



Этика заботы: искусственный интеллект как инструмент социальной поддержки уязвимых групп населения

Миркушина Лия Рафиковна^{1*}, Фролова Светлана Михайловна²

^{1,2} Московский государственный юридический университет им. О.Е. Кутафина (д.19, ул. Садово-Кудринская, Москва, 125993, Россия)

¹ mirkushina.liya@bk.ru; <https://orcid.org/0000-0001-7461-576>

² frolovasvetla777@yandex.ru <https://orcid.org/0000-0002-2586-1291>

* Автор, ответственный за переписку

Аннотация. Введение. Актуальность настоящего исследования определяется процессом внедрения искусственного интеллекта в социально-экономические процессы, сопровождающиеся повышенным вниманием к этическим аспектам и оценкам рисков его использования. Опираясь на нормативную теорию – этику заботы, авторы попытались выяснить каким образом технология искусственного интеллекта может быть использована для помощи уязвимой группе населения, в особенности пожилым людям. **Материалы и методы.** В качестве методологии исследования взаимодействия человека и технологии в сфере медицины и социальной поддержки используется этика заботы, а также концепция «Ценностно-ориентированного проектирования, центрированного вокруг заботы» (Care-Centered Value-Sensitive Design, CCVSD), оценивающая социальные последствия внедрения технологий. **Результаты и обсуждение.** В работе выделяются два основных вида искусственного интеллекта как инструмента и помощника: вспомогательная ассистивная робототехника и мобильные приложения, чат-боты, включающие функцию системы поддержки принятия врачебного решения (СППВР). Авторы приходят к выводу, что наряду с преимуществами внедрения алгоритмов ИИ, таких как повышение эффективности диагностики заболеваний, помощь в мониторинге когнитивного состояния пожилых людей, существуют и определенные риски. Отмечается, что потеря человеческого фактора, делегирование технологиям функции поддержки и ухода за человеком может дегуманизировать данную область, которая основана в том числе на эмпатии и доверии. Подчеркивается, что доверие может подрываться из-за этической предвзятости используемых алгоритмов, нарушения конфиденциальности, утечки персональных данных, проблемы дезинформации, подведение итогов по неверному алгоритму. **Заключение.** Авторы заключают, что баланс между технологиями и человеческим опытом представляет собой важную составляющую успешного развития здравоохранения и социальной поддержки, а технологии ИИ должны лишь дополнять уход и заботу о человеке, а не замещать его.

Ключевые слова: этика заботы, искусственный интеллект, уязвимая группа населения, социальная поддержка, медицина, ценностно-ориентированное проектирование, социальные роботы.

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Ethics of care: AI as a tool for social support of vulnerable population groups

Liya R. Mirkushina^{1*}, Svetlana M. Frolova²

^{1,2} Kutafin Moscow State Law University (9, Sadovaya-Kudrunskaya Str., Moscow, 125993 Russia)

¹ mirkushina.liya@bk.ru; <https://orcid.org/0000-0001-7461-576>

² frolovasvetla777@yandex.ru; <https://orcid.org/0000-0002-2586-1291>

* Corresponding author

Abstract. Introduction. The relevance of this study is determined by the process of introducing artificial intelligence into socio-economic processes, accompanied by increased attention to the ethical aspects and risk assessments of its use. Based on the normative theory - the ethics of care, the authors tried to find out how artificial intelligence technology can be used to help vulnerable groups of the population, especially the elderly. **Materials and methods.** The ethics of care, as well as the concept of "Care-Centered Value-Sensitive Design" (CCVSD), which assesses the social consequences of the introduction of technologies, are used as a methodology for studying the interaction of man and technology in the field of medicine and social support. **Results and discussion.** The work distinguishes two main types of artificial intelligence as a tool and assistant: auxiliary assistive robotics and mobile applications, chatbots, including the function of the medical decision support system (MDSS). The authors conclude that along with the benefits of implementing AI algorithms, such as increasing the efficiency of disease diagnostics, helping to monitor the cognitive state of the elderly, there are also certain risks. It is noted that the loss of the human factor, delegating the function of support and care for a person to technologies can dehumanize this area, which is based, among other things, on empathy and trust. It is emphasized that trust can be undermined due to the ethical bias of the algorithms used, violation of confidentiality, leakage of personal data, the problem of misinformation, summing up the results according to the wrong algorithm. **Conclusion.** The authors conclude that the balance between technology and human experience is an important component of the successful development of healthcare and social support, and AI technologies should only complement care and concern for a person, and not replace it.

Keywords: ethics of care, artificial intelligence, vulnerable group of the population, social support, medicine, value-oriented design, social robots.

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Introduction. As society's historical and political development has unfolded, specific population groups with varying degrees of vulnerability have emerged. Due to their physical or mental characteristics, these groups are unable to fully realize their rights and freedoms equally. Our research focuses on the elderly population and the provision of assistance to this group, as the trend of demographic aging influences the development of policies and programs at all levels.

The integration of digital technologies into everyday life, the development of companion robots and mobile apps based on artificial intelligence, and their integration into the moral context are forcing a reconsideration of human-machine interaction. The question arises as to whether the constantly evolving machine algorithms being implemented can provide technological care, helping vulnerable groups. Research into the integration of artificial intelligence into socio-economic processes is accompanied by increased attention to the ethical aspects and risk assessments of its use.

Drawing on normative ethical theory – the ethics of care – an attempt is being made to understand digitalization and the use of social robots and AI algorithms as assistants. This theory

is relevant in this context, as it takes into account the principles of perceiving individual circumstances (cultural characteristics, health status, and family status) and creates more comprehensive support for vulnerable groups, particularly the elderly.

However, the risks and consequences associated with the implementation of these technologies must be considered, ranging from questions of bias in algorithmic decisions to ethical considerations in elder care. The article places particular emphasis on the understanding that while AI algorithms are being improved, they remain merely a tool that can significantly make life easier, but they are no substitute for human connection and empathy.

Materials and methods of research. This article uses a normative theory – the ethics of care by K. Gilligan and D. Tronto – as a methodology for studying the interaction of humans and technology in the fields of medicine and social support. This methodology focuses on the individual characteristics and needs of people, emphasizing the uniqueness of each situation, thereby excluding moral imperativeism within the framework of deontological ethical theory. The concept of "Care - Centered Value-Oriented Design" (CVD) also serves as the methodological basis for the article. Value - Sensitive Value-Sensitive Design (CCVSD), developed by A. van Winsberg, combines the approach of the ethics of care and the classical version of VSD (Value-Sensitive Design) theory. Value-Sensitive Design (VSD) as an approach improves technologies based on human values and also evaluates the social consequences of technology implementation. General scientific methods of analysis and synthesis allowed us to formulate the theoretical basis of the study. In particular, an analysis of scientific publications on the ethics of artificial intelligence allowed us to synthesize conclusions about the promising opportunities and contradictions of the new sociocultural reality.

Results and discussion. The development and conceptualization of the concept of "Ethics of Care" began in Carol Gilligan's work "In a Different Voice: Psychological Theory and Women's Development" [1], and continued to be developed in the works of Nel Noddings, Sarah Radek, and Joan Tronto. It is no coincidence that this theory was developed within the framework of feminism; its researchers substantiated the inconsistency of the moral and philosophical tradition, which originates in antiquity and is predominantly masculine in nature. The established character reflects the experience of male identification in European culture and represents a universal standard of classical ethics, while ignoring women's moral experience. In this regard, the ethics of care is called upon not to overcome the classical tradition, but to significantly complement it and make it more comprehensive. Gilligan identifies discrepancies in moral positions based on the development of male and female identities: male development is focused on personalization, autonomy of the individual and the affirmation of the self without social attachment, the recognition of a strict hierarchy, and the achievement of the highest value - justice. Feminine morality is based on affirming a world of relationships. Universal principles and absolute transcendental ideals are replaced by the uniqueness of situations generated by life itself in all its manifestations, as well as the needs of others. Isolation and individualism are seen as a threat to the self. From the perspective of feminist theorists, uniting for the purpose of promoting the good of another is the fundamental construct for expressing care.

In a general sense, care is a proactive activity aimed at human well-being, a considerate and caring attitude toward the individual, their values, and their needs. It is important to note the active, proactive nature of care, based on the recognition of responsibility for the welfare of others. N. Noddings also notes that the requirement of "understanding the reality of the other" is considered key to the concept of care. Overcoming the transcendental and absolute nature of morality, feminist researchers strive to shift the focus to the immanence of life and affirm the significance of the interconnectedness between people, which is generally characteristic of modern European ethical concepts. Thus, as O.V. Artemyeva rightly notes, the merit of the ethics of care is that the concept of "care" first found itself at the center of a moral system and became the starting point for the construction of moral theory [2, p. 215].

The ethics of care is becoming a conceptual framework for building relationships within organizations that prioritize public relations, fostering dialogue, and increasing employee engagement. This article examines the extent to which the ethics of care can serve as a concept in the age of digitalization in areas such as healthcare and social protection. Given the contemporary influence of technology and its integration into the moral context, can the implemented artificial intelligence algorithms demonstrate care at a technological level, helping vulnerable groups?

The ethics of care is particularly relevant in relation to vulnerable groups of the population, who, due to age, health, social status or other circumstances, are at risk of finding themselves in difficult life situations. They are particularly in need of increased attention and support from the state and society. The concept of "vulnerability" is usually closely associated with such phenomena as "victimhood", "deprivation", "social dependence", which contradict idealized notions of the legal security of the individual, who is the core of the global community. [3, p. 4] According to the definition given by the WHO, "vulnerable groups of the population" are any group or part of society with a higher risk, compared to other groups or the rest of society, of being subjected to discriminatory measures, violence, becoming victims of natural disasters or economic crises [4, p. 14].

The European Commission defines vulnerable groups as "groups that are more exposed to the risks of poverty and social exclusion than the general population" [5, p. 2], primarily older people, people with disabilities, certain categories of women, migrant workers, refugees, national minorities and indigenous peoples, for whom universal principles and morals do not work, and targeted assistance taking into account individual characteristics and capabilities is necessary.

The results of the multifaceted work of care ethicists have found wide practical application in medicine, public organization, and international relations. Experts in the field of care ethic participate in discussions on euthanasia, medical ethics, and the legal codification of relevant norms, develop social and educational programs aimed at creating a comfortable society, and implement projects to provide economic support to people caring for the disabled, the elderly, and children.

Based on research by A.V. Kovaleva and D.A. Bodnar [6, p. 55], vulnerable groups often face a range of non-medical problems in inpatient settings: limitations in independence due to age-related issues, difficulties with mobility, communication with others, and access to social services, as well as emotional and psychological difficulties associated with feelings of worthlessness, depression, and anxiety. In this case, the ethics of care are particularly context-sensitive, drawing on principles of perceiving individual circumstances (cultural characteristics, health status, family status), to provide more comprehensive support.

However, providing timely assistance to vulnerable groups, taking into account individual characteristics in the face of limited economic opportunities, requires optimizing many processes in the social sphere. Particularly in medicine, human resources are often in short supply, and in certain non-standard situations, such as the COVID-19 pandemic, this has led to burnout among medical personnel. It is also necessary to consider demographic factors such as the aging population, which will further increase the number of elderly people requiring medical care and assistance. These problems are partially addressed through the implementation of digital technologies, AI algorithms, digital agents, and social robots, which are transforming traditional modes of interaction in the social and medical spheres and forcing a reconsideration of traditional approaches to solving social support problems.

In our work, we identify two main types of AI as a tool and assistant in medicine and social services for vulnerable populations. The first type includes assistive robotics, represented by robotic assistants (social robots) – a new generation of service robots that share a "living space" with people and interact directly with them. Their distinctive feature is the ability to perceive the environment and people using sensors and intelligent algorithms, communicate multimodally with users, navigate autonomously, and make independent decisions. [7, p. 50]. The main uses of these robots are to assist the elderly and their caregivers with everyday tasks

(maintenance), health monitoring, communication support, and act as caregivers, nannies, and personal assistants. The second type of device that uses AI algorithms are mobile apps and chatbots, including medical decision support systems (MDSS), which enable accurate diagnostics based on the analysis of large volumes of medical data. Machine learning algorithms can identify hidden patterns and predict possible diseases, even at different stages of development.

For the past few decades, researchers have been researching the implementation of assistive robotics to help older adults in nursing homes. [8] Using Joan Tronto's care ethics theory and the care-centered value-based design (CCVSD) approach, researchers have evaluated the interactions between older adults, caregivers, and social robots in nursing homes. The CCVSD methodology is based on value-sensitive design, which argues that technological products should align with and support human values, particularly the design of care robots in healthcare settings [9]. According to Shuai Yuan, the algorithms and programs of social robots can take into account patient history, create a patient-specific roadmap, and be flexible for different treatment scenarios and needs [10].

Companion robots help seniors overcome age-related challenges without the physical presence of others, providing medication reminders, helping with exercise, and, in an emergency, calling emergency services and loved ones. Companies such as ElliQ, NEC Corporation, and OriHime are implementing robots with communication capabilities for seniors and to prevent social isolation.[11] Melisa Jashinsky [12] in her article describes a pilot test of a social robot designed to monitor the cognitive state of elderly people at home, with the aim of identifying mental disorders, which can facilitate the timely initiation of therapy and slow the progression of dementia.

In Moscow, in the city clinical hospitals No. 67 named after L.A. Vorokhobov, No. 15 named after O.M. Filatov and the N.V. Sklifosovsky Research Institute of Emergency Care, robotic cats have begun to assist patients and doctors in a test mode. They deliver food and medical supplies, accompany patients to their wards, and along the way share advice on maintaining health [13].

The second type of device—clinical decision support systems (CDSS) based on AI algorithms—is of particular interest in medicine due to its ability to analyze large data sets, including a wide array of medical images such as X-rays, magnetic resonance imaging (MRI), computed tomography (CT), and dermatological photographs [14]. In this regard, chatbots and medical mobile apps are beginning to play an increasingly important role in medicine. Much new data is emerging on the effectiveness of their use in healthcare. Chatbots and conversational agents have been found to be useful in the field of mental health and cancer screening [15]. And in the fall of 2023, information appeared that ChatGPT (an AI chatbot) helped establish a rare diagnosis for a child in the United States, after 17 doctors had been unable to identify the disease and prescribe the correct treatment for three years [16]. For some patients, confidentiality is a concern during the diagnosis process, and this issue is being addressed through medical apps and contactless medical services. The ProRodinki mobile app, developed by a group of Russian scientists, helps pre-determine the nature of body spots and diagnose dermatological conditions using a computer program without the need for a specialist.

A joint study by Genotek and the HSE Center for Artificial Intelligence demonstrated the effectiveness of nonlinear machine learning models in predicting genetic risks, paving the way for more accurate personalization of medical recommendations and therapy, especially in the context of complex gene interactions (epistases) [17]. Neural network models significantly improve risk prediction for obesity, type 1 diabetes, psoriasis, and other multifactorial diseases. AI can improve diagnostic efficiency by working with large volumes of data that humans are unable to analyze. In one famous case, IBM Watson, a cognitive diagnostic service, detected a rare form of leukemia in a 60-year-old patient after reviewing 20 million scientific articles on cancer in just 10 minutes [18].

However, there is a downside to digital integration: the potential risks of this process include a reduction in human interaction, which could lead to the devaluation of care as a uniquely human quality. It is important to strive for harmonious collaboration between the three parties: patient, medical staff, and machines. Social robots are currently unable to achieve the necessary level of attentiveness to accurately recognize patients' real needs based on nonverbal cues and emotional contexts (voice and gesture recognition) [19]. The development and implementation of social care robots poses risks and ethical issues for older adults and caregivers due to the sensitive nature of this type of service.

The problem of objectification also arises when an elderly patient who is unable to care for themselves is viewed not as a rational person, but merely as a "physical body" subject to various manipulations. Providing patient care and treatment is not limited to diagnosis, physical care, and assistance with everyday tasks. Social intelligence, which is inherent in humans rather than robots, implies empathy, providing emotional support in difficult life situations, and recognizing feelings and emotions also has a beneficial effect on the patient's well-being. Caring also includes awareness and a desire to help, a key skill required in medicine. Ethicists note that when emotional support is delegated to devices, apps, and social robots, the risk of "blunting" the empathy habits of medical staff increases, and patients feel like "data processing objects," which worsens treatment outcomes. The problem of dehumanization in the healthcare system can exacerbate the breakdown of the emotional bond between doctor and patient, reduce the level of responsibility of medical personnel, and threaten the loss of specialized skills by doctors. Dr. Francis Peabody in his lecture "Care of the Sick" (The care of the patient") noted the importance of trust between patient and doctor, which is realized through an emotional connection, empathy, and care: "The secret of healing lies in caring for a sick person" [20]. While agreeing with the author, it is important to remember that even with the improvement of technology using artificial intelligence algorithms, they remain only a tool that can significantly make life easier, but cannot replace human relationships and empathy.

Furthermore, trust in AI algorithms may be undermined by "algorithmic bias." [21, p. 121] Artificial intelligence is trained on data based on treatment outcomes and long-term follow-up of specific population groups (based on race, gender, and age), which may influence future diagnostics and clinical outcomes. A study published in the journal *Science* confirmed racial bias in an algorithm used to identify patients with complex medical needs. [22] Risk stratification algorithms used in large US hospital networks referred Black patients with the same disease severity to intensive surveillance programs 50% less often than White patients. This article further confirms that AI algorithms may reflect distorted information obtained due to the biases of the people who previously conducted these studies. This bias is a serious ethical concern in AI, and could further exacerbate discrimination in healthcare and influence treatment decisions for millions of people, potentially leaving them without the care they need.

Conclusion. Drawing on normative theory—the ethics of care—we sought to explore how artificial intelligence technology can be used to assist vulnerable groups, particularly the elderly. Given that the elderly, as well as those with disabilities, are particularly in need of protection and care from the state, and the burden on healthcare is increasing due to population aging, humanity is seeking new solutions to address this situation. The introduction of AI algorithms into social and healthcare spheres helps improve the effectiveness of disease diagnosis thanks to the ability to process big data; it also facilitates home monitoring of the cognitive state of the elderly to identify mental disorders. AI enables the development of personalized treatment recommendations and the prediction of clinical outcomes, which is welcomed within the framework of the ethics of care. Companion robots powered by AI algorithms, recognizing the owner's voice intonation and mood, help overcome social isolation and loneliness, thereby facilitating everyday life and improving its quality. However, the risks of developing such technologies and human-machine interactions must be assessed. The active integration of technology into medicine and social services, delegating human support and care functions to technology, can dehumanize this field, which is based, among other things, on

empathy. The integration of AI assistants and social robots can lead to the destruction of the emotional bond between doctor and patient, or between an elderly parent and their children. It is known that 60% of treatment success depends on the patient's trust in the doctor. A positive attitude and confidence in recovery can be instilled by the treating physician, as mental health affects the course of the disease, and the human factor plays a significant role. However, trust can be undermined by the ethical bias of the algorithms used, by breaches of confidentiality, and by the leakage of personal data analyzed by artificial intelligence. Discrediting can occur due to the problem of misinformation, the use of incorrect algorithms, and the ease with which texts on a given topic are generated, resulting in "artificial stupidity" that is replicated and spread to important information entrusted to the patient. Thus, the balance between technology and human experience is an important component of the successful development of healthcare and social support, and AI technologies should only complement human care and concern, and not replace it.

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ИНФОРМАЦИЯ ОБ АВТОРЕ

Миркушина Лия Рафиковна – кандидат философских наук, доцент кафедры философии и социологии Московского государственного юридического университета им. О.Е. Кутафина, Scopus ID: 58575231600, Researcher ID: AEP-0238-2022.

Фролова Светлана Михайловна – доктор философских наук, доцент, профессор кафедры философии и социологии Московского государственного юридического университета им. О.Е. Кутафина, <https://orcid.org/0000-0002-2586-1291>

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INFORMATION ABOUT THE AUTHOR

Liya R. Mirkushina – PhD (Philosophy), Associate professor, Chair of Philosophy and Sociology, Kutafin Moscow State Law University, Scopus ID: 58575231600, Researcher ID: AEP-0238-2022.

Svetlana M. Frolova – Doctor of Sciences (Philosophy), Professor, Chair of Philosophy and Sociology, Docent (Associate Professor), Kutafin Moscow State Law University.

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