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Abstract

The integration of biometrics in health assessment protocols represents a transformative approach to personalized PHGLFLQH DQG KHDOWKFDUH GHOLYHU\ 7KLV SDSHU H[SORUHV WKH YDULRXV ELR IDFLDO UHFRJQLWLRQ LULV VFDQQLQJ DQG YRLFH UHFRJQLWLRQ²DQG WKHLU DS :H DQDO\]H KRZ ELRPHWULF GDWD FDQ HQKDQFH WKH DFFXUDF\ DQG H[^]FLHQF\ R LGHQWL\ FDWLRQ DQG VHFUXLW\ DQG IDFLOLWDWH UHPRWH PRQLWRULQJ DQG WH FRQVLGHUDWLRQV SULYDF\ FRQFHUQV DQG UHJXODWRU\ FKDOOHQJHV DVVRFLDW %\ H[DPLQLQJ FDUH VWXGLHV DQG FXUUHQW LPSOHPHQWDWLRQV WKLV VWXG\ K ELRPHWULFV LQWR KHDWK DVVHVPHQW SURWRROV LQFOXGLQJ LPSURYHG SDV SURPRWLRQ RI D PRUH SDWLHQW FHQWHUHG DSSURDFK WR KHDOWKFDUH 8OWLPD WKH IXWXUH RI KHDWK DVVHVPHQWV HQVXULQJ WKDW WKH\ DUH PRUH DFFXU needs.

Keywords: Biometrics; Health assessment; Patient identification; Wearable devices; Data security; Personalized healthcare; Ethical considerations; Health monitoring; Privacy concerns

Introduction

In recent years, the healthcare landscape has witnessed a rapid evolution driven by technological advancements. One of the most promising developments is the integration of biometric technologies into health assessment protocols. Biometrics, which involves the measurement and statistical analysis of people's unique physical and behavioral characteristics, offers a new dimension to patient identification and health monitoring. By leveraging biometrics, healthcare providers can enhance the accuracy and security of patient assessments while streamlining data collection processes [1]. Traditionally, health assessments have relied heavily on patient self-reporting and manual data entry, which can introduce errors and inefficiencies. Biometric systems, however, provide a reliable means of capturing and verifying patient identity and health data in real-time. Modalities such as fingerprint recognition, facial recognition, and voice recognition enable seamless patient interactions and improve the integrity of health records. Furthermore, the rise of wearable biometric devices has opened new avenues for continuous health monitoring, allowing for more proactive and personalized healthcare [2].

Despite the numerous advantages, the integration of biometrics into health assessment protocols also raises important ethical and privacy concerns. Issues surrounding data security, consent, and the potential for bias in biometric algorithms must be carefully navigated to ensure that the benefits of this technology do not come at the expense of patient trust and safety [3].

This paper aims to explore the multifaceted role of biometrics in health assessment protocols, examining its potential to enhance patient outcomes and the challenges that must be addressed to facilitate its

