

Ethical Dilemma in the Application of ASD Nursing Robots

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Abstract: With the development of artificial intelligence, robots are now widely used in the medical field, showing a trend from “agent” to “substitution,” which leads to the ethical dilemma in the application of nursing robots. Taking the application of ASD nursing robot as an example, this paper analyzes the ethical problems in the application of ASD nursing robot from the perspective of subject of responsibility and morality as well as the emotional deception and privacy sensitivity from the perspective of patients, so as to prove that the substitutability of ASD nursing robot is limited without the capability of completely replacing physiotherapists.

Keywords: ASD patients; Nursing robot; Ethical dilemma

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1. Introduction

At present, this is the era of “weak artificial intelligence.” Although artificial intelligence has brought great convenience to people, it still holds the position of an “agent.” With the continuous development of technology, artificial intelligence will enter the era of “strong artificial intelligence” and transform from “agent” to “substitution.” What is the application status of artificial intelligence in the transformation? ASD nursing robot is taken as an example. However, in the application of nursing robots in the treatment of autism spectrum disorders (ASD), is it possible for nursing robots to completely replace physiotherapists? This paper attempts to analyze the application status of nursing robots and their “substitution” boundary with physiotherapists from the perspective of ethics.

2. Analysis of the application status of ASD nursing robots from the perspective of machines

2.1. Subject of responsibility

Researchers believe that on the basis of literature and experimental tests, their robots are safe. But this is not enough; there may be differences between “objective” security based on experimental evidence and perceived “subjective” security^[1]. Robots cannot achieve absolute safety, so the issue of responsibility is caused by the probability of non-safety. If nursing robots are given full autonomy, and ASD patients are harmed in the treatment process, should these robots then bear the corresponding legal responsibility? From Aristotle’s thought on moral responsibility, one can only analyze robots from the perspective of “compulsion.” The term “compulsion” is understood as follows: the actor does something he is not willing to do. However, there is a limit to what compulsion is: an action is forced only when it is first caused by something external, and the coerced person is helpless against it^[2]. It seems that the nursing robot has

complete autonomy in the treatment of ASD patients, but this autonomy is only limited to the process of treating ASD patients. Nursing robots perform therapeutic tasks that they are forced to perform by humans. Therefore, it seems that nursing robots are not “free.” They are in a free state in a non-free field granted by people in accordance to their own consciousness. Generally speaking, robots are still not “free,” so robots do not have the qualification to become the subject of responsibility.

Considering that nursing robots do not have the qualification to become the subject of responsibility, it is necessary to determine the subject who can bear responsibility. Some scholars believe that the designer, manufacturer, and user of the robot should be responsible. The designer and manufacturer hold indirect responsibility, but there must be a person who is directly responsible for the occurrence of safety incidents. According to Sven Nyholm, in a scenario where an adult and a child rob a bank on the adult’s initiative, with the gun-wielding child doing most of the “work,” the adult supervises the duo’s activities and would intervene and issue orders to the child if necessary ^[3]. Therefore, the responsible party is the supervision party. In that manner, in the treatment of ASD patients with nursing robots, there must be a physical therapist to bear direct responsibility; otherwise, there would be no one directly responsible in case of safety incidents. Therefore, from the perspective of responsibility, in the process of treating ASD patients, robots cannot be given complete autonomy to completely replace physiotherapists.

2.2. Ethics

Whether artificial intelligence has morality has always been debated; academic circles at home and abroad have not made a fully convincing explanation and demonstration on this issue ^[4]. However, it has been advocated that robots should be given moral consideration, not based on inherent moral dignity or rights, but on the relationship between patients and robots; that is, the patient develops a vice or a virtue in this process ^[5]. Considering that ASD patients have anxiety and irritability, when nursing robots are given full autonomy, once patients show conflicting behavior during the treatment, they may engage in damaging behaviors to these robots in the absence of supervision. Is it right to think that patients have damaged the morality of these nursing robots then? From Kant’s theory of moral obligation to animals, as non-human animals do not have rational nature, they cannot have personality and thus moral status, which leads to the fact that men do not have a direct moral obligation to animals; however, due to the requirement of cultivating and perfecting human virtues, human beings have indirect obligations to animals ^[6]. Similarly, robots do not have rational nature, so they do not have direct moral status; thus, people have an indirect responsibility to these robots. In other words, when patients engage in immoral actions against nursing robots, it is the patients themselves who suffer moral damage. In this way, the moral status of robots is derived from the moral status of human beings. When people abide by the morality of robots, the indirect morality of nursing robots will be in a “hidden” position, but when people engage in immoral things against these nursing robots, the indirect morality of nursing robots will be in a “dominant” position.

Nursing robots do not have the ability to stop behavior. Due to patients’ conflicting behaviors, it is easy for patients to engage in immoral behaviors against nursing robots without supervision, thus damaging their own “morality.” In the long-term treatment process, such immoral behaviors may occur frequently, so the patient’s own “morality” is damaged, and over time, the patient’s “vice” becomes a habit; even after the patient recovers, the patient will still have the tendency to engage in immoral behaviors. If robots are in the auxiliary position; that is, if patients are treated by robots under the supervision of physiotherapists, all actions are appointed by the physiotherapists, and they do not have complete self-thinking ability. When patients engage in behaviors that harm these robots, physiotherapists can take avoidance measures through intervention and formulate treatment plans in time. In this case, the moral behaviors of patients will not be easily damaged. Therefore, it is not feasible to endow these robots with full autonomy and as the main undertakers in the treatment process from the perspective of patient’s morality.

3. Analysis of the application status of ASD nursing robots from the perspective of patients

3.1. Emotional deception

In the process of treating ASD patients, the communication between nursing robots and ASD patients is an emotional communication. Are the emotions of nursing robots deceptive? According to Mark Coeckelbergh, the purpose of the existence of robots is to deceive human emotions; second, the emotions of robots are not real; third, robots pretend to be another entity ^[7]. It has been proven that robots are deceptive. In the long run, out of the emotional nature of humans, patients would tend to grow attachment to nursing robots and regard them as their “heart-to-heart friends.” Robots are only virtual “thinking” programs designed by people, and they do not have real emotions. In that case, the robot-human communication is a communication process between emotional people and emotionless machines. When patients recover and learn that their long-term dependent “partner” is just a nonexistent virtual machine, it is an emotional deception for ASD patients. “Since healthy adults do not produce secondary autism, and almost all adults with autism develop in childhood, autism is also known as infantile autism or commonly known as childhood autism ^[8]. ASD patients have been treated since childhood. In using nursing robots for treatment, patients would then develop “emotional deception” at a young age, and it is understood that childhood is the period of value formation.

If nursing robots are not given full autonomy and only assist physiotherapists in the treatment of ASD, then the contact between patients and robots will be less. In that case, it is unlikely that patients would develop emotional attachment to these robots. If these robots are only assumed as auxiliary tools in the treatment process, future deception would not exist. Therefore, to avoid this indirect deception, robots cannot be given full autonomy.

3.2. Privacy sensitivity

Privacy protection is a sensitive issue. Whether to protect the privacy of patients in the treatment process has been controversial. On the one hand, patients and their relatives are eager to protect their privacy. On the other hand, we need their data to enhance the effect of treatment. Generally, ethically acceptable privacy practices include the following: first, when robots interact with autistic children, information is recorded and stored; second, social robots are used to monitor the progress of autistic children and aid in the diagnostic process ^[9]. Based on the above two points, it can be appreciated that real-time monitoring and stored review are essential links in the treatment process because safety is the primary issue in consideration of the use of robots in real life settings. From that, a new problem arises: whether to monitor robots in the treatment process as it determines the granting of full autonomy to robots. If robots are monitored, it is the physiotherapist who is ultimately responsible. Robots are only in the auxiliary position, so it is not considered as giving them full autonomy. However, not monitoring them gives them full autonomy; without real-time monitoring, robots cannot be guaranteed to be in a normal state at all times, and dangerous situations may occur. Therefore, based on the safety of real-time monitoring and the effectiveness of treatment, robots cannot be given full autonomy.

4. Substitutable boundaries of human beings

Substitutability refers to activities that must be done and, if necessary, can be done by a robot ^[10]. From the perspective of substitution, human beings can lead practical activities related to themselves in the process of survival and development, but human beings have limitations, and their physical and mental capacity are subjected to contemporary productivity. However, the emergence of machines and artificial intelligence solves this dilemma. Machines and artificial intelligence can help mankind to overcome physical and mental limitations; they are “substitutable” for hands-on work. The rapid development of the society

determines whether the “substitution” is necessary. Due to human’s own limitations, the efficiency of human beings in manual labor is far lower than that of machines and artificial intelligence, and alone, human beings cannot meet the demands of contemporary productivity. Therefore, is a complete replacement necessary? Of course, the answer to that is no. At present, nursing robots “represent” physiotherapists in certain aspects and help to improve the efficiency of treating ASD patients. In the face of the improvement of treatment effectiveness, people will tend to be “agents” until complete “substitution” occurs, but considering other factors, the disadvantages of complete substitution are far greater than the advantages, which would even cross the “red line” of human beings. The development of robots and technology would certainly live through such a process, but we do not want to completely disregard the possibility of “substitution.” Maybe in the distant future, while realizing the complete substitution of technology, we can find a more effective way to minimize this adverse impact and gain the acceptance of the majority of people. Then, “substitution” may materialize.

Disclosure statement

The author declares no conflict of interest.

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