Title: Exploring the impact of cybersecurity on using electronic health records and their performance among healthcare professionals: A multi-analytical SEM-ANN approach

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Abstract: Cybersecurity is critical in safeguarding sensitive information against evolving threats, especially in the healthcare sector, where Electronic Health Records (EHR) are central to the digital transformation of healthcare. This study takes a unique approach by investigating the influence of cybersecurity on healthcare professionals' use of EHR systems and its impact on their performance. It goes beyond the traditional adoption theories by integrating the Technology Acceptance Model (TAM) with cybersecurity and emotional trust and focuses on actual EHR system usage and its performance impact. The data from 459 healthcare professionals, analyzed using a Structural Equation Modeling-Artificial Neural Networks (SEM-ANN) approach, provides a comprehensive view of the dynamics involved. The findings suggest that cybersecurity's impact on the system's ease of use may vary by context. Ease of use was linked to trust but not directly to perceived usefulness. Importantly, systems perceived as efficient and beneficial are used more, leading to improved healthcare service quality. The study underscores the importance of robust cybersecurity measures and trust in effective EHR integration, offering valuable insights for enhancing EHR system acceptance and healthcare outcomes in Jordan.

Keywords: Cybersecurity, Electronic Health Records (EHR), Healthcare sector, Technology Acceptance Model (TAM), Emotional trust; System usability, Perceived usefulness, Structural Equation Modeling (SEM), Artificial Neural Networks (ANN)

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