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Robots As Caregivers: The Future Of Human Connection In An Automated Society

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Abstract:

The world system has begun to experience an ageing population and the inaccessibility of caregivers to offer services to the individuals in the world, thus the invention of robot caregivers. It will make its judgment based on the reality that the robots will also prove to affect the caregivers and his/her role in the more automated society as a result of human bonding. It considers the ethical, emotional, social, technological, and economic nature of robotic caregiving, based on historical research. Some of the opportunities provided by robots include Paro, Pepper, Lovot, Hobbit, and Care-O-Bot, which can be implemented in the field of decreasing the degree of loneliness, enhancing the mood, and assisting professional caregivers. Nonetheless, the struggle is not in its midst to provide the moral application, emotive rationality and healthfulness, and justifiable accessibility. The large-scale integration also cannot be done due to technological and cost barriers. The reason is that the desire to substitute human care with robots is not meant to personalize and moralize the care. Otherwise, the interdisciplinary cooperation and cooperation in Policy intervention will be instrumental in the process of resulting in a compromise of automation and compassion, dignity, and the need to give actual human contact in the process of caring of the elderly as the technology of robots continues to develop.

Keywords: Robot, ethics, ageing, caregiver, Paro, Lovot, loneliness

I. INTRODUCTION

Aging is on the rise in the world, and this is rendering it unaffordable for professional caregivers and long-term care. According to Orbitz (2021), the population of individuals who are over sixty years old and older has ever surpassed more than two billion, and by 2050 years of age, it is expected to increase to two billion. Many countries, including Japan, the United States, and much of Europe, face severe caregiver shortages, prompting investment in technological solutions such as socially assistive robots. One such example is the implementation of the government initiatives that circulated across Japan with an aim of installing the robots in their nursing homes to alleviate the problem of staff shortage in nursing homes and relieve the elderly (Su, 2025).The robot caregivers are also useful when it comes to the functional and emotional needs and support, and can also be utilized in assisting the socially isolated persons in their non-residential engagements, and most importantly, companionship. These are known as Paro, which is the so-called therapeutic seal robot, which gives patients with dementia some comfort (Hung et al., 2019), or humanoid robots (Pepper and NAO/Zora) that would assist in the rehabilitation and recreation process (Ayelet Dembovski et al., 2021). The new tendencies in the field of artificial intelligence (AI) and machine learning have also preconditioned advances towards the capabilities of the robots to discern speech, learn how to feel, and talk to people naturally. The entry of robot caregiving, however, is something that brings in extreme existential and psychological doubt. Can we replace or even actually imitate the understanding, the sympathy, the compassion that is at the center of human care by a machine? Are the people exposed to

the risk of getting emotionally dependent, of losing face or losing human contact because of advanced age? What was found out is that the technologies do not aim to replace the human caregivers but supplement them (Gkiolnta et al., 2025). A synthesized overview analysis of the current evidence of the area of investigation and the availability of literature regarding robotic caregiving, begs to differ, in respect to the ethical, emotional, social, technological, and economic factors (Adeyemo et al., 2025).

II. LITERATURE REVIEW

The models that emerged as the pioneer ones were models innovated to develop the new robotic caring systems that took effect in the field of health care and the eldercare field. They can be broadly divided into socially assistive robots (SARs), which promote engagement and emotional support, and service robots, which assist with mobility and physical tasks. Recent umbrella reviews and systematic analyses show that socially assistive robots can enhance well-being, alleviate loneliness, and reduce caregiver burden (Adeyemo et al., 2025; Persson et al., 2021).

Socially Assistive Robots The robotic seal, Paro, a therapeutic seal invented in Japan, is one of the most popular therapeutic robots under study. As it has been concluded, the advantages of Paro socialization are the improvement of the agitation state, stress, and medication use of dementia care (Mervin et al., 2018; Hung et al., 2019). The residents of Paro can even keep it as a pet, and as such, this can result in an emotional attachment and sensory treatment. However, the instances of emotional dependency or discomfort among the participants, especially when not being engaged with the robot, are also present, and the nature of being in contact with the robot needs to be established on a long-term, well-structured basis, as well (Hung et al., 2025).

On the same note, humanoid-shaped robots include Pepper or NAO/Zora that have been deployed to care homes and have been used in the process of group training, cognitive training, and superficial physical training (Ayelet Dembovski et al., 2021).

Assistive Mobile Robots Hobbit and the Care-O-Bot robots are the products of the assistive home robots and mobility robots. The field experiment, which entailed a group of 16 privately owned households in Europe, also indicated that the older individuals were more disposed to the introduction of the mobile service robots to obtain different types of notifications, locate objects, and keep track of their safety (Bajones et al., 2020). The respondents mentioned the robots as good friends, although the majority of them said that it had to be extremely limited and approachable to the user. The denouements build the referents of customer-centered design and the adaptability to individual wants a point of view. Generally, anxiety exists in the literature. It can be determined that the possibility of enhancing the quality of life is with the assistance of the robot, mostly in the case of dementia and rehabilitation scenarios, though there is a need to integrate their effectiveness into ethical matters, employee motivation, and structural trustworthiness. With this evolution of research, however, there has occurred a shift to long-term application rather than novelty to supplement human care giving.

III. METHODOLOGY

This study conducts an integrative narrative review (2018-2025) of robotic caregiving in elder care. We searched PubMed, Scopus, Web of Science, and Google Scholar. Inclusion: peer-reviewed human studies and reviews in elder-care settings reporting ethical, emotional, social, technological, or economic outcomes. Data were thematically synthesized; higher-rigor designs were weighted more heavily.

IV. DISCUSSION

Ethical Considerations in Robotic Caregiving Autonomy, consent, dignity, and privacy are the two pillars of support of ethical robotic caregiving. Gkiolnta et al. (2025) state that the introduction of machines in the nursing space should not endanger human values. What they fear is the fact that the robots will be used irrationally to displace the caregiver, rather than having them use it to help them, and they will be emotionless or depersonalized. It is the other ethical dilemma of informed consent. Most of the aged care service recipients, especially the dementia patients, cannot provide normal consent. The researchers would recommend the application of the provisions of the assent-based models where the individuals who are involved in care, perhaps, can read between the lines and able to communicate orally and non-orally in a way that would be able to reveal information about the individual, whether he/she is relaxed or not (Hung et al., 2025). It is also practical in the respect of being watched at all times as well as being free. The other significant problem is privacy. Data can be gathered using audiovisual data collection can be accomplished by the process of foraging robots to move or search for audiovisual data. This may mean infringing on the rights of individuals who reside in it in case there are no stringent data protection policies. Since the developers should be able to make sure that the surveillance should not be abused, they should add on-device handling and encryption to the clear disclosure (Gkiolnta et al., 2025). The other moral problem is the infantilization of adults, which the children are being subjected to by too cute and playful robots. The fact that some characters, like Paro and Lovot, may make one feel a positive

mood, some people who look at them may also think that such types of designs can even influence dignity. This design expressed via the aged persons leaves them feeling that the technology was not forced on them and they did not have anything highhanded (Päivi Rasi-Heikkinen et al., 2024). In general, ethical care robotics must be rooted in respect, inclusion, and transparency. Human compassion will not be replaced by the activities of robots, but it will only increase the capacity of the human individual to provide loving and compassionate nursing care at the individual level. Emotional and Psychological Impact on Older Adults and Caregivers. They also determined that the older individuals lie in having been overly supported in foreign emotions by the aid of the robots, particularly to the socially lonely people with cognitive problems or to the depressed people. A work with robots such as Paro or Lovot, in particular, implies some significant shifts in mood, socialization, and relaxation (Hung et al., 2019), as a study provided. The topological behavior of these robots as smiling, chatting, and embracing, consequently turns receptive and sensitive and results in the alleviation of agitation and a happy life. Robots also assist in reducing emotional stress in caregivers due to the fixing of residents into something exciting, and the following burnout will be reduced, and work satisfaction will be enhanced (Persson et al., 2021). Most plants employ robots as therapeutic companions since it is under this method that employees can focus on their own compensations and robot performance in groups. But it is the question of emotional over-dependence. Other aged persons go as far as establishing good attachment with the robots and being depressed in their absence. Hung et al. (2025) suggest that it is the role of a person to ensure he or she care about the attachments to ensure they do not get damaged psychologically. The other problem is that of authenticity: a robot can portray a fake emotion of empathy, but he/she cannot be empathetic. In addition, robots may also initiate social interaction as they may introduce a conversation between the residents and the caregivers. In this regard, the robots will stand a chance to multiply, to eliminate social interaction. They cooperate in a highly creative way and help to create emotional satisfaction of the residents and the employees themselves, who feel that their morale to patients is enhanced and the stress levels are lowered. Social Integration and Societal Perspectives The introduction of robots in their use in care facilities should be done in a proper and culturally sensitive way, which should be trained and paid for by the facilities. Caregivers' attitudes are critical to the success of robots. It is considered an opportunity rather than a liability due to the presence of robots that the trained staff dedicates the majority of their time to them (Persson et al., 2021). Otherwise, not knowing, or the fear of being dispossessed in employment, would lead to the inability to use, or loss. When it comes to a part of society, this is another reality where caregiving robots are taken into consideration. The usage of robotics in Japan, whereby the culture of robotics was made the norm, was in large proportions (Su, 2025). Another reason is that the immediate opposition to the robotic interventions might be connected to the family members who are not sure that human beings will be stripped away, but only then will they realize that human beings are helpful in the treatment.

Social inclusion also has access as a factor. The robots should support linguistic and cultural diversity. This sense of alienation of the representatives of other backgrounds could be removed with the assistance of multilingualism and culturally conscious designs. Also, further, through participatory co-design, during which older adults are exposed to tests and robots are tailored, trust and stigma will be reduced. Being less specific in terms of the social impact, the rise of robotic caregivers does not justify the potential redefinition of the role of caregivers. Persson et al. (2021) suggest that there is an opportunity to delegate caregivers with the help of robots in routine activities and focus attention on the emotional and clinical side of care. Rather, this collaboration results in positioning the human worker into the category of the robot, and the workload is balanced as well as relations between a human and a robot are even more enhanced in the cases of caring. Technological Evolution and Limitations The concept of robotic caregiving is based on technological advancement, which is however has its own demerits. The current robots cannot be considered flawless technologies, and AI, computer vision, and natural language processing are integrated. The voice recognition comes as an impression of being muted or having a bad voice due to the old age taken on the voice, and the voice is low. This point of concern is even more complex due to the issue of noise in care homes in terms of proper communication (Ayelet Dembovski et al., 2021). The other issue is that of mobility. Pepper and Care-O-Bot models can be easily moved on a flat but not on a chaotic and multi-storey space (Bajones et al., 2020). The other concern that restricts the use of this battery in the long run is the constraint of the battery, which should be taken into account. Combined with these hygienic factors (specifically, with plush robots like Paro), it means that the nurses will also undergo some form of cleaning, which will impose an additional labor load on them (Hung et al., 2019). There is still a lack of flexibility. Unlike machine learning, which is applied to tailor the reaction when dealing with new robots, a significant percentage of them are designed to respond. The second design needs to be positioned with regard to real-time adaptability capability in line with the preferences of the

users and their mood. On the one hand, the systems, which rely on artificial intelligence, are already beginning to control the affective computer in response to stress or cheerfulness to adjust its activities (Fareha Nishat et al., 2023). However, one can have hopes that one day a new breed of caring robots will be created, one that will be smarter, more dependable, and personalized to the customer. Nowadays, as sensor technologies, artificial intelligence, and the ability to simulate emotions continue to develop mercilessly, nobody can stop playing the game. Economic Viability and Accessibility Economic sustainability is one of the worst problems of robotic caregiving. The advanced degree of development and cost of purchase are limited to institutions like those that have many financial resources. The example of Paro can be used, and at the beginning, this was a several-thousand-dollar investment to receive a unit, and could find application solely in the research work or government-implemented initiative (Mervin et al., 2018). This brings up the element of fairness- can it be the high-tech robots that are to be considered to watch over the rich-deed-only buildings? The cost-effectiveness tests are inconclusive. Mervin et al. (2018) found that due to an extraordinary shift in the number of agitation and medicines use, Paro resulted in a significant change that indirectly saved the healthcare resources in a randomized controlled trial. It would have been the same emotional results at a very low cost, unless the more complicated interventions, like non-robot plush toys, were used. Therefore, to make the assimilations of robots, a reflection of the value-added to the simple companionship must be perceived. The other economic costs include maintenance, training, and the repair of equipment. One more failure of the facilities is the estimated resources that are needed to ensure the robots operate successfully. According to Adeyemo et al. (2025), most of the already existing robots that are in use will not be utilized as such unless the institution invests its resources in utilizing them, like training personnel to utilize this technology. Nevertheless, it is also believed that as a result of open innovation, the costs should be reduced because of the scaling of production and open-source. One of the possible alternatives would be the leasing programs and the shared robot model. In a move to ensure that there is equal access, the government of Japan and a handful of governments in Europe are in turn, providing subsidies (Su, 2025). Besides the maturation and development of the production process and the progressive improvement of the technological level, it is also believed that affordability will also co-exist and may be used in the domain of both the field of personal and public care. Implications for the Future of Care and Human Connection The introduction of robots in the provision of care has been a paradigm shift in care provision. The successful usage of the eldercare robotization may be positive and provide repetitive support, as well as guarantee high safety rates and serve as a human carer who has more opportunities to spend time with their clients within the framework of sympathy and personal communication (Borna et al., 2024). Person-centered care needs to be brought out as the most desirable alternative to facilitate this potential. The implementation of the robot should have a customized experiment to fit the tendencies of individuals who are to handle it, cultural requirements, and authorization. It is presumed that the users will keep on displaying emotional responses more frequently and make relevant adjustments (Hung et al., 2025).

It is also significant for ethics models and policies of ethics in an institution. Since it is a requirement that the healthcare providers will be asked to devise uniform guidelines on matters concerning consent, and the way the bases are to be used, as Gkiolnta et al. (2025) put it, it is required that they develop consistent guidelines on the matter. It should also provide policies that are utilized in ensuring that the right of the users to deactivate robot communication is present.

This is required as far as equity and access are concerned. The policy that the high and low-funded care facilities might be increasing the inequality may be unconsciously carried on by robotics. The awareness about the fairness of access to effective robotic solutions may be supported with the technique of subsidies, insurance coverage, and public-private partnerships (Sawik et al., 2023).

The other significant implication is education. Training of the caregivers and the older adults can enable them to become robot literate to enhance confidence and reduce resistance (Päivi Rasi-Heikkinen et al., 2024). The teaching about the mechanism of working with the robots ought to be conducted not only to the people taking care of the children but also in the principles of recognizing the reaction of the users or integrating the use of robots in the practice within the ethical context.

Socially, it is provided that human beings and robots are close to each other, hence making the thinker believe in the intimacy and sympathy. As robots can lead to emotional fulfillment and human relationships, this will be feasible, although the robot will not have physical sympathy.

The co-existence of robots and human caregivers in the future will depend on the performance of the engineers, medical practitioners, ethicists, and policymakers interdisciplinarily. The current coverage of the long-term outcomes and mental health, along with the cost and benefit, will ensure that the study on robotics innovation will discover its use as per the affordability of human resources and the right to care morality (Sahar Borna et al., 2024).

V. CONCLUSION

The concept of robots as a nanny is one step and an experimentation with good and evil in the present-day civilizations. They can contribute greatly to elderly care due to the fact that they can provide emotional care to alleviate loneliness, workloads, among others. The examples of the robots such as Paro, Pepper, Lovot, and Care-O-bot testify that the empathy which is implemented in technology has a future. Nonetheless, there must be some moral concerns that involve privacy, autonomy, and sincerity in the limelight. Massive implementation remains limited on technological grounds through abject speech recognition, abject flexibility, and cost-fulness. Nonetheless, the vices of robots will be minimized with further research and invention of the latter, which will be cheaper and more acceptable to society. The governments, institutions, and designers must ensure that they apply the technologies morally, justly, and humanely. Lastly, human care cannot be substituted with the robot nanny; instead, it is worth improving. Their potential to enrich the elderly care and witness the manner in which meaningful human interactions could be had in the world, growing to become autonomous, makes the concepts of dignity, respect, and inclusiveness open.

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