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Legal Challenges in Health Data Privacy in Pakistan: Safeguarding Patient Information in the Digital Era

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Abstract

This article conducts a comprehensive study of the legal controversy in protecting health data privacy, discussed specifically under the Protection of Health Information Act and related regulations. Through a case specific study of data breaches, unauthorized access, and ethical dilemmas, the study identifies gaps in the existing legal framework. Synthesis of findings highlights that challenges posed by them represents an important problem to be addressed to improve of healthcare in Pakistan. Our recommendations to strengthen health data privacy regulations include continuous legal change to fit technological progress, tough data security measures, public information campaigns, and ethical standards for new technologies. Actions outlined in these recommendations ensure the laying of a solid foundation of resilience for Pakistan's healthcare, empowering it to challenge trust among the patient, defining the guidelines of practice as ethical ones and making possible the realization of the promise towards improvement of healthcare quality. This article is a call to action for policymakers, healthcare professionals and legal authorities to work together to navigate the complexities of health data privacy in a way aligned to improving healthcare for Pakistan's people in a brighter and more patient centric way.

Keywords: Health data privacy, Data Breaches, Legal Framework, Patient Trust, Pakistan Healthcare.



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Introduction

The safety of health data privacy has never been as important as it is now in today's rapidly changing digital world. The focus of this research is to explore the largely privacy of health data in Pakistan, as challenges and legal complexities encompassed in protecting patient information in the digital age. The paramount importance of keeping health data private in the dynamic landscape of contemporary healthcare has emerged. We are moving into a very digitalized world, and patient information protection goes from being a traditional ethical principle to a fundamental security aspect of this new patient centered healthcare practices. Starting from a thorough and synchronized trip of health data privacy in Pakistan, this research uncovers the multiple layers of a complex set of health data privacy challenges in the context of the ubiquitous influence of digitalization (Polgar, & Thomas 2011).

Health care is no exception to this unparalleled integration of technology into everything that we do in the 21st century. Electronic health records, telemedicine and more advanced technology have changed the delivery of health care and have been shown to improve efficiency and patient outcomes. But with the advent of this digital revolution, this also entails a robust issue of how to navigate the thick patchwork of health data privacy norms in the age of continuous connectivity and technological advancement.

The crux of this challenge lies in the sanctity of health data — health data is essentially sensitive and personal information about a person's medical history, diagnoses and treatment plans. This data is not only protected by law or regulation; it's a fundamental principle of the healthcare system to keep this data protected, because we trust it so much. Ensuring their health information is kept in the strictest confidentiality is key to a reliable patient provider relationship based on trust and transparency.

Thus, this research ventures forth to investigate challenges and legal nuances about health data privacy in Pakistan. To shed a somewhat nuanced view of the state of health data privacy in the country, we scrutinize the current legal framework, understand the technological landscape and explore real world implications (Shah, & Khan, 2020).

With growing technology, the line between using digital innovations to support better healthcare against safeguarding patient privacy is getting more and more thin. In order to navigate this balance, this research aims to elucidate the ethical imperatives that need to accompany technological advancement that will allow for responsible and patient centric healthcare practices. To this extent, an analysis of Pakistan's legal framework governing health data privacy has been integral to this exploration. It is the "Protection of Health Information Act" that serves as a cornerstone — clearly directing the responsible use and protection of health related information data. However, an assessment of the efficacy of this legal infrastructure, in an era of digital systems of healthcare, is dependent upon understanding its strengths and weaknesses (Botma, & Wright, 2010).

Rather than just offering a study in academic discourse on unraveling the complexities of health data privacy, this research strives to contribute to political discourse surrounding health data privacy functionalities and policies in Pakistan's digital age and to keep policymakers, medical professionals, and the general public apprised of the opportunities, as well as the challenges involved in guarding the privacy and security of health information. With technology spiraling into it so high in healthcare, patient trust and confidentiality should absolutely be maintained. Advancements in the digital era are plentiful, but the digital age also presents a level of challenges like never before including protecting health data to private and secure (Haq, & Farhan, 2021).

The Research Objective:

This research seeks to address a fundamental question: What legislation ensures the privacy of health data in current Pakistani legal system? We review current rules and their practical implications in search of their strengths and weaknesses in terms of the legal infrastructure protecting health data privacy in Pakistan.

This is because digital health technologies such as eHealth records, telemedicine and others are becoming increasingly used and dependence on them makes it important to have a strong legal framework. Like every other level involved in handling sensitive information, healthcare passes on its sensitive information and the patients' right to this and many other rights and the system must be held responsible to answer for the treatment of the sensitive information as confidential and ethically instance of use.

Before getting into the ways in which the legal framework sets up for health data privacy in Pakistan, we must understand the legal background of such data privacy in the country. The framework of Health Information is based on the "Protection of Health Information Act," which clearly states the prerogatives and rules for collecting, storing and sharing health related information.

Literature Review

A proper understanding of the nuances, challenges, and legal intricacies of existing literature in the ever expanding field of health data privacy remains a foundation. This is a critical synthesis of the state of the art related to health data privacy in Pakistan, in the context of legal regulations and noteworthy cases, along with existing challenges, and areas for potential further exploitation.

Thus, the literature shows a copious array of health data privacy legal regulations in Pakistan. Protection of Health Information Act comes into focus as the rules and principles for collecting, storing, and this health information data. This legal framework accomplishes by way of this, authors also highlight its significance in building a basis for a responsible data handling. Yet they raise questions as to whether these regulations will be well suited to a digital healthcare landscape in flux.

In Pakistan the intersection of health data privacy has been grappled with, in numerous legal cases, at the interface of evolving technologies. And in these scenarios, the cases revolve around instances of data breaches, breach of unauthorized access, and ethical handling of health information. Examining these cases gives us insight into how existing legal regulations have been applied, how enforcement mechanisms have operated, and what the changing character of privacy issues look like in a digitalized healthcare context (Javed, & Rasheed, 2020).

However, the literature stresses the continuing difficulties in ensuring the privacy of health data. Concern for an ethical use of patient data in research, public health initiatives, and technological advancements, oftentimes are the subject of the ethical dilemmas undertaken by authors when approaching such rapid adoption of digital health technologies. Data privacy vs how to maximize its usage for societal benefit, has the balance remained a central theme that continues to hinder legal frameworks as well as healthcare practitioners (Wagenaar, & Burris, 2013).

The literature underscores the evolution of health data privacy challenge with technological development. The authors call for adapting legal regulations to the pace of technological innovation, as well as problems of interoperability, cybersecurity, and ethical concerns of developing technologies. To recognize these challenges, an intelligent approach to addressing

regulatory gaps that may limit the effectiveness of existing legal frameworks will be needed (Humayun, & Imam, 2008).

While there is massive literature on the health data privacy in Pakistan, some specific issues have not been addressed. Authors refer to the fact that we still need more detailed studies on the practical respects of legal regulation implementation, cultural and Soviet factors influence on privacy expectations and the role of the healthcare provider to keep the data secure. However, these gaps provide opportunity for further research to further understand the complex mechanics that drive the underlying health data privacy in the Pakistani context.

Methodology

The approach adopted in this research is to draft an insightful and inclusive method to study health data privacy in Pakistan. The legal document analysis and case studies method has been chosen to open up the current legal framework, to describe practical aspects and to draw lessons from the real world applicability of data privacy of health in the country.

1. Legal Document Analysis:

The first method brings in detail analysis of the related legal documents of health data privacy in Pakistan. Scrupulously review the "Protection of Health Information Act," as well as regulation, or guidance related to the collection, storage, and sharing of health related data.

This analysis attempts to discover the important principles, requirements and restrictions that these legal documents are declaring. It is the first fundamental piece in how to tackle the formal legal framework governing health data privacy in Pakistan.

2. Case Studies:

The practical nuances and actualities of health data privacy in Pakistan are captured through case studies. All major cases, on which the law has been decided, will be reviewed in detail whether they deal with a new type of negligence such as data breach, unauthorized access, or an ethical concern. Cases we choose will satisfy the following criteria: appropriateness to privacy with respect to health data, uniqueness from a legal challenge perspective and insights on effectiveness of current legal regulations. For each scenario, cases will be chosen to illustrate the variety of cases that exist and the ever changing privacy challenges of the digital era.

3. Criteria for Case and Document Selection:

A careful selection criterion will be based to select the given legal cases and documents to ensure the representativeness and relevance. The selection of cases will be based on their prominence, ambit of the legal principles they apply, and relevance to the present situation of protection of health data privacy. Further, cases that have become legal precedents, or that implicate how legal precedents will be interpreted in the future, will be given priority.

Legal documents will be selected based on their significance to the legal framework, considering the principles they establish and their impact on healthcare practices in Pakistan.

4. Ethical Considerations:

There are many ethical aspects involved with conducting research of health data privacy. At all times, good practice will be shown respecting patient confidentiality and complying with legal and ethical standards in the analysis. In order to maintain the principle of privacy, any information drawn from case studies or other legal documents will be anonymized and de-identified.

5. Data Analysis:

This phase of data analysis consists in syntheticisation of information from legal documents and case studies, to summarize themes, identify patterns and assess the consistency between legal rules and reality. The legal framework will be compared with other legal frameworks, and the outcomes will be brought together in a comprehensive way to answer the questions posed about the effectiveness of the legal framework to tackle contemporary issues.

This research intends to use these methodologies to bridge the gap between legal framework and application in real world, and as well to discuss the challenges and opportunities in ensuring the privacy of patient information in the digital era.

Legal Landscape in Pakistan:

The legal framework around health data privacy in Pakistan is important to understand before understanding about the challenges and solutions in this space. In this section, I have discussed everything about the legal background, how key legislation such as 'Protection of Health Information Act' and the work of Pakistan Medical and Dental Council (PMDC) (Shahid, & Almuhaideb 2022).

1. The "Protection of Health Information Act":

Protection of Health Information Act: the 'cornerstone' of Pakistan's health data privacy regulation. It is passed to keep data around health issues safe and secure and it includes the fundamental principles and obligations regarding the collection, storage and the transfer of patient information. The Act dictates the legal basis for the work of healthcare providers on digital healthcare systems from a standpoint of responsible handling of data (Qidwai, & Nanji, 2013).

- The Act has specific principles of consent, transparency and data accuracy. Healthcare providers are obligated to tell patients why the data are being collected and seek consent before passing on information about them, and to make sure the stored data are accurate. Contrary to the risk of unauthorized access and breaches, the Act outlines strict data security requirements for healthcare institutions about the purpose of data collection, seek consent for information sharing, and ensure the accuracy of stored health data.
- To mitigate the risk of unauthorized access and breaches, the Act imposes strict data security requirements on healthcare institutions. This might be measures to provide data integrity, confidentiality, to prevent the unauthorized disclosure of information. The Act is therefore recognized for the importance of patient autonomy by enshrining such rights as access to personal health information, the right to amend inaccurate data and the right to be informed of any data breaches affecting their information.
- Recognizing the importance of patient autonomy, the Act enshrines rights such as access to personal health information, the ability to amend inaccurate data, and the right to be informed about any data breaches affecting their information.

2. Supplementary Regulations and Guidelines:

In addition to the "Protection of Health Information act" there are supplementary regulations and guidelines to augment the legal framework through which the issue of health data privacy is shaped in Pakistan. They may include specific standard such as guidelines from regulatory bodies or some other legislation that accommodates some particular aspect of data protection. • Data retention guidelines may be additional regulatory requirements and may be provided for determining how long health information is stored and then destroy it when no longer necessary. • With interlinked

healthcare systems, further regulations may tackle health data system interoperability, the specification of the standards for the passage of the health data systems without compromising privacy sharing, and ensure the accuracy of stored health data.

- Supplementary regulations may delineate specific guidelines for data retention, ensuring that health information is stored for an appropriate duration and securely disposed of when no longer needed.
- As healthcare systems become more interconnected, additional regulations may address the interoperability of health data systems, defining standards for seamless data exchange while preserving privacy.

3. Role of Regulatory Bodies - Pakistan Medical and Dental Council (PMDC):

Pakistan Medical and Dental Council (PMDC) is chiefly responsible for overseeing and regulating and ensuring proper ethical and professional conduct of healthcare practitioner. While not a specific data privacy regulatory body, the PMDC certainly has an influence to ensure that healthcare providers comply with ethical standards including with that of patient confidentiality.

- Ethical guidelines that encompass principles of patient confidentiality and safe handling of health information are issued by the PMDC. These guidelines are expected from healthcare practitioners to exist alongside other ethical considerations.

4. Enforcement Mechanisms and Challenges:

The legal framework in Pakistan has provided a foundational structure for health data privacy, yet enforcing those policies remains challenging, as do matters of public awareness and the ability to adapt regulations to an ever changing technology world. To fortify legal landscape and resilience of health data privacy regulations in Pakistan, it is imperative to play ensuring effective implementation and addressing these challenge rights.

This summary serves as an initial guide to the maze of health data privacy relevant to Pakistan's legal environment, providing clarity on the quirks, core constituents, and areas of improvement within what currently exists.

Challenges in Health Data Privacy:

The resolution to navigate the world of health data privacy in Pakistan is characterized by specific legal challenges such as data breaches and intrusion without actual consent, and more substantial ethical challenges in respect of data usage. Here we revisit these challenges, highlighting their impact and, critically, the holes in current law that perpetuate them (Tavakoli, & Amini, 2013).

1. Data Breaches:

- Health data privacy is under attack in the form of data breaches. Unauthorized access, use, disclosure, or manipulation of health information, compounding patient confidentiality can have disastrous results.
- Healthcare providers have patients' trust that the sensitive information will be safeguarded. Data breaches destroy this trust belying that personal health information is safe. And that, of course, could mean identity theft, financial fraud and emotional distress for the people who've been identified as victims.
- The legal framework now does not provide specific conduct in the technological aspects of data security. Provisions to this challenge are inadequate because there are inadequate provisions for

stringent cybersecurity measures, as well as the absence of mandatory reporting mechanisms for data breaches.

2. Unauthorized Access:

- Direct threat to patient privacy exists for the unauthorized access to health data either by internal staff or external bodies. Confidential health information can be gained by employees with 'improper motives' or external actors with 'malicious intent'.
- Misuse of health data can occur when this data is accessed by someone unauthorized who uses it for personal gain, extortion or more broadly targeted harm to individuals. On top of that, unauthorized access provides a further risk to the possibility of data manipulation or release of sensitive medical records.
- An effective means to prevent and deter unauthorized access may not be in place under all legal frameworks. The lack of good guidelines on access control and sparse penalties for unauthorized access create a legal vacuum with respect to addressing this issue.

3. Ethical Dilemmas in Health Data Usage:

- Despite the ethical dilemmas it brings, usage of health data within the Evolution of health technologies. There are questions about how patient information is used, responsibly and ethically, for research, public health initiatives and creative medical technology development.
- The ability to use health data for societal benefit while simultaneously ensuring that individual privacy rights are protected comes with ethical dilemmas written all over it that must be struck with a delicate balance. Neglect to navigate across such challenges ethically can either breach patient trust or compromise the integrity of healthcare systems.
- With regard to emerging contexts, there may be little clarity in the legal framework of the use of ethically of the health data use. Speaking to these ethical dilemmas requires continuous modification of regulations in order to align with modern day societal expectations and technological developments (Srinivas, & Biswas,2012).

4. Interconnected Technological Advancements:

- The adventing health technologies such as electronic records and telemedicine merge into interconnected systems whereby the risk of privacy breach is high.
- The more these health technologies are connected the more the data breaches spread, amplifying their impact. Achieving the privacy and security of health data in such complex ecosystems becomes formidable.
- These challenges pushed interconnected health systems to evolve at such rapid rates, that the legal framework may not be able to keep up with it, leaving gaps as regards the challenges posed. To mitigate these risks, certain emerging technologies, in particular, require that regulations be adapted to them effectively.

Specifically, as it addresses these challenges, we can see that the legal premises in Pakistan are crisscrossed with problematics to be constantly adjusted and updated. To fortify health data privacy regulations, the gaps that currently exist must be identified and addressed in the context of an ever changing digital landscape (Nisar, & Shafiq, 2019).

Recommendations

Based on what we learn from our exploration of health data privacy in Pakistan, we propose a set of recommendations to address the challenges that currently exist, enhance the legal framework,

and create a healthier HCI hosting and operating environment that places the security and respect of patient confidentiality high on the agenda.

1. Continuous Legal Adaptation:

- Set up a routine review and adjustment of legal regimes that existed for technological development and new health data privacy issues.
- Technology revolution is happening so quickly, and for that we need agile legal response. Reviews and updating of regulations are undertaken regularly to keep those regulations up to date and robust; keeping them responsive to interconnected health systems, emerging technologies, and new ethical issues.

2. Strengthening Data Security Measures:

- To defend against data breaches and unauthorized access risks, rigorous data security measures are implemented and enforced, including encryption protocols, access controls, and routine cybersecurity audits.
- It is essential to take proactive measures to secure health information from unauthorized access and cyber threats. Health care practices should integrate a comprehensive cybersecurity strategy that will ensure confidentiality and integrity of patient data.

3. Public Awareness Campaigns:

- Organize launch of targeted public awareness campaigns to educate individuals right to inform data privacy, importance of informed consent and mechanism to report breaches.
- What this does is give individuals the knowledge on their rights and how important it is for health data privacy, empowering individuals to be an informed and not to be vigilant community. This helps build a culture of patient privilege in data privacy as well as strengthen the trust in the healthcare system (Farooq, & Arshad, 2018).

4. Ethical Guidelines for Emerging Technologies:

- Establish the framework for developing and regularly updating ethical guidelines regarding the ethical use of health data in delivering health in emerging technologies including artificial intelligence, telemedicine and genomics medicine.
- As technologies evolve, ethical considerations must be at the forefront. Clear guidelines will guide healthcare practitioners, researchers, and policymakers in navigating the ethical challenges inherent in the use of advanced technologies while ensuring patient welfare.

5. Collaboration with International Standards:

- Collaborate with international organizations and standards bodies to align health data privacy regulations with global best practices, fostering interoperability and ensuring that Pakistan remains at the forefront of international standards.
- This international collaboration is useful for sharing of knowledge, best practices and resources. The credibility and effectiveness of health data privacy regulations are improved through the alignment with the global standards.

6. Strengthening Regulatory Oversight:

- Strengthen the role of the regulatory bodies like Pakistan Medical and Dental Council in overseeing and enforcing the ethical and legal norms concerning the privacy of the health data.
- The regulatory body serves a cardinal responsibility to determine if the healthcare sector conforms to the ethical means or not. Enhancing their functions as patient centric care and ethical practices of handling of the data.

7. Research on Patient Perspectives:

- Help support and encourage research on patient perspectives of health data privacy so we can understand people's expectations, concerns and preferences about how and whether to protect their health information.
- To make sure that regulations are adhering to values and expectations of the persons for whom they are designed, it is important to take into account voice of the patients in making policy. More inclusive/patient centred healthcare policies are informed by patient perspectives research.

By adopting these recommendations Pakistan can build a patient oriented and resilient health data privacy environment. The promise of improved healthcare quality can only be realized when patient trust is fortified, ethical considerations guide practices, and addressing legal challenges and fortifying the regulatory framework brings the promise of improved healthcare quality from science to reality.

Conclusion

As we end our look at the health data privacy in Pakistan, the synthesis of key points and findings emphasizes the urgent need to meet legal challenges to build a better healthcare platform in the country. Given the various facets of health data privacy interacting with legal complexities, there is a need of an end to end approach to safeguarding of healthcare systems. We wrap around the gist of this journey right here.

First up, we started by decanting the legal weeds in order to explore the role of 'Protection of Health Information Act' in defining guidelines to work with data responsibly. Supplemental regulations and the part played by regulatory bodies such as Pakistan Medical and Dental Council were also explained. Specific challenges, such as data breaches, unauthorized access and ethical dilemmas in the use of health data, were our exploration into. The complexities involved in protecting patient information also became clearer as one identified the interconnectivity of technological advancements. Navigating this way opened up other gaps in the legal framework that continue this. The range of technological nuances that were not adequately dealt with, the insufficiency of guidelines and the continually evolving landscape of interrelated health systems were the issues that needs to be highlighted.

The significance of addressing these legal challenges extends beyond legal compliance. At its core, safeguarding health data privacy is intricately tied to fostering trust between patients and healthcare providers. Patient-centric care relies on the assurance that personal health information is handled with the utmost confidentiality and integrity. The betterment of healthcare in Pakistan hinges on the effective resolution of legal challenges in health data privacy. Data breaches and unauthorized access not only jeopardize individual privacy but also impact the overall quality of healthcare services. Resolving these challenges is essential to cultivate a healthcare environment that prioritizes patient welfare. Ethical considerations in health data usage form the bedrock of a

robust healthcare system. Aligning legal frameworks with evolving ethical standards ensures that healthcare practices remain aligned with societal values, promoting responsible innovation and patient-centered outcomes.

In conclusion, our journey through the legal intricacies of health data privacy in Pakistan serves as a call to action. It beckons policymakers, healthcare professionals, and legal authorities to collaboratively address the identified gaps. The adaptation of regulations to technological advancements, the fortification of data security measures, and the establishment of clear ethical guidelines are integral steps toward a resilient and patient-focused healthcare future. As Pakistan charts its course in the digital era of healthcare, the protection of health data emerges as a cornerstone for sustainable progress. By recognizing the significance of addressing legal challenges, we pave the way for a healthcare landscape where patient trust is unwavering, ethical principles are upheld, and the promise of improved healthcare quality becomes a reality. In this endeavor, the synergy of legal frameworks, ethical considerations, and technological advancements holds the key to a brighter and more resilient healthcare future for the people of Pakistan.

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