ARTIFICIAL INTELLIGENCE IN PHYSIOTHERAPY

INNOVATIONS, APPLICATIONS AND FUTURE DIRECTIONS



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CHAPTER 12

ETHICAL CONCERNS IN AI-DRIVEN PHYSIOTHERAPY, DATA PRIVACY AND SECURITY

Naila Zaheen[1], Prof (Dr.) Abdur Raheem Khan [2], Dr. Aafreen[3], Samiya Azhar Khan [4]

INTRODUCTION

Big data presents important ethical problems related to privacy, security, and biased algorithms. These same issues arise in AI-driven physiotherapy. In today's fast-changing digital world, AI technologies collect and examine large amounts of personal health information. This raises key questions about consent, data ownership, and user control. Patients and healthcare providers worry about the privacy and security of sensitive data gathered from wearable devices, motion sensors, and rehabilitation apps. The idea of informed consent is more complex in digital healthcare. Patients might not fully grasp how their information will be used or how automated decisions could affect them. There is a risk of data breaches and cyber-attacks, which could damage trust and confidentiality among patients. This highlights the need for strong data protection and cyber security measures. Algorithmic bias is another ethical concern. If AI systems are built using flawed or unrepresentative datasets, they may provide unequal or incorrect treatment recommendations. This can especially harm minorities, the elderly, and those with rare conditions. Tackling these ethical issues requires clear AI systems, strict data security protocols, and ongoing monitoring to ensure fairness and accountability. As AI becomes more important in physiotherapy, it is essential to protect

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