Ethics of Using Artificial Intelligence and Digital Tools in Research

Debajit Karmakar
http://orcid.org/0000-0001-9272-0627
Lakshmibai National Institute of Physical Education, India

Anindita Das
http://orcid.org/0000-0002-6502-9619
Lakshmibai National Institute of Physical Education, India

Tashi Ongmu Bhutia
http://orcid.org/0009-0000-0127-5709
Government B.Ed. College, Soreng, India

Karuppasamy Govindasamy
http://orcid.org/0000-0002-3019-5545
Symbiosis International University, India

Abhishek Kumar
http://orcid.org/0009-0009-6607-5375
Indira Gandhi Institute of Physical Education and Sports Sciences, India

EXECUTIVE SUMMARY

The rapid advancement of artificial intelligence and digital technologies has transformed the research landscape, offering powerful tools for data collection, analysis, and interpretation. Alongside these opportunities, new ethical challenges have emerged, extending beyond traditional research ethics. Issues such as algorithmic bias, data privacy, ownership, transparency, and accountability have become cen-

tral to maintaining integrity in scientific inquiry. This chapter explores key ethical principles, including respect for persons, beneficence, non maleficence, and justice, in the context of AI assisted research. It examines risks of overreliance on automated decision making, threats to authenticity in digital environments, and complexities of intellectual property. Emphasis is placed on responsible innovation, human oversight, global guidelines, and frameworks to balance technological potential with ethical responsibility.

INTRODUCTION

The rapid advancement of artificial intelligence and digital technologies has fundamentally transformed the landscape of academic and scientific research. From sophisticated machine learning algorithms that can analyze vast datasets in minutes to automated research platforms that streamline data collection processes, these technological innovations have opened unprecedented opportunities for discovery and knowledge creation. However, with these powerful capabilities comes an equally significant responsibility to consider the ethical implications of their implementation in research contexts (Walker, 2007).

The integration of artificial intelligence and digital tools in research presents a complex web of ethical considerations that extend far beyond traditional research ethics frameworks. While conventional research ethics has long focused on protecting human subjects, ensuring informed consent, and maintaining data confidentiality, the emergence of AI-driven research methodologies introduces new dimensions of ethical complexity. Questions about algorithmic bias, data ownership, transparency in automated decision-making, and the potential for technology to inadvertently perpetuate social inequalities have become central concerns for researchers, institutions, and policymakers alike (Powell, 2020).

This chapter provides a comprehensive examination of the ethical landscape surrounding the use of artificial intelligence and digital tools in research. It explores the fundamental principles that should guide researchers in making ethical decisions about technology adoption while addressing the specific challenges that arise when human intelligence intersects with artificial intelligence in the pursuit of knowledge. The discussion encompasses various research domains, from biomedical studies that rely on AI-powered diagnostic tools to social science research that utilizes digital platforms for data collection and analysis (Walker, 2007). The significance of addressing these ethical considerations cannot be overstated. As research increasingly depends on AI and digital technologies, the decisions made today about their ethical implementation will shape the future of scientific inquiry and its impact on society. Researchers must navigate the delicate balance between