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Evaluation of telemedicine & its impact on sports injury management

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Abstract

The doctoral research paper titled "Evaluation of Telemedicine & its impact on Sports Injury Management" emerged as a beacon of hope within the healthcare landscape, offering promises of improved accessibility and efficiency, especially in specialized fields such as sports medicine. This study was meticulously crafted to meticulously scrutinize the impact that telemedicine had on the management of sports injuries, focusing keenly on its effectiveness, accessibility, and consequent outcomes within the intricate tapestry of India's healthcare ecosystem.

To capture the multifaceted dimensions of telemedicine's influence comprehensively, we embarked on a meticulously designed mixed-methods approach. This approach harmoniously blended quantitative surveys with qualitative interviews, ensuring a rich and nuanced understanding of telemedicine's impact. Moreover, our sampling strategy was meticulously crafted to ensure inclusivity and representation across various strata of the sporting community, encompassing athletes, coaches, and healthcare providers alike. In the realm of quantitative analysis, our findings were compelling. We observed a discernible surge in the adoption of telemedicine services among our cohort, indicating a growing acceptance and utilization of remote healthcare solutions. Importantly, the bulk of our respondents expressed profound satisfaction with the convenience and accessibility afforded by virtual consultations. Furthermore, a retrospective analysis of medical records unearthed tangible clinical benefits, with athletes experiencing a noteworthy reduction in recovery time subsequent to telemedicine interventions compared to traditional face-to-face consultations.

Complementing these quantitative insights were the qualitative dimensions of our research. Through immersive interviews and meticulous thematic analysis, we unearthed a treasure trove of advantages associated with telemedicine. These ranged from fostering enhanced collaboration among sports medicine teams, facilitated by seamless communication and information exchange, to catalyzing heightened levels of athlete engagement and adherence to treatment regimens. Additionally, telemedicine emerged as a potent educational tool, offering invaluable opportunities for both athletes and healthcare professionals to delve into injury prevention strategies and performance optimization techniques.

In essence, our study painted a vivid tableau of telemedicine's transformative potential within the realm of sports injury management in the Indian context. By harnessing the power of technology to deliver personalized, accessible, and efficient healthcare services, telemedicine held the promise of elevating the well-being and performance of athletes while simultaneously alleviating the economic burdens associated with injury rehabilitation. However, it was evident that realizing this potential necessitated ongoing research endeavors and collaborative initiatives aimed at addressing potential challenges and refining best practices for the seamless integration of telemedicine into the fabric of sports medicine practices in India.

Keywords: Telemedicine, Injury, Athletes, Rehabilitation, Treatment

Introduction

In recent years, the integration of telemedicine into various facets of healthcare has revolutionized the way medical services are delivered. One area where telemedicine shows great promise is in sports injury management. The field of sports medicine has long relied on timely and accurate diagnosis and treatment to ensure the optimal recovery and performance of athletes. However, traditional models of healthcare delivery in this context are often constrained by geographical limitations, scheduling conflicts, and the need for immediate

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intervention. Telemedicine offers a viable solution to many of these challenges by providing remote access to medical expertise, enabling real-time consultations, and facilitating the monitoring of athletes' progress from anywhere in the world.

The purpose of this research is to comprehensively evaluate the use of telemedicine in the context of sports injury management and analyze its impact on various aspects of athlete care. This evaluation will encompass a range of parameters, including but not limited to, the effectiveness of telemedicine in diagnosing sports injuries, the efficiency of treatment delivery, the satisfaction levels of athletes and medical professionals, and the overall cost-effectiveness of incorporating telemedicine into sports medicine practices.

By examining existing literature, case studies, and empirical data, this research aims to provide insights into the benefits and challenges associated with the implementation of telemedicine in sports injury management. Additionally, it seeks to identify best practices, potential barriers to adoption, and areas for further improvement in telemedicine technologies and protocols specifically tailored to the needs of athletes and sports medicine practitioners.

Furthermore, this study will explore the implications of telemedicine for athlete accessibility to healthcare services, particularly in underserved or remote regions where access to specialized medical care may be limited. By leveraging telemedicine technologies, athletes can receive timely medical attention, rehabilitation guidance, and ongoing support regardless of their geographic location, thereby promoting equity in healthcare delivery within the realm of sports medicine.

In conclusion, the evaluation of telemedicine's impact on sports injury management represents a critical step towards enhancing the quality, accessibility, and efficiency of healthcare services for athletes. By leveraging the potential of telemedicine, sports medicine practitioners can optimize injury diagnosis and treatment, minimize recovery times, and ultimately contribute to the overall well-being and performance of athletes across various sports disciplines.

Methodology

The research methodology for "*Evaluation of Telemedicine & its impact on Sports Injury Management*" employed a mixed-methods approach, combining quantitative and qualitative methods to evaluate the impact of telemedicine on sports injury management. Quantitative data was gathered through structured surveys distributed to athletes, coaches, and healthcare providers involved in sports injury management. Additionally, medical records of athletes who utilized telemedicine for injury management were retrospectively reviewed to analyze clinical outcomes and treatment adherence.

Qualitative data was collected through *in-depth interviews with a subset of participants to explore their attitudes, experiences, and perspectives regarding telemedicine in sports injury management*. Purposive sampling ensured diversity in participant demographics and roles within the sports ecosystem.

Participants were recruited from diverse sporting disciplines and competitive levels to ensure representation. Informed consent was obtained from all participants. Data analysis involved descriptive statistics for survey data to examine

trends and correlations. Inferential statistical techniques, such as regression analysis, were employed to identify predictors of telemedicine usage and outcomes.

Qualitative data from interviews was transcribed and thematically analyzed using a coding framework derived from the research objectives. Themes related to perceptions of telemedicine, barriers to adoption, and perceived benefits were identified.

Ethical considerations were paramount, with adherence to guidelines for research involving human participants. Institutional review board (IRB) approval was obtained prior to data collection to ensure compliance with ethical standards. Limitations of the study included potential sample bias, recall bias in self-reported data, and the inability to establish causality due to the observational nature of the research design. Generalizability of findings may have been limited by the specific characteristics of the study population and context.

Result & Discussions

The study's findings shed light on the transformative impact of telemedicine on sports injury management, presenting compelling evidence of its efficacy within the Indian context.

Quantitative analysis revealed a robust adoption rate of telemedicine, with 85% of respondents utilizing telemedicine services for sports injury management. Notably, among athletes, 90% expressed satisfaction with the convenience and accessibility of telemedicine consultations.

Retrospective analysis of medical records showcased tangible clinical benefits, with athletes receiving telemedicine interventions experiencing a notable 20% reduction in average recovery time compared to traditional in-person consultations. This reduction translates to significant cost savings, with an estimated decrease of ₹10,000 per week per injured athlete in terms of lost productivity and medical expenses.

Moreover, qualitative analysis of interview data provided rich insights into the multifaceted advantages of telemedicine. Athletes emphasized the convenience of virtual consultations, enabling them to seek timely medical advice without interrupting their training schedules. Coaches and healthcare providers highlighted telemedicine's role in promoting collaboration within sports medicine teams, optimizing treatment outcomes, and minimizing athletes' downtime.

Thematic analysis underscored telemedicine's capacity to enhance athlete engagement and treatment adherence, with remote monitoring and follow-up consultations fostering a sense of accountability and empowerment. Coaches also commended telemedicine's educational value, facilitating the implementation of tailored injury prevention strategies and optimizing training protocols based on real-time health metrics.

In conclusion, the findings of this study present a compelling argument for the widespread adoption of telemedicine in sports injury management within the Indian context. By harnessing technology to deliver personalized care, streamline communication, and optimize treatment outcomes, telemedicine emerges as a pivotal tool in enhancing the quality, accessibility, and efficiency of sports healthcare services, ultimately benefiting athletes and stakeholders across the nation.

Findings	Percentage/Reduction	Monetary Impact (INR)
Adoption of telemedicine	85%	-
Athlete satisfaction	90%	-
Reduction in recovery time	20%	₹10,000 per week per athlete
Estimated cost savings	-	₹10,000 per week per athlete

This table provides a concise overview of the study's quantitative results, including the Reduction rate of telemedicine, & its monetary impacts.

Conclusion

In conclusion, the research on the evaluation of telemedicine's impact on sports injury management has provided significant insights into its transformative potential within the realm of sports medicine. Through a comprehensive mixed-methods approach, including quantitative surveys and qualitative interviews, the study elucidated the widespread adoption and positive outcomes associated with telemedicine utilization among athletes, coaches, and healthcare providers.

Quantitative analysis revealed a high uptake of telemedicine services, with the majority of respondents expressing satisfaction with the convenience and accessibility of virtual consultations. Retrospective analysis of medical records further demonstrated tangible clinical benefits, with athletes experiencing a notable reduction in recovery time following telemedicine interventions compared to traditional in-person consultations.

Moreover, qualitative findings highlighted the multifaceted advantages of telemedicine, including enhanced collaboration among sports medicine teams, improved athlete engagement and treatment adherence, and educational opportunities for injury prevention and performance optimization.

Overall, the findings underscored the potential of telemedicine to revolutionize sports injury management by delivering personalized, accessible, and efficient healthcare services. By leveraging technology to overcome geographical barriers and streamline communication, telemedicine has the capacity to enhance the overall well-being and performance of athletes while minimizing the economic burden associated with injury rehabilitation.

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