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Letter to Editor

The Role of Artificial Intelligence in the Ethical Relationship of Virtual Cadavers

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Dear Editors,

The advancement of technology has led to a transformation in medical education. At this stage, the ethical considerations surrounding the use of cadavers in medical education are particularly intriguing. Nowadays, it is possible to digitally recreate real cadavers with virtual content. Such materials are referred to as virtual cadavers in the literature. Just like with real cadavers, the use of images of donors in virtual cadavers is subject to ethical permissions. At this point, the use of artificial intelligence tools comes to the forefront.

The use of cadavers in medical education has been a traditional method for many years. The use of cadavers in medical education is a critical component for students to develop their understanding of human anatomy and clinical skills. Cadaver dissection provides medical students with the opportunity to learn the structure of the human body in detail, allowing them to translate theoretical knowledge into practical application. Additionally, it provides students with the opportunity for clinical experience. The use of cadavers in medical education helps students develop professional skills by providing them with practical experience on a real body (1).

Cadavers are obtained from human donors. In Türkiye, there are various problems regarding cadaver donation rates. Cadaver donation is extremely low in our country, making it difficult for medical faculty students to access cadavers (2). On average, there is only one cadaver for every 20 students studying at medical faculties in our country. It is even challenging to find 1-2 cadavers in departments of anatomy (3). Additionally, there are issues arising from the irreversible nature of procedures performed on cadavers.

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Due to such reasons, studies related to virtual cadavers in digital environments have become increasingly important. Virtual cadavers represent an important solution brought about by technology in the field of medicine and generally in health education. Through the use of virtual cadavers, procedures that are difficult or even impossible to perform repeatedly on real cadavers can be achieved. Additionally, virtual cadaver modeling eliminates the possibility of tissue degradation. Desired tissues, systems, and structures can be modeled in a manner closely resembling reality. In addition to providing unlimited repetition capabilities, virtual cadavers revolutionize the use of cadavers by offering access at any desired time (4).

The development of virtual cadavers poses certain challenges. For instance, the use of programs like Unity and Blender is necessary in the process of developing organs and structures. Besides the requirement of knowing how to use such programs, extensive hours are needed to create a model (5, 6). Additionally, if virtual cadaver images are intended to be realistic, there are also some issues to address. The usage and dissemination of virtual cadaver contents obtained from real cadaver images on the internet are subject to ethical considerations. Just like with real cadavers, obtaining permission from the legal heirs of the donor is necessary when using images of donors in virtual cadavers (7, 8).

The term artificial intelligence was first introduced by John McCarthy in 1956, and its foundation lies in discussions on the ability of machines to think (9). AI has become increasingly popular in recent times, both as natural language processing models and in the field of image processing. With the use of AI tools, it is possible to generate visual and textual content without the need for detailed software and programming knowledge. It is even possible to create videos consisting of unreal images but resembling real ones. At this stage, the use of AI tools is considered important for virtual cadavers. By using AI visual generation tools, content that can be used in virtual cadavers can be easily created. Thus, virtual cadaver examples that are indistinguishable from real cadaver images but do not belong to a real person can be obtained. At this point, it is important for medical education and healthcare professionals to ethically examine this situation.

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