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FROM CRISIS TO CONNECTION: CAN RURAL PAKISTAN REWRITE ITS HEALTHCARE STORY

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Abstract
Equitable healthcare access remains one of Pakistan's most urgent societal challenges, especially in peri-urban and rural regions. Our study explores insights from five ethnographic case studies: Charrar Pind, Sahowala, Faizpur Gaon, Narowal, and Julliana Pind each revealing how proximity to cities does not guarantee access to care. The findings expose a fractured healthcare ecosystem characterized by resource scarcity, ethical lapses, and digital exclusion. However, they also highlight pathways of hope through community driven trust, female healthcare leadership, and context-sensitive digitization. By integrating the World Health Organization's health systems framework with the ethical lenses of utilitarianism, deontology, and virtue ethics, and aligning with the UN Sustainable Development Goals (SDGs 3, 5, 9, and 10), this study proposes a phased, inclusive model for digital health transformation. Ultimately, it argues for a healthcare reform strategy that moves beyond infrastructure expansion toward cultivating systems grounded in empathy, dignity, transparency, and local agency.

INTRODUCTION:

Why does there remain a divide? Why can't resources be distributed fairly. The perplexity of healthcare facilities across Pakistan's rural and peri-urban regions echoes far and wide. It brings to light that the access to quality healthcare remains a matter of concern not only of distance but of design, trust, and dignity. This compelled the study to address the following questions:

RQ1: What structural barriers impede equitable healthcare access in rural Pakistan?

RQ2: How do ethical and governance failures shape healthcare experiences?

RQ3: What role can context-sensitive digital health interventions play in improving healthcare equity?

Drawing on five qualitative case studies: Charrar Pind, Sahowala, Faizpur Gaon, Narowal, and Julliana Pind, the structural, ethical, and technological dimensions display how the country's rural healthcare landscape is shaped.

Applying the World Health Organization's six health system building blocks and moral frameworks of utilitarianism, deontology, and virtue ethics, the research uncovers interlocking failures of governance, accountability, and empathy. The research employs a **multi-site**

qualitative case study design, combining ethnographic fieldwork, semi-structured interviews, focus group discussions (FGDs), and observational analysis across five rural and peri-urban localities of Punjab. The study interestingly captures the lived experiences of patients, healthcare workers, and policymakers riling systemic challenges such as scarce medical facilities, dependence on informal practitioners, and limited access to qualified doctors.

Charrar Pind's ethnographic inquiry exposed a system plagued by recordkeeping failures, supply shortages, and gender-based neglect. Sahowala showed communities at the edge of digital transformation, facing optimism and apprehension ironically in equal measure. Faizpur **Gaon** highlighted severe infrastructural gaps and professional shortages that perpetuate dissatisfaction and inequity. Narowal revealed mixed outcomes of state-led interventions such as Lady Health Visitors, the Health Card, and the Clinic on Wheels programs promising reach yet hampered by weak implementation and cultural barriers. Finally, Julliana Pind raised the human concerns of this crisis: villagers' voices of frustration and mistrust, moral dilemmas around access and affordability, and hopes for ethical, community-driven digitization.

Together, these studies demonstrate that digital health and policy interventions, while necessary, cannot succeed without ethical grounding, local participation, and cultural alignment. The paper proposes a **four-phase reform model**: trust-building, telemedicine pilots, scaled integration, and sustained local governance. This suggests that the system should be firmly anchored in ethics, empathy, and inclusion. From **crisis to connection**, these five narratives collectively argue that Pakistan's healthcare challenge is not merely about infrastructure, but about reimagining healthcare as a system designed with the people, for its people and by its people.

Societal Impacts

This research advances the mission of *Societal Impacts* by turning academic inquiry into practical knowledge that strengthens equity and human well-being. Conducted across five rural and peri-urban communities in Pakistan: Charrar Pind, Sahowala, Faizpur Gaon, Narowal, and Julliana Pind, it uncovers how health inequities, ethical lapses, and digital exclusion shape the lives of marginalized citizens. Their struggles revolving around reused syringes, absent doctors, and informal healers clearly reflect a national crisis of design rather than distance. Women face the greatest exclusion, constrained by cultural norms and lack of female practitioners. As one participant stated:

"We don't go to male doctors, we feel ashamed."

Its societal importance lies in amplifying voices often absent from policy makers, mothers, and community leaders and converting their lived realities into actionable, ethically grounded solutions. It demonstrates that rural citizens are not resistant to innovation, they simply demand dignity, fairness, and inclusion. A villager summarized this sentiment:

"A computer can help, but a real doctor must still listen."

The study explores how trust binded telemedicine, community led governance, and transparent digital systems can bridge healthcare gaps rather than deepen them.

Other than documenting disparities, the study models transformation: participatory methods reduced harms such as gender bias and exclusion while enhancing trust, access, and dignity. It shows that societal progress depends on innovation guided by empathy, cultural respect, and shared accountability. Anchored in universal values of equity, dignity, and inclusion, the work supports several UN Sustainable Development Goals: SDG 3 (Health), SDG 5 (Gender Equality), SDG 9 (Innovation), and SDG 10 (Reduced Inequalities). It builds upon the researchers' prior scholarship in activist realm encompassing ethics, healthcare, and sustainable policy design, extending it into applied impact. In a nutshell, the study embodies the mission by proving that ethical, context-sensitive healthcare digitization can foster equitable innovation transforming research into real, measurable social good.

Literature Review

In rapidly developing countries, there is a common misconception that simply living near a hospital or clinic guarantees equitable access to medical care (World Health Organization, 2022). However, systemic realities reveal a starkly different narrative, particularly where deep rooted socio economic divides persist (Sabir & Naveed, 2018; Zaidi, 2021). In Pakistan, for instance, rapid urbanization has led to the emergence of peri-urban communities on the fringes of major metropolitan zones. Yet, despite their geographic proximity to urban centers, these neighborhoods are systematically marginalized, remaining isolated from basic necessities and adequate healthcare services (Ahmed & Amjad, 2017).

At the national level, Pakistan's Primary and Secondary Healthcare (P&SH) infrastructure remains fragmented and chronically underfunded. The doctor-to-patient ratio in certain rural regions plummets to 1:10,000, contrasting sharply with the national average of 1:1,300. Consequently, despite targeted interventions such as the Expanded Program on Immunization and the Lady Health Workers initiative, public health outcomes remain critical: maternal mortality stands at 186 per 100,000 live births, and one in ten children dies before the age of five from preventable illnesses (Nasir, 2024). Furthermore, the systemic resilience of the healthcare sector is severely compromised by the outmigration of medical professionals and a restrictive healthcare budget that hovers around 1% of GDP. Efforts to revitalize District and Tehsil Headquarters Hospitals (DHQs and THQs) through infrastructural upgrades have yielded mixed outcomes, primarily hindered by planning inefficiencies, structural access barriers, and weak interdepartmental coordination.

To address these systemic bottlenecks, digital interventions have increasingly been proposed as viable solutions. Akhlaq et al. (2016) highlighted the key barriers and facilitators of health information exchange in low- and middle-income countries, noting that telemedicine and digital data sharing can significantly optimize clinical decision-making and improve service quality. More recently, Nasir et al. (2024) argued that integrating a conscientious AI framework, grounded in transparency, equity, accountability, and human centeredness, could provide essential "super assistants" to aid healthcare practitioners. They advanced a "Safe AI ethical framework" built on six pillars: sensitivity, evaluation, user-centricity, responsibility, beneficence, and security. However, while these technological milestones expand healthcare horizons, they also introduce complex challenges regarding data privacy and ethical sensitivity.

The successful deployment of these innovations depends heavily on supportive infrastructure. Multiple studies emphasize that robust internet access and device availability are prerequisite baselines for digital health equity (Alkureishi et al., 2021; Asgary et al., 2015). Beyond physical infrastructure, building digital skillsets and providing educational support are critical to helping vulnerable populations navigate these new digital environments (Choxi et al., 2022). Furthermore, Wilson et al. (2024) identified two core strategies to advance digital health equity: establishing collaborative working environments where digital health tools are co designed alongside end-users and medical professionals and launching targeted public awareness campaigns to maximize accessibility and inclusivity.

Ultimately, bridging these healthcare gaps requires a cohesive nexus between infrastructure, trained professionals, and robust policy frameworks (Abbas, 2025). This intersectional challenge is underscored by Borges do Nascimento et al. (2023), whose comprehensive tracking of digital health technologies during and after the COVID-19 pandemic identified critical infrastructural flaws, psychological barriers, and technical literacy hurdles among healthcare professionals. These findings align precisely with the structural and cultural dynamics characterizing developing healthcare systems like Pakistan's, highlighting the need for a comprehensive, trust-centered approach to digital health adoption.

Methodology

This qualitative multi-site study employed ethnographic fieldwork, semi-structured interviews, focus groups, and direct observations

across five rural and peri-urban localities in Punjab, Pakistan. Over 100 participants including patients, Lady Health Visitors (LHVs), policymakers, and technology providers were engaged. Data collection was involved for more than 50 hours of fieldwork and was conducted in Urdu and Punjabi to preserve linguistic authenticity. A grounded thematic analysis followed a three-phase process: immersion in field data, first-order construct identification (participants' words), and second-order theme synthesis (researcher interpretation). Ethical reflection was integral throughout the analysis. Frameworks such as utilitarianism, deontology, and virtue ethics were applied to evaluate systemic responsibilities and moral implications. Themes were further interpreted using the World Health Organization's Six Building Blocks for Health Systems (service delivery, workforce, information systems, medical products, financing, and governance).

Analysis and Findings

Case Insights

- **Charrar Pind – "Seven Kilometers from Care"**

Despite its proximity to Lahore's elite hospitals, Charrar Pind residents experience systemic neglect. Clinics lacked basic supplies; consultations averaged less than four minutes. Patients reported being rushed, unseen, and unheard.

"The nurse said, 'Hurry up, others are waiting.' Nobody even asked if I was comfortable," said one woman. Analog recordkeeping led to data loss and misdiagnosis, while reused syringes and sun-dried gauze exemplified dangerous improvisations. This community underscores the ethical paradox of proximity without access.

- **Sahowala – Digital Hope in Transition**

In Sahowala, interviews revealed optimism toward digitization, especially electronic medical records and telemedicine.

A local tech partner noted:

"We've made our app in Urdu so villagers can use it, but digital trust takes time."

Local leadership emerged as a critical enabler: The Union Council chairman envisioned Sahowala as *"a model for rural digital healthcare within five years."* However, digital divides and gendered access remained key barriers.

- **Faiz Pur Gaon– Between Silence and Signal**

This case exposed ethical and operational dualities: inactive hospitals, absent doctors, and fear of data misuse.

"If someone else sees my health data, they might misuse it," shared an elderly man. Thematic synthesis revealed five major issues:

1. Trust deficits
2. Gender inequities
3. Data privacy fears
4. Low digital literacy
5. Infrastructural limitations.

Yet, younger participants viewed mobile consultations as potential lifesavers if implemented with training and empathy.

- **Julliana Pind– Between Tradition and Transition**

Residents depend on home remedies and compounders amid failing public systems.

Ironically:

"Janwaran da changa hospital ae…doctors time te aa jaande ne" ("Animals have better hospitals…veterinary doctors arrive on time") captured the ethical imbalance between human and animal healthcare.

Policymakers cited funding diversion to urban projects as a persistent issue, while tech providers stressed that

"Without electricity or trust, an app is just another icon on the phone."

- **Narowal – Mobile Clinics and Health Cards**

Government programs like *Clinic on Wheels* and *Sehat Sahulat (Health Card)* have eased financial and logistical barriers.

One woman noted,

"With the Health Card, we get medicine and treatment completely free, it helps a lot."

Yet, gaps persist in follow-up care, LHV training, and digital record integration. LHVs expressed frustration:

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"We try our best, but without gloves or clean instruments, how can we help safely?"
These accounts highlight the moral burden placed on under-supported frontline workers.

Cross-Case Themes

Across all five sites, seven recurring themes emerged:

1. **Access Paradox:** Geographic closeness to urban centres does not ensure medical access.
2. **Resource Deprivation:** Chronic shortages undermine patient dignity and safety.
3. **Cultural and Gender Barriers:** Women face constrained mobility and discomfort with male doctors.
4. **Digital Divide:** High phone ownership but low digital literacy perpetuates inequality.
5. **Trust Deficit:** Mistrust in government systems, data security, and new technologies hinders adoption.
6. **Ethical Resilience:** Local health workers display extraordinary virtue amid systemic failure.
7. **Emerging Digital Readiness:** Communities show willingness to adapt, if approached with empathy, training, and cultural alignment.

Table below serves as the conceptual anchor of this study, weaving together our three core research questions with the dominant themes that emerged from the five case studies. It maps these localized narratives against broader global frameworks, specifically aligning them with their corresponding ethical philosophies, the WHO Health System Building Blocks, and the UN Sustainable Development Goals (SDGs).

Research Question	Main Findings	Illustrative Themes	Ethical Perspective	WHO Building Blocks	Relevant SDGs
RQ1: What structural barriers impede equitable healthcare access in rural Pakistan?	Structural barriers continue to impede healthcare access	Resource deprivation, infrastructure gaps, digital divide, cultural and gender inequities	**Deontology** (right to equitable healthcare), **Utilitarianism** (maximizing societal welfare)	Service Delivery, Medical Products, Financing	**SDG 3:** Good Health and Well-being; **SDG 10:** Reduced Inequalities
RQ2: How do ethical and governance failures shape healthcare experiences?	Governance weaknesses undermine trust, dignity, and quality of care	Trust deficits, weak accountability, ethical burdens, institutional inefficiencies	**Virtue Ethics** (empathy, compassion, integrity); **Deontology** (duty of care and accountability)	Governance, Health Workforce, Information Systems	**SDG 3:** Good Health and Well-being; **SDG 5:** Gender Equality; **SDG 10:** Reduced Inequalities
RQ3: What role can context-sensitive digital health interventions play in improving healthcare equity?	Digital health interventions can enhance healthcare equity when locally adapted	Trust-building, female leadership, digital readiness, community participation	**Utilitarianism** (greater societal benefit), **Virtue Ethics** (human-centered care)	Information Systems, Workforce, Governance	**SDG 3:** Good Health and Well-being; **SDG 5:** Gender Equality; **SDG 9:** Industry, Innovation and Infrastructure; **SDG 10:** Reduced Inequalities

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To make sense of these findings, we looked at them through three classic ethical lenses: **utilitarianism**, **deontology**, and **virtue ethics**. Each one brings a different part of the problem into focus:

- **Utilitarianism (The Greatest Good):** This perspective highlights our collective responsibility to lift everyone up. In healthcare, that highlights as maximizing overall wellbeing by ensuring fair access, making digital tools inclusive, and ultimately driving better health outcomes for the entire community.
- **Deontology (Duty and Rights):** This lens focuses on moral obligations. It emphasizes that the state has a fundamental duty to guarantee justice, transparency, and a citizen's basic right to quality healthcare. Right now, the severe resource shortages and governance failures uncovered in this study directly challenge that duty.
- **Virtue Ethics (Character and Compassion):** This is all about human values like empathy, integrity, and compassion. We see this vividly in the incredible resilience of frontline healthcare workers, and it underscores why future healthcare reforms must be trust centered and driven by the community itself.

Beneath the data lies a profound reality: the stark healthcare disparities in rural Pakistan are not mere logistical failures. Instead, they are deeply entrenched in a complex web of structural, ethical, and governance crises. Yet, this also reveals a distinct landscape of opportunity. By deploying digital tools developed according to the cultural fabric of the community, fostering genuine local participation, and elevating the vital role of female healthcare leaders, a meaningful pathway towards progress seems to emerge. This approach directly advances the promises of **SDGs 3 (Good Health), 5 (Gender Equality), 9 (Innovation), and 10 (Reduced Inequalities)**, offering a blueprint to transform a fractured apparatus into a healthcare system defined by equity, conscience, and a deeply human centred philosophy.

Ultimately, fixing the system isn't just a logistical challenge; it is a profound moral imperative.

Policy and Societal Implications

This research demonstrates that digital transformation in rural healthcare is not merely a technological project, it is a moral one. For equitable progress, four actionable strategies are proposed:

1. **Community-Led Digital Literacy Programs:** Establish digital health ambassadors, particularly women to train households on using telehealth and AI tools.
2. **Ethical by Design Technology:** Ensure data privacy, multilingual access, and offline functionality in all health platforms. Moreover, ethical use of AI and other technologies to offer quick quality services and better timely effective and efficient decision making.
3. **Public and Private Partnership:** Foster partnerships between health departments and ethical tech innovators to sustain services beyond pilot phases. Usually, planning phases are done rapidly however, when it comes to implementation and right check and balance, that area still needs to be thoroughly worked on.
4. **Gender Sensitive Workforce Development:** Increase female practitioners and train LHVs in both medical and digital competencies.

Implementing these reforms would advance SDG 3 (Good Health and Well-being), SDG 5 (Gender Equality), SDG 9 (Industry, Innovation, and Infrastructure), and SDG 10 (Reduced Inequality).

As one community member put it,

“We don’t need miracles, just systems that care.”

Conclusion

This study examined healthcare inequities across five rural and peri-urban communities in Punjab through the lens of three research questions concerning structural barriers, ethical and governance challenges, and the potential of digital health interventions. The findings unveil that inequitable healthcare access in rural Pakistan is shaped less by geographical distance and more by systemic deficiencies involving resource scarcity, governance failures, gender disparities, and limited digital literacy. Ethical concerns including mistrust, weak accountability, and inadequate institutional support further exacerbate existing

inequalities. However, communities demonstrated a willingness to embrace digital innovation when technologies are designed with empathy, cultural sensitivity, and local participation. Telemedicine, ethical AI, community-led digital literacy initiatives, and gender-inclusive workforce development emerged as promising mechanisms for reducing healthcare disparities.

So, the study contributes in two ways, theoretically, by integrating the WHO Health Systems Framework with ethical perspectives derived from utilitarianism, deontology, and virtue ethics. Further, practically, it proposes a phased model of healthcare transformation centered on trust-building, pilot implementation, system integration, and sustained local governance. Ultimately, healthcare reforms in Pakistan must move beyond infrastructure expansion toward cultivating systems characterized by dignity, transparency, equity, and human-centered care.

In a nutshell, across five rural landscapes, this research contributes that Pakistan's healthcare crisis is not of geography but of governance, ethics, and empathy. The path forward lies in fusing technology with trust, embedding human values at every stage of digital reforms. If implemented correctly and ethically, digital health systems can transform despair into dignity, turning "villages without care" into more connected communities of health and hope. To put it simply: we need a healthcare system designed, governed, and truly driven *by* the people, *for* the people, and *from* the people.

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