



When robots care: Public deliberations on how technology and humans may support independent living for older adults



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ARTICLE INFO

Keywords:

Canada
Robots
Health technology
Independent living
Home care
Aging
Public engagement
Qualitative research
Empirical ethics

ABSTRACT

While assistive robots receive growing attention as a potential solution to support older adults to live independently, several scholars question the underlying social, ethical and health policy assumptions. One perplexing issue is determining whether assistive robots should be introduced to supplement caregivers or substitute them. Current state of knowledge indicates that users and caregivers consider that robots should not aim to replace humans, but could perform certain tasks. This begs the question of the nature and scope of the tasks that can be delegated to robots and of those that should remain under human responsibility. Considering that such tasks entail a range of actions that affect the meaning of caregiving and care receiving, this article offers sociological insights into the ways in which members of the public reason around assistive actions, be they performed by humans, machines or both. Drawing on a prospective public deliberation study that took place in Quebec (Canada) in 2014 with participants (n = 63) of different age groups, our findings clarify how they envisage what robots can and cannot do to assist older people, and when and why delegating certain tasks to robots becomes problematic. A better understanding of where the publics draw a limit in the substitution of humans by robots refocuses policymakers' attention on what good care entails in modern healthcare systems.

1. Introduction

Who programs [the robot] Tim? Is it people who don't want to help us anymore and put a program in Tim that'll avoid getting in touch with a neighbor who might offer to do some groceries for us. It'll rather send Tim? And on evenings, it's Tim that'll come to tuck us in bed and give us a kiss on the cheek and say "good night"? (Justine, W1).

In recent years, assistive robots have received growing attention as a potential solution to support older adults to live independently (Shishehgar et al., 2017). Robots typically target activities that become more difficult or less safe to perform as we age (Bedaf et al., 2014; Smarr et al., 2014). For example, robots at an advanced stage of development or on the market may provide physical assistance, remote monitoring and safety alerts and companionship (Broadbent et al., 2009, 2012; Robinson et al., 2016). Yet, as the growing interest in assistive robots takes on many technology-push characteristics, scholars raise attention to the underlying social, ethical and health policy assumptions. One perplexing issue is determining whether assistive robots should supplement caregivers or substitute them. For Archibald and Barnard (2017), because assistive robots target daily living activities

such as feeding patients, bathing and administering medication, they challenge the role of professional caregivers who are responsible for the tasks robots could “take over” (Coeckelbergh, 2010). Although assistive technologies for independent living are often rejected on the grounds that they dehumanize care (Archibald and Barnard, 2017), Coeckelbergh (2015) calls for a critical examination of what “good care” entails and of the way robots may transform the meaning and authenticity of care.

In light of these implications, it is important to explore the perceptions and preferences of potential users, i.e., older adults living at home and their informal caregivers, as well as the views of the publics more broadly. Studies that gathered the views of potential users tend to support the claim that robots should not replace caregivers, but may supplement them by performing certain tasks (Bedaf et al., 2017; Smarr et al., 2012, 2014; Wang et al., 2017; Wu et al., 2016). This observation begs the question of the nature and scope of the tasks that can be delegated to robots and of those that should remain under human responsibility, considering that these tasks entail a range of actions that are likely to transform the experience and meaning of care.

Drawing on a prospective public deliberation study that took place

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in Quebec (Canada) with participants ($n = 63$) of different age groups, the aim of this article is to offer sociological insights into the ways in which members of the public reason around assistive actions, be they performed by humans, machines or both. Before describing our qualitative methodology, we clarify below the knowledge gap our study addresses and our theoretical approach. Our findings then examine how participants envisage what robots can and cannot do to assist older adults as well as when and why delegating certain tasks to robots becomes problematic. Our discussion highlights how a better understanding of where the public draw a limit in the substitution of humans by robots refocuses policymakers' attention on what good care entails in contemporary health systems.

1.1. Examining what robots can do for older adults

The literature that examined the feasibility and acceptability of using robots to assist older adults has sought to identify, on the one hand, the everyday living tasks upon which independent living relies and, on the other hand, whether potential users would accept robotic assistance for such tasks (Beer et al., 2012; Neven, 2010; Smarr et al., 2012, 2014; Wang et al., 2017; Wu et al., 2016). For instance, to inform the development of their robotic assistance system, the ACCOMPANY (Acceptable robotiCs COMPanions for AgeiNg Years) research team reviewed the literature and conducted focus groups with potential users (Bedaf et al., 2014; Draper et al., 2014). At a later stage of development, the group gathered additional quantitative and qualitative data showing that informal and formal caregivers as well as older adults were generally positive and that half of the 10 home care recipients recruited in their study would prefer to receive support from a robot (Bedaf et al., 2017). One of the biggest perceived advantage of the robot was to be available during the whole day. Those who preferred care delivered by humans underscored the importance of social interaction as “they liked to have a chat with their carer and were not willing to give this up” (Bedaf et al., 2017, p.6).

Smarr et al. (2012) examined user acceptability around three categories of daily activities that need to be performed for older adults to live independently: self-maintenance (e.g., ability to bathe, feed, dress, ambulate, etc.); instrumental (e.g., manage medications, run errands, use transportation, etc.); and enriching activities (e.g., participate to social life, engage in hobbies, etc.). Analysing survey data and focus groups with older adults, these authors observed that robotic assistance was preferred for certain instrumental activities such as chores, manipulating objects or medication reminders and human assistance was preferred for certain self-maintenance activities such as personal care, drug administration and leisure (Smarr et al., 2014). Similarly, for participants interviewed by Bedaf et al. (2014), tasks that were considered as too delicate to be delegated to a robot included self-maintenance activities such as showering, toileting and getting dressed.

Important nuances were brought by scholars who explored assistive technologies in their context of use. Berridge (2017) showed how the very few adopters of a passive monitoring system manipulated the device to their own ends. For instance, after a fall, one user dragged herself on the floor to give the impression of movement and thus avoid an automated emergency call. Other users transformed calls to the technical operators into chatting opportunities, thereby reducing their sense of isolation. Through an ethnographic study, Greenhalgh et al. (2013) observed that what matters the most to older people with assisted living needs is preserving relationships with family and friends, and the sense of personal fulfillment that comes with doing and making things by oneself. In fact, while potential users may voice positive remarks about assistive robots, they may strongly believe that it is “obviously” not for them, but for those whose autonomy is more greatly compromised (Neven, 2010; Wu et al., 2016).

Among the fewer studies that explored the attitudes of the broader public (Dautenhahn et al., 2005; Ezer et al., 2009), Bechtold et al. (2017) performed a secondary analysis of prospective technology

assessment studies, which indicated that experts tend to emphasize the value of technological solutions and citizens seem concerned with the costs and impact of these solutions on healthcare services.

Overall, the current literature tends to support the notion that assistive robots may supplement human assistance, but in ways that remain unclear. As Coeckelbergh (2015) underscores, the delegation of care actions to robots is a “matter of degree” and it is thus important when thinking about the tasks they could perform to examine the organizational context in which they would be introduced: modern healthcare embodies efficiency and evidence as core values and service provision is often divided into smaller units that can be formalized, objectified and optimized. Hence, be they performed by robots or humans, care actions are shaped by the political and economic logics underlying “whose priorities prevail and how problems are defined” (Berridge, 2017, p.17) when it comes to the financing and provision of home care services.

The premises underlying the literature that has examined the feasibility and acceptability of using robots to assist older adults have been criticized because it typically frames the aging process as inherently negative and older adults as vulnerable individuals (Neven, 2010; Peine et al., 2015). An overly pro-innovation discourse, which may be explicitly or tacitly embedded in the technological solutions being developed, may partly explain why potential users reject these solutions either because they do not identify with the “target” group (Berridge, 2017; Neven, 2010; Neven and Peine, 2017) or because the type of independence they promote conflict with their aspirations (Peek et al., 2017). In addition, technologies that enable independent living are often framed as the best or only solution to an imminent health services “crisis” that would be caused by a growing population of older adults (Neven and Peine, 2017). By portraying innovation and assistance to the “vulnerable elderly” as inherently good endeavours (Neven and Peine, 2017), this literature tends to legitimize a commercial technology push to the detriment of alternative solutions (Bechtold et al., 2017; Greenhalgh et al., 2013; Neven and Peine, 2017).

By adopting a Science and Technology Studies (STS) perspective, the goal of this article is thus to contribute new sociological insights into the meanings the public attribute to assistive actions, be they performed by humans, machines or both. STS scholars acknowledge that health technologies are not neutral as they transform, modify or reinforce human perceptions, values and practices (Lehoux, 2006; Östlund et al., 2015). More specifically, for Collin and Kush (1998), many actions that are typically performed by humans may be happily delegated to machines when humans are *indifferent* to the ways in which these actions are executed (e.g., washing dishes). There are other actions where substituting humans by machines becomes impracticable, not because of their technical complexity, but because their social signification is altered. For example, would a love letter still be considered an authentic love letter if it had been written by a robot? Perhaps, if one's partner possesses all the attributes of Officer K, the “replicant hunter” in the movie *Blade Runner 2049*. Otherwise, this type of delegated action, no matter the time and energy it may save, would defeat its purpose.

To summarize, to fill a gap in current knowledge, our study aims to flesh out the reasons why robots may be perceived as good candidates for substituting humans in certain actions and supplementing them on other matters and to critically examine the social, ethical and health policy assumptions at play.

2. Methods

2.1. Study design

Our multimedia-based deliberative study was inspired by Boenink et al. (2010) who developed prospective scenarios to analyze the shifting social and ethical issues raised by new health technology. To explore emerging issues that affect publics of different age groups, we

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