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Ethics of Care and Robot Caregivers

ROSANGELA BARCARO
Assistant librarian at C.N.R., Genova, Italy; Ph.D. student in Humanities,
Alma Mater Europaea, Maribor–Ljubljana, Slovenia
rosangela.barcaro@cnr.it

MARTINA MAZZOLENI
Assistant librarian at C.N.R., Genova and at C.A.I., Torino, Italy

PAOLO VIRGILI
Independent researcher

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ABSTRACT: Recently there has been a surge of interest in artificial intelligence (A.I.) and its possible developments and applications. Some of them are related to healthcare devices and medical equipment, that can assist physicians in improving their diagnostic skills. Others are conceived to be used in a particular branch of robotics. Until recently, human beings have been applying technological instruments and devices in what we could define as a "passive" aid mode: artefacts being used by human subjects to affect other humans. Recent development of a specific kind of robot designed to take care of chronically ill patients and/or elderly people are challenging previous ideas of caregiving, since these new technological devices can be designed to act autonomously. This development opens an entirely new area of bioethical analysis and the possibility of a transition to a post-human dimension of caregiving. This transition might impact directly the meaning of caring for aging humans and chronically ill patients. This paper will explore new ways of caring for human beings using robotic caregivers in light of ethical problems/questions of respect for human dignity and the feelings of vulnerable people – particularly the elderly – and conclude with a sketch of a proposal concerning their appropriate use in the future of healthcare.

KEY WORDS: Artificial intelligence, bioethics, chronically ill patients, elderly people, healthcare ethics, human caregivers, robot caregivers.

Introduction

Recently there has been a surge of interest in artificial intelligence (A.I.) and its possible developments and applications. Some of them are related to healthcare

devices and medical equipment, that can assist physicians in improving their diagnostic skills. One especially fascinating example of such developments is the robotic surgeon, which can be remotely controlled by a professional living in one country to perform surgery on a patient in another country, collapsing the space between them and rendering travel unnecessary.

Research projects and practical achievements in A.I. show an increasing number of possible applications that might deeply affect individual lives in both practical as well as moral ways. Turkle (2011) offers two examples of the employment of robots as companions for children and as caregivers for elderly people. The widespread acceptance and implementation of these practices is already having an impact that will undoubtedly continue into the future, and for this reason calls for a careful analysis of their theoretical and practice effects on human caregiving and consideration of their possible uses going forward.

This paper has a limited purpose: to deal with the moral dimension of robotic caregiving and pose a series of open-ended questions. More and more European countries are experiencing the increasingly acute problem of an aging population in need of care – a problem that not only bears directly on the evolution of healthcare systems, but that will also have a deep impact in the coming decades on individual, economic, political and social dimensions of life. The search for suitable solutions to an aging population will certainly affect both general policies and the moral decisions of individuals.[1] If robot caregivers are developed with the aim of assisting the elderly, their relatives and/or human caregivers in order to better ensure skilled assistance in everyday life and improve the overall quality of life for humans, the issue of the management of the basic needs of the world's aging population will be solved. However, other basic human needs (e.g. psychological and emotional needs) will also have to be addressed. Robot caregivers can effectively manage some basic material needs, as we shall see, but are they capable of providing assistance that responds to other, "immaterial" needs?

Caring and curing

What is usually the aim of caring? Where does the idea of caring come from? What are the peculiarities that differentiate caring itself from related concepts like curing?

[1] See the United Nations reports on population and migration, which includes a useful tool called the Population Pyramid that helps to map the trends of global populations by gender, age, population density for individual countries, migrants and so on from 1950 to 2100. In Western countries, and in industrialized countries in general (e.g. Japan), people are living longer while birth rates are decreasing. This means that there is an increasing number of people growing older and a decreasing number of young men and women available to help care for the elderly.

The *ethics of care* approach emerged in the Eighties of the last century, with the research of Carol Gilligan – a student of the psychologist Lawrence Kohlberg – in her attempt to challenge her teacher's theory of moral development in women and the Sigmund Freud's assumption that the moral development of women is lower than that of men (Gilligan 1982). From her research and critiques she derived a theory that explains the different approaches to moral reasoning observable in men and women: men ground their moral reasoning on *rights*, women on *care*. After studying and researching moral development in adolescents, Gilligan concluded that boys are more prone to use concepts like duties and justice and adopt a normative moral approach, whereas girls are more likely to regard responsibility, feelings, and the relationship dynamics of the particular context in which they are acting as primary. For Gilligan, these "voices" are different, none of which is superior or inferior to the other.[2]

Building on Gilligan's work, Nel Noddings developed an ethical theory that accentuates the natural caring attitudes of human beings, prototypically found in women and children. In Noddings' perspective (1984), the caring relationship is ontologically grounded, and every human being lives in personal relation with other human beings in an irreducible matrix of choices, feelings and interactions that mutually impact and shape the human subject. Relationship and dependency are the central and nuclear concepts applied to the understanding of human caring in Nodding's view: two human beings, the "one-caring" and the "cared-for," enter into a relationship in which the first responds to a need that is manifested by the second, thus establishing a commitment to help that is, in Nodding's view, ontologically grounded in moral virtues like compassion.

The moral theory of caring represents a very fruitful approach to bioethical analysis and environmental ethics, to name just two examples, insofar as it is a powerful alternative to consequentialist/utilitarian and deontological/Kantian ethical theories, which understand human beings as autonomous agents and emphasize a more impersonal and aseptic mode of moral decision-making. While Nodding's emphasis on maternal care as a model of caring contains many fruitful nuances, the idea of caring might be beneficially explored and developed by considering other approaches as well.

One such approach is Martha Nussbaum's capability approach applied to care. Nussbaum writes that care is a set of activities that may differ from each other depending on the conditions of those receiving the care. Taking

[2] For a general introduction to the ethics of care see Collins (2015); Saunder-Staudt (2017); Tong and Williams (2016). A collection of papers by Barnes et al. (2015) may help to widen the perspectives on the ethics of care in an international setting.

care of children, with or without impairments, is different from caring for elderly people, which in turn is different from caring for adults with a temporary or permanent impairment or disease. The needs and desires of these groups are basically different, as are their lives and physical conditions.

For Nussbaum, the challenges of providing care for people with impairments and disabilities are vast, affecting virtually every family in every society. There are a lot of people whose health, participation, and self-respect are at stake in the choices we make when it comes to caretaking. Meeting these needs in a way that protects the dignity of the recipients would seem to be one of the most critical concerns of a just society (2006: 101).

In Nussbaum's perspective, caring for people with disabilities – a very specific category of persons in need – is strictly connected to protecting personal dignity and social justice.

For the purposes of this paper, we must bear in mind the three variants of caring illustrated above and assume that caring is not simply a matter of providing some basic customized assistance to infants, children, patients or elderly people, any of whom may be impaired by disabilities. Caring is, rather, a moral action that, as Virginia Held (2006: 3) states, develops "on the basis of experience, reflection on it and discourse concerning it, an understanding of the most basic and most comprehensive values."

These values might receive differing emphases in the different ethical perspectives on care that we have introduced, which in turn can shape a different relationship between the one caring and the one being cared for. This means that there is no single standard of care – an important point to bear in mind when we discuss the advent of robot caregivers.

A second important point is the distinction between caring and curing. Curing is the set of activities related to the restoration of health and concerns the more technical dimension of treating illness and disease through surgery, therapy, pharmaceuticals and the like. Unlike caring, curing is not always possible, and unfortunately there are many cases in which modern medicine fails to provide curative therapies for illnesses (e.g. Alzheimer's disease).

Who is supposed to be helped by robot caregivers?

People who need to be cared for may be divided into several types. Here we will confine our discussion to the case of elderly people, excluding consideration of other groups, such as children. The first step of our analysis takes the form of a warning: not all elderly people are patients if by "patient" we mean "people in need of healthcare"; and no a priori identification can or should be made between the elderly and patients.

Most elderly people are moral agents who can be ascribed to one of three categories: those capable of maintaining their capacity to act in a moral and individually autonomous way (the fully agential elderly); those who have a disability that does not affect their autonomy or moral agency (the disabled but fully agential elderly); and those who are autonomous moral agents but require assisted living outside of hospitals and residential healthcare facilities (the seriously ill but still fully agential elderly). There is remaining group, constituted by patients totally incapable of moral choice or of having an independent life (e.g. elderly people with dementia). If we exclude the latter, the former three categories of people may, to differing degrees, benefit from a robot caregiver.

What kind of caring do the elderly people who fall into one of these three categories need? Several answers are possible. We might, for example, answer that they need to be empowered to carry out their everyday lives. This may especially be the case for impaired elderly people or for those pursuing an independent life through the use of technology. Draper and Sorell (2014) collected and analysed contributions from several groups of people (including both patients and caregivers) in different countries in an effort to better understand and define the problems related to the use of robots in healthcare, taking into consideration the needs and desires of the people being cared for. According to their reasoning, all patients have basic needs, including respect for their autonomy, safety, enablement, independence, privacy and social connectedness. We may add other needs to this list as well, such as sensitivity to cultural differences, religious beliefs, hobbies and habits. All of these considerations must be taken into account when it comes to the caring needs of the elderly and the question of the possible uses of robot caregivers.

The considerations so far discussed allow us to set up a complex framework in which various conflicts may arise (e.g. the elderly person refuses a caregiver, whether human or robotic, and wants to live on her own at home). This framework is not yet complete, however, since it does not take into account relatives and their needs or what they may perceive as duties to their elderly parent(s), and for whom physical, emotional and psychological conflicts and problems often arise.

In order to cope with possible conflicts and problems, we need a wider approach that puts the individual at the centre, but that also includes the needs of her family and friends.

Customisation is one option to consider when it comes to robot caregivers. Customized robots may be useful for patients who, for example, only need to be reminded to take their medication or to be helped with personal care routines. As Sharkey and Sharkey (2012: 38) state: "Sensitive customisation is likely to be needed in order to ensure a positive effect on the quality of life of the elderly." Santoni de Sio and van Wynsberghe (2016: 1747) propose

the idea of a "Care-Centered Value Sensitive Design approach," a design of caretaking robots that stipulates that "(care) values should be embedded in the design of (care) technologies" through which a specific ideal of care is incorporated into the design of the caretaking robot.

The goal of improving the quality of life of the patient may require that the robot caregiver be used as a means to an end (or goal) defined by the individual and/or her human caregivers: robot caring remains an important component of the process of caregiving thanks to its ability to carry out specific tasks in an optimized way. This choice also entails that some activities ethically centered on the cared-for individual be performed by her human caregivers. According to this approach to the ethics of care, true caretaking is only possible between and among human persons, since only human relationships have the potential to shape moral decisions in the framework of a mutual relationship between the one-caring and the cared-for. Glances, hugs and silences are among the elements that shape the caring relationship and transmit compassion, participation, happiness or sadness.[3] These functions cannot be adequately implemented in robots, and even if they could be they might not *feel* real or genuine, as the human patient receiving such gestures is aware that they are merely the programmed actions of a machine. The sense of the ethics of care and the constant shaping and reshaping of the relationship between the one-caring and the cared-for is something that can be accomplished only through human behaviour, not in algorithms.

Which care?

Even if there are limits to how much interpersonal affection robot caregivers can impart to humans, they can still help the elderly and their human caregivers by contributing to their overall of quality of life. They can, for example, reduce fatigue by moving an impaired elderly person from a bed to a wheelchair, but they cannot judge on their own if in a given situation it is better that the elderly individual stay in bed and get some rest or if she would be better served by physical activity.

Robots perform tasks, and any attempt to use them may present problems for patients. This is true in general, both for present technologies and

[3] Some readers might appoint that the case of violence against elderly and impaired people would be avoided if the care givers were not human. Certainly, this is a good consideration, to which ethics of care cannot reply. In this paper we supposed that caring involves compassion and desire to help, and we didn't discuss the issue of violence. We can only agree that a robot caregiver would be a better substitute for a violent and uncaring human being, that works for the paycheck only and isn't interested in the well-being of the care-for, or even for a relative of the care-for that perceives the caring as a heavy burden.

for technologies to come. The main problems arise from the relationship between the robot and the cared-for, and studies clearly show that related issues are primarily psychological, though arising from material needs (Bedaf et al. 2014).

Aged people today might not be very familiar with this kind of technological assistance, but we cannot exclude the future possibility of robot caregivers in better trained and more technologically advanced populations to come.

Even if robots are not genuinely caring for people, they may offer valuable help to human caregivers. In connection with this, we address a problem previously underlined by Nussbaum (2006: 102):

> [I]t used to be assumed that all this work [of caring] would be done by people (specifically, women) who were not full citizens anyway and did not need to work outside the home. Women were not asked whether they would do this work: it was just theirs to do, and it was assumed that they did it by choice, out of love, even though they usually had few choices in the matter.

As Nussbaum points out and the traditionally assigned social roles continue to persist, the woman is still the main responsible of care for children, parents, family members with chronic diseases and/or disability.[4] This is a demanding task and some help may be welcomed by the caregivers.

So, we may ask: is it possible to customize a robot caregiver to preserve moral values and human needs, both of the caregiver and the cared-for? Until now, attention has mostly been paid to the care-for, but our proposal contemplates an active collaboration among the human agents and robot caregivers involved in the total caring relationship. This implies a major concept: the robotic caregivers must not be a mere diminished copy of human caregivers – presumably with less overall "human" peculiarities – but rather must fully exploit the whole set of technological features that make them different from humans and in some fields even superior. Robot caregivers have strengths that human beings do not. They do not, for example, feel fatigue, frustration or anxiety, and for this reason they are extremely valuable resources.

For human agents, it is easier to rely on robot caregivers if they "know" their artificial helper and engage in a more symbiotic way with it. This knowledge may improve and even speed the development of A.I. in the framework of caring for elderly and impaired people. If we suppose that A.I. – at least the kind used to interact "intelligently" with people in need – reflects in

[4] As an example of a very rich literature on the topic, see a recent study by Grigoryeva, who analyzed the elderly care in U.S.A. The scholar found that (2017: 129) "a gender gap in the amount of time that men and women spend on providing care to their elderly parents" is present, and daughters provide more care for their parents then sons.

some way or transfers into action some moral human values (because robots are human creations), we have to reflect on what we are doing today in order to drive unprecedented scientific and technological development towards the kind of society we would like to live in tomorrow. Such a normative effort, in our opinion, cannot be shaped without a more comprehensive project concerning future societies: it is necessary to hypothesize new forms of engagement and collaboration between researchers, engineers, caregivers (both human and robotic), citizens, politicians, industries and shareholders of economic interests. Continuous scientific and technological development requires corresponding continuous adjustment of the pathways and goals we might consider in the total caregiving relationship, which are not fixed once and for all, but are constantly evolving through confrontation among stakeholders.

From robotech labs to bedsides

Different solutions to a set of technical problems relevant to engineers and technicians represent yet another interesting aspect of engineering robots (Kanda and Ishiguro 2013) and their deployment in a social context involving human interaction. On this count, the achievements that A.I. scientists have reached are almost countless and certainly astonishing. Introducing and applying solutions (e.g. the use of robots and the tasks they can autonomously accomplish) and coping with the moral questions that emerge from the practice (e.g. the respect of human values in relation to robotic caretaking) constitute an ulterior cluster of concerns that need to be addressed. The literature dedicated to both types of analysis is quite impressive, and some criticism concerning the use of robots in the care of elderly people has already been pointed out – particularly the problem of disengagement resulting from assistance administered by machines and the issue of the preservation of human dignity in people left alone with a robot caregiver without any human contact. These analyses and criticisms have been extensively debated (see Sparrow and Sparrow 2006; Sharkey and Sharkey 2012; Coeckelbergh 2016).

Future scenarios in which robots play the role of caregivers might be the destiny of countries in which the population is living longer and growing older, and where a large number of chronic illnesses requiring continuous care are widespread within the population. This is not a remote possibility: it might be the fate of those who grow old and have no relatives to help them. How do we preserve the moral meaning of caring when a mere technical activity is performed by robots without any human caregivers? How can we imagine new dimensions of caring for elderly people or chronically ill patients?

Will we be forced to rethink caregiving as something that potentially excludes human contact, personality, and relationality?

We do not know the answers to these questions, but in our uncertain tumble towards a "post-human" society more compliant with technological development, as well as inclusive of entities that are different from human beings (e.g. animals and robots), we appear to be pursuing the goal of eliminating some meaningful human interactions in the realm of caregiving.

These questions address something beyond issues in healthcare quality or moral concerns regarding patient privacy, freedom, autonomy and dignity, to name just a few concerns that dominate the current discussion. Something is at stake in these questions that overtakes issues of the security and compliance of robots in caregiving. It is our view that relationships between human beings and robot caregivers is in urgent need of further exploration.[5]

Bibliography

Barnes, M. et al. 2015. (eds.). *Ethics of care. Critical advances in international perspectives* (Bristol: Policy Press).

Bedaf, S. at al. 2014. Which activities threaten independent living of elderly when becoming problematic: Inspiration from meaningful service robot, *Disability and rehabilitation. Assistive technology*, 9(6), 445–452.

Coeckelbergh, M. 2016. Care robots and the future of ICT-mediated elderly care: a response to doom scenarios. *AI & Society*, 31(4), 455–462.

Collins, S. 2015. *The core of care ethics* (London: Palgrave Macmillan).

Grigoryeva, A. 2017. Own gender, sibling's gender, parent's gender: the division of elderly parent care among adult children. *American Sociological Review*, 82(1), 116–146.

Kanda, T., Ishiguro, H. 2013. *Human-Robot Interaction in Social Robotics* (Boca Raton (FL): CRC press).

Held, V. 2006. *The Ethics of care: Personal, Political, and Global* (Oxford-New York: Oxford University Press).

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Noddings, N. 1984. *Caring: A Feminine Approach to Ethics and Moral Education* (Berkeley: University of California Press).

Nussbaum, M. C. 2006. *Frontiers of justice. Disability, nationality, species membership* (Cambridge, MA; London, UK: Belknap Press).

Population Pyramids of the World from 1950 to 2100 https://www.populationpyramid.net/ [accessed November 20th 2017].

Santoni de Sio, F., van Wynsberghe, A. 2016. When Should We Use Care Robots? The Nature-of-Activities Approach, *Science and Engineering Ethics*, 22(6), 1745–1760.

Saunder-Staudt, M. 2017. "Care ethics", *The Internet Encyclopedia of Philosophy*, http://www.iep.utm.edu/care-eth/#SH1b [accessed November 20th 2017].

Sharkey, A., Sharkey, N. 2012. *Granny and the robots: ethical issues in robot care for the elderly*, in "Ethics and Information Technology", 14, 27–40

Sorell, T., Draper, H. 2014. Robot carers, ethics and older people. *Ethics and Information Technology*, 16, 183–195.

Sparrow, R. Sparrow, L., 2006. In the hands of machines? The future of aged care, *Minds and Machines*, 16, 141–161.

Tong, R. Williams, N. 2016. "Feminist Ethics", *The Stanford Encyclopedia of Philosophy*, https://plato.stanford.edu/archives/win2016/entries/feminism-ethics [accessed November 20th 2017].

Turkle, S. 2011. *Alone Together. Why We Expect More from Technology and Less from Each Other* (New York: Basic Books).