developed, the Covid-19 pandemic necessitated the global application of these technologies to reduce caregivers' burden and social isolation.

As remarked in Chapter 7, the authors (Sugihara, Fujinami and Moryama), argued that these technologies need to be assessed from a person-centred perspective. Similarly, Hildt (Chapter 8), pointed out that there is a need to include more the perspective of the users' abilities, wishes and goals when developing and using IATs. The latter author, gave an overview of a number of guidelines all of which emphasize the importance of putting the interests and wellbeing of the person with dementia first when deciding for using these technologies. In her review, Hildt also highlighted the need to test the effectiveness of these technologies in real life rather than in solely rely on the validating them in laboratory settings.

The seven chapters in Part III, touched upon a number of relevant ethical dilemmas concerning the use of IATs and dementia care. Chapter 9 (Elger), critically discussed the ethical concerns on how to balance beneficence and respect for the right of autonomy. Chapter 10 (Novitzky, Chen, Smeaton, Verbruggen and Gordijin), described the challenges of obtaining an informed consent for clinical research and practice when using IATs. They also identified the different types of informed consent that could be obtained from persons with dementia and their caregivers, such as rolling informed consent, advanced directives, delayed and dynamic consent. Jotterand, in Chapter 11, provided an interesting philosophical thesis about the use of neuroprosthetics to maintain personal identity, and acknowledged the importance of embodied and relational identity to maintain identity integrity which may be hard to achieve using the current technologies.

Mahoney (Chapter 12), discussed some ethical dilemmas that they met when conducting technology-based research studies and concluded that the they did not experience any major harm as perceived by technology critics. The latter author argued that like any other tool, 'technology is neither inherently harmful nor beneficial'. They pointed out that dismissing opportunities for older adults to use technologies is intrinsically ageistic and coined the word 'technoageaphobia' (i.e., the generalization that older adults, fear and do not want, or need to be protected from technology).

In Chapter 13 (Ienca and Villaronga), ambient assisted living, wearables and service robots were taken as examples of IATs to discuss the ethical issues of balancing the right of privacy whilst safeguarding the person's safety and security. According to the authors, they recommended that the quantity/quality of data collected and degree of intrusiveness should be explicit to the goal/purpose of the technology and should seek to promote the user's best interest. On the other hand, Chapter 14 (Robillard and Feng), discussed these ethical issues from the perspectives of web and mobile based technologies. The ethical obligation of safeguarding quality of online information about the risk factors and treatment/'cures' of dementia was discussed, especially since low-quality advice can be potentially harmful. Secondly, accessibility of high-quality information was also described as an ethical imperative

which can be challenging for older persons with lower e-health literacy. Other ethical issues discussed in this chapter included; consent, privacy, conflict of interest, patient-physician relationship and the societal implications. The importance of involving end-users early on in technology development was also stressed. The last chapter provided a comprehensive overview of the regulation of gerontechnology especially in United States and acknowledged the need for a comprehensive and integrated set of regulations set up by a single regulatory body and the need for cross-fertilization of ideas across different disciplines.

In conclusion, this book provides the reader with the complexity and challenges associated with the application of technology in dementia care. However, as explained in the epilogue (Wangmo & Ienca), the future of dementia care does not only depend on the development of technology, but on the ethical issues, societal discussion and regulatory bodies governing their development and utilization.