

CHAPTER 4

Ethics in Health Technologies

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Introduction

The sector of health has seen significant change and alteration as a result of technological advancement (Hayran, 2019). It is stated that the use of technology in the field of healthcare has enhanced communication between patients and healthcare providers, patient success in controlling their treatment, disease symptoms being better controlled, and patient satisfaction and healthcare quality rising (Korhonen et al., 2015). In addition to these positive aspects, there are a number of drawbacks as well, including risks to patient safety, violations of human rights, an increase in healthcare delivery disparities, rising costs, an increased reliance on technology, adjustments to personal norms, and social pressure (Hayran, 2019; Bulbul, 2022). The necessity for ethics in the healthcare system is growing daily as a result of these negatives (Tosun, 2021). Technology-using healthcare practitioners face moral conundrums about matters like morality, sensitivity, autonomy, and providing quality treatment (Korhonen et al., 2015). When considering health, decent care, wellbeing, uniqueness, and autonomy, morally sound choices can be made (Nagel et al., 2013). Guidelines must be set in order to lessen ethical issues with the use of health technologies. The inclusion of fundamental ethical principles including individual values, human rights, autonomy, privacy, nonmaleficence, beneficence, justice, and informed permission is advised for these guidelines (Chambers & Connor, 2002).

The Concept of Ethics

Ethics, which is one of the most difficult terms to define in today's rapidly changing individual and social life, is used synonymously with the words morality and moral (Tosun, 2016). Although the approaches to ethics and the meanings of related concepts have varied among philosophers and ethicists over time, especially I. Kant, J. S. Mill, and G. E. Moore were influential in the definitions of ethics in the 20th century (Butts & Rich, 2022).

Ethics, which is derived from the Greek word "ethos", corresponds to meanings such as custom, tradition, custom, habit, and established state of affectivity. Ethics is the

field of study of the phenomenon called morality and is the theory of right and wrong behavior (Ustun, 2021). Ethics is a systematic approach to understanding, analyzing, and distinguishing between right and wrong, good and bad, admirable and dishonorable issues (Butts & Rich, 2022). In another definition, ethics is defined as "a branch of knowledge that aims to reveal knowledge about the relationship between people, to bring answers to various ethical problems with this knowledge, and to show people the possibilities of knowing about action" (Terakye & Ocakci, 2013). The Turkish Language Institution (TLI, 2023) defines ethics as "the science of ethics" and "a set of behaviors that the parties in various professions should follow or avoid".

As a humanistic field, ethics directs actions toward truth and good. At the same time, it guides the solution of ethical problems with vital values and investigates moral reasons (Okuroglu et al., 2014). Among its aims are to explain the moral nature of behaviors in human life, to raise awareness of the individual and society by bringing a critical perspective to behaviors, to create scientific foundations for the science of ethics, to show that individuals cannot be individual in their behaviors, but that they are indispensable elements of being an individual and their existence, and to teach to love people (Ozdemir Aydin, 2021).

Ethics plays an important role in determining the objectives, rules, and rules of a profession (Tosun, 2016). Ethical rules specific to any profession inform both the members of the profession and society about the values and ideals of the profession. In addition, it guides the members of the profession in the solution of ethical problems encountered and is a guide for creating a professional identity (Dinc, 2009; Uysal Kasap & Bahcecik, 2020). Medical ethics is a set of values that answer the question of evaluating the medical actions to be applied by health professionals in terms of good or bad and what should be done to behave well and what should be done to avoid bad behavior (Bilgin & Kucukhazar, 2015). Health professionals benefit from ethical principles in answering questions such as "What can I do and how can I do it best?" (Tosun, 2016).

Ethical Principles

Ethical issues are generally evaluated with ethical principles. Ethical principles are the rules that are accepted as basic and clear moral truths that are intended to be transformed into behavior and guide the action to be taken. These principles include autonomy, nonmaleficence, beneficence, privacy and confidentiality, justice and equality (Okuroglu et al., 2014).

Autonomy

In health practices, autonomy means the ability of the patient to make decisions over his/her own body, to determine his/her destiny, and to determine his/her own good following his/her values (Nesipoglu, 2022). There are four basic elements in the concept of autonomy. The first is that the autonomous person is respected, the second is that the individual can set personal goals, the third is that the individual can decide on a plan of action, and the fourth is that the individual has the freedom to take action in line with his/her preferences. In line with the principle of autonomy, patients should be informed about the possible outcomes, alternatives, and risks of treatments and their informed consent should be obtained to freely consent to treatment (Burkhardt & Nathaniel, 2013).

Nonmaleficence

The principle of nonmaleficence is related to the principle of beneficence. It

includes intentional harm, the risk of harm, and harm done during the act of beneficence (Bakır, 2020). According to this principle, health services should be provided to minimize potential harm and maximize benefits (Burkhardt & Nathaniel, 2013; Nesipoglu, 2022).

Beneficence

This principle, which includes preventing and eliminating harm and deciding in favor of benefit (benefit) in the benefit-risk (benefit-loss) calculation, aims to achieve absolute benefit. In cases where a decision cannot be made in favor of benefit, balancing benefit and risk is recommended (Nesipoglu, 2022). The three main features of the principle of beneficence are doing good or promoting good, preventing harm, and eliminating evil and harm (Burkhardt & Nathaniel, 2013).

Privacy and Confidentiality

This principle, which is very important in the relationship between health professionals and patients, is among the fundamental individual rights. In line with this principle, information that is private to the individual to whom healthcare services are provided and which is desired to be kept confidential is not shared with third parties (Yılmaz Coskun, 2021). The right to privacy is based on autonomy and respect for human beings. Patients have the right to expect that their personal and private information will not be shared unnecessarily among health professionals (Burkhardt & Nathaniel, 2013).

Justice and Equality

Although it is the most violated ethical principle, it requires an equal and fair distribution of resources by considering the equality and rights of individuals (Yılmaz Coskun, 2021; Tosun, 2021). In the context of healthcare ethics, this principle focuses on the distribution of goods and services. This practice is called distributive justice (Tosun, 2016; Burkhardt & Nathaniel, 2013).

Electronic Recording Systems and Ethical Issues

Personal health records are sensitive and critical data included in the personal data section of laws and regulations. With the widespread use of computer communication technologies in institutions, health data are archived as Electronic Health Records (EHR) in health information systems (İleri & Uludag, 2017). EHR is an information system in which all health information of individuals is kept in a computerized environment from the time a person is born until the time of death. These systems are structures that ensure that each patient is matched with only one record, that contain health data such as diagnosis, diagnosis, treatment, result reports of the patient, and that these records can be accessed within the institution and from outside the institution when necessary, as well as an appointment system (Ministry of Health, 2023).

Personal medical health data are collected in institutions and organizations such as family medicine offices, hospitals, branch hospitals, medical centers, tissue banks, pharmacies, dentistry health centers, etc. Health records contain sensitive and critical data such as socio-demographic information, information on physical and mental health, financial and insurance information, prescriptions, infectious diseases, and physical abuse. Security, confidentiality, and privacy violations in health records containing these sensitive and critical data are increasing day by day. These situations cause legal and ethical problems (Eke et al., 2018; Toygar, 2018; Ucar & İlkılıç, 2019).

Ensuring the security and confidentiality of electronic health records is of utmost

importance. These records should not be corrupted, accessed by unauthorized persons, or lost. When the security of the records is not ensured and misuse occurs, it may cause negative situations for the patient. The protection of health records is a shared responsibility of health professionals (American Nurses Association (ANA), 2023). Many national and international legal regulations have been made to ensure the security and confidentiality of records. Legal regulations are made to control the risks that occur in health records and to ensure the privacy and security of personal medical data (Ögütçü et al., 2011; Pakis Cetin & Cevik 2021).

Some of the measures to be taken to ensure privacy and security when transferring and storing health records to electronic media are as follows:

- Health professionals should be aware of their responsibilities under the legal regulations in their countries and be encouraged to apply professional ethical principles
- Taking technical and physical measures (using strong and secure passwords, security shields, virus protection programs, etc.)
- Organizing regular training to ensure the security of health records
- Obtaining permission from the patient and family for the transfer and use of health records (Ay, 2008; Ögütçü et al., 2011; Burkhardt & Nathaniel, 2013).

Use of Artificial Intelligence in Health and Ethical Issues

According to Küçükvardar et al. (2020), artificial intelligence is a system that autonomously completes tasks that are believed to require intellect from a human. Artificial intelligence is applied in the healthcare industry in a number of areas, including disease detection, patient assessment, therapy, and nursing care (Ozdemir & Bilgin, 2021). Although quick diagnosis and a decline in diagnostic errors are two advantages of artificial intelligence, it may also have drawbacks, like inhumanity when providing healthcare services. As a result, ethical issues may arise with the employment of artificial intelligence in the healthcare industry (Guvercin, 2020). Some of these problems are:

- Since access to artificial intelligence applications is costly, it causes problems with equal use and access to health services
- Artificial intelligence applications are likely to make erroneous decisions
- The question of "Who will be responsible when artificial intelligence applications make mistakes?"
- Ensuring the security and confidentiality of sensitive and critical data
- Problems in protecting human dignity and social isolation in health care
- Problems in the development of artificial intelligence technology
- Situations such as the use of artificial intelligence applications by malicious people lead to ethical problems (Burton et al., 2017; Guvercin, 2020; Ozdemir & Bilgin, 2021).

The rapid development of artificial intelligence applications in the field of health brings with it unforeseen risks. Investments should be made in this field and manpower should be provided. Ethical problems should be taken under control by developing

national and international policies for the ethical issues raised by artificial intelligence programs (Cagatay, 2019; Kucukvardar et al., 2020).

Stem Cell and Ethical Issues

Today, the use of embryos in stem cell research is one of the most controversial issues due to its ethical and legal aspects. Where embryos should be obtained from and how many embryos should be harmed for the studies cause ethical debates. The medical world has different answers to the questions "At what stage does life begin?" and "Can the embryo be considered a human being?". These questions, which do not yet have a common answer, also cause ethical debates (Cavusoglu et al., 2017).

The right to life is one of the fundamental rights and freedoms that individuals have. Scientists who argue that life begins with the union of reproductive cells recognize the embryo as an entity with human rights. The zygote has the right to life upon fertilization. Those who hold this view argue that the use of stem cells for research purposes is ethically unacceptable. Some scientists, on the other hand, believe that it is ethically permissible to use embryos obtained from in vitro fertilization for research purposes, as well as surplus embryos that are not transferred. Scientists who hold this view do not recognize the right to life as an absolute right. Scientists argue that embryonic stem cells used to treat incurable diseases may limit the right to life. In contrast to these two different views, scientists who try to find a middle ground believe that even if an embryo is not recognized as a human being, it should be granted a special right. Those who hold this view do not accept research with embryos without any limits. Scientists argue that under certain conditions, studies should be carried out for human benefit (Bilgin, 2011; Cavusoglu et al., 2017; Kirici et al., 2020).

Another ethically controversial issue in stem cell studies is cloning. Cloning for reproduction in humans is against the human dignity and uniqueness of human beings. Human cloning is prohibited by international declarations and treaties (Amanak & Kavlak, 2013).

Assisted Reproductive Methods and Ethical Issues

Assisted reproduction methods enable infertile couples to have a child. In these applications, sperm and egg cells taken from donors are artificially fertilized under appropriate conditions and implanted into the woman's uterus. Another assisted reproduction method is surrogate motherhood. However, these methods lead to ethical debates (Can et al., 2016). One of these is the storage and freezing of extra spare embryos in case of failure during implantation. The use of human embryos for non-reproductive purposes is an ethical issue. If the embryo transfer is successful the first time, the treatment of the spare embryos and the rights/rights of the embryos cause ethical debates (Cavusoglu et al., 2017). Another controversial issue is that children may face more risks in assisted reproductive technique pregnancies compared to natural pregnancies. Especially since the risk of multiple pregnancies increases, problems related to multiple pregnancies (preterm birth, low birth weight) increase (Amanak & Kavlak, 2013).

Around the world, there is a sizable ethical discussion on the topic of surrogate motherhood. Surrogacy proponents hold that people's autonomy and the right to procreate should be recognized. Scientists that have a different perspective contend that surrogacy is not a right and is instead connected to people's desire to procreate. The birthright of the child is violated when a person exercises their right to procreate without regard for moral considerations. Ethics discussions are sparked by the child's wish to be born via

surrogate mother, the child's right to know his or her biological parents, the right to donor confidentiality, and the psychological and social issues the child will face after knowing about the circumstance. From the surrogate mother's point of view, renting the female body and buying the child to be born are ethically discussed (Kenney & McGowan, 2014; Kirici et al., 2020; Kus Ozbek Guven, 2021). Individual reproduction is possible through assisted reproductive techniques including egg and sperm donation and surrogate parenting. This causes the genealogical tie, that is, the bond between family members to be broken (Kus & Ozbek Guven, 2021).

Conclusion

In conclusion, it is inevitable that healthcare technologies will be used in the delivery of health services as science and technology advance. The contribution of health technologies to service delivery is growing daily. Despite the fact that this rise offers a lot of benefits for the patient, it has also raised a lot of questions. Using ethical principles as a guide is one of the most crucial methods to deliver high-quality healthcare services while maintaining patient safety. These values include justice, autonomy, beneficence, nonmaleficence, and privacy. The use of technology for the benefit of patients will be improved by health professionals who have embraced ethical principles, have high ethical awareness, have developed ethical decision-making abilities, and have a humanistic perspective.

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