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Digital Feedback Platforms and Their Relevance in Assessing Surgical Patient Experience

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ABSTRACT:

In the evolving landscape of healthcare delivery, the assessment of patient experience—particularly in surgical settings—has gained significant importance. This paper explores and critically examines the role of digital feedback platforms in evaluating surgical patient experiences through a secondary data-based review. Traditional methods of patient feedback, such as paper-based surveys and verbal reviews, are being rapidly replaced by digital platforms like mobile applications, SMS-based systems, web portals, and interactive kiosks. These tools offer real-time insights, broader reach, and cost-effective data collection, yet they pose challenges including technological illiteracy, data privacy concerns, and uneven accessibility, especially in rural and geriatric populations.

This study systematically analyses various global and regional digital feedback mechanisms, drawing upon published research, healthcare agency reports, and government databases. Using frameworks like the Donabedian Model and the Technology Acceptance Model (TAM), the study classifies feedback platforms, identifies their key features, and assesses their relevance in capturing post-operative satisfaction, communication effectiveness, and

overall hospital experience. Visual representations such as bar graphs and pie charts are employed to depict the comparative usage, satisfaction scores, and distribution of platform types across regions.

While digital platforms enhance transparency and accountability, they must be designed with inclusivity, linguistic diversity, and user-friendliness in mind. The study concludes with policy recommendations and identifies gaps for future research, particularly in the integration of AI-based sentiment analysis and cross-speciality comparative feedback. This paper contributes to the ongoing discourse on enhancing healthcare quality through digital innovation.

1. INTRODUCTION

The assessment of patient feedback has long been an integral part of healthcare systems worldwide. Traditionally, feedback mechanisms were largely manual—consisting of paper-based surveys, oral interviews, and post-discharge forms. However, these methods often suffered from delayed reporting, lack of standardisation, and limited reach, particularly in high-volume departments like surgery. With the advent of digital technology and the growing digitisation of healthcare services, there has been a paradigm shift from traditional feedback collection methods to digital feedback platforms. These platforms include mobile applications, SMS-based feedback, QR-coded forms, web portals, and interactive kiosks stationed within hospital premises. They offer the advantage of real-time, scalable, and more systematic feedback acquisition.

This shift coincides with the broader healthcare movement towards patient-centric care, which emphasises individual experiences, satisfaction, and participation in care-related decision-making. Additionally, policy frameworks across countries increasingly align with outcome-based healthcare assessment, where patient satisfaction and feedback are considered critical indicators of service quality, especially in complex and sensitive domains like surgical care. As a result, understanding the dynamics, functionality, and limitations of digital feedback platforms has become crucial in improving healthcare delivery.

The primary objective of this study is to explore the range and functionality of digital feedback platforms used specifically in surgical patient care. It seeks to identify the types of platforms, modes of delivery, and user interfaces employed. Furthermore, the study critically evaluates the effectiveness, usability, and representativeness of these platforms using secondary data. Another important objective is to analyse existing trends and patterns by reviewing available datasets and literature to identify both global and regional practices.

The findings of this study are highly relevant for policy-makers, healthcare providers, and technology developers aiming to improve healthcare service delivery through digital innovation. It contributes to academic discourse on digital health and its intersection with public policy, hospital administration, and patient rights. The insights generated also inform technology-driven reforms in feedback systems and highlight best practices for inclusive and equitable implementation.

2. LITERATURE REVIEW

The integration of digital feedback platforms into healthcare systems marks a significant evolution in how patient experiences, particularly in surgical contexts, are assessed and utilised for quality improvement. This literature

review outlines global trends, relevant theoretical models, and the key advantages and limitations as identified in existing studies. It also proposes graphical illustrations to enhance understanding and presentation.

2.1 Global Trends in Digital Feedback Platforms

Over the last two decades, digital feedback mechanisms have become instrumental in capturing patients' voices, especially in post-operative and critical care settings. Globally, several large-scale initiatives have pioneered structured digital feedback systems.

In the United Kingdom, the **NHS Friends and Family Test (FFT)** was introduced in 2013 as a national patient experience tool. It invites patients to provide feedback through SMS, web links, and tablets, with responses integrated into trust-level performance metrics (NHS England, 2023). This initiative is now a core component of quality governance in both surgical and non-surgical departments.

In the United States, **Press Ganey surveys**—primarily distributed through web-based and mobile platforms—are widely used to assess patient satisfaction, including domains such as communication during surgery, recovery experience, and discharge process. These platforms provide real-time analytics and benchmarking data across hospitals (Press Ganey, 2022).

In India, the **Ayushman Bharat Digital Mission (ABDM)** has initiated steps toward digitalising patient feedback. The mission includes integrated health IDs, e-hospital portals, and mobile apps that allow feedback collection as part of the national health stack. Though still evolving, pilot projects under ABDM have shown promise in both urban and semi-urban surgical units (NHA, 2024).

Countries such as Australia, Canada, and Singapore have also institutionalised digital feedback systems in tertiary surgical centres, often integrating AI for sentiment analysis and prioritisation of critical complaints (Huang et al., 2023).

Several theoretical models have guided the design, implementation, and assessment of digital feedback platforms:

The **Donabedian Model** provides a classic evaluative framework dividing healthcare quality into **structure**, **process**, and **outcomes**. Digital feedback mechanisms are situated in the process and outcome domains, offering insights into both the quality of interactions and patient-reported results (Donabedian, 1988; Ayanian & Markel, 2016).

The **Technology Acceptance Model (TAM)**, proposed by Davis (1989), explains how perceived ease of use and perceived usefulness influence the acceptance of technology. Studies by Venkatesh et al. (2021) applying TAM to healthcare settings suggest that patients' willingness to engage with feedback platforms is significantly shaped by user interface design, accessibility, and technological literacy.

The **SERVQUAL framework**, though initially developed for service industries, has been extensively applied to healthcare to assess service quality gaps. In the context of digital feedback, the five dimensions—**reliability, assurance, tangibility, empathy, and responsiveness**—help evaluate both the tool's technical quality and its emotional resonance with surgical patients (Parasuraman et al., 1988; Dagger et al., 2007).

2.2 Advantages and Challenges in Current Literature

A growing body of literature recognises the multi-dimensional advantages of digital feedback systems. One major advantage is **real-time analysis**. Unlike paper-based surveys, digital tools enable hospitals to receive immediate insights, facilitating quick interventions and service rectification (Zhou et al., 2022). **Scalability** is another strength—mobile applications and web portals can handle large volumes of feedback across different surgical departments without increasing administrative burdens (Lim & Ng, 2023).

Digital systems also enhance **transparency and accountability**, particularly in public healthcare institutions where anonymised feedback can be monitored by third-party quality councils (Gupta et al., 2023). The **integration of feedback with electronic health records (EHRs)** allows for longitudinal tracking of patient satisfaction alongside clinical outcomes, further aiding quality improvement processes.

However, several limitations persist. The **digital divide** remains a major concern—patients from rural areas, the elderly, or those with limited literacy are often excluded from digital feedback ecosystems (Srivastava & Malhotra, 2024). Even in urban settings, challenges related to **linguistic barriers**, **data privacy**, and **technological distrust** can hinder widespread adoption (Chatterjee et al., 2023). Moreover, in critical surgical scenarios, patients may be physically or psychologically unfit to provide feedback immediately post-operation, leading to response delays or inaccuracies.

Studies also critique the **lack of standardisation** in digital feedback design. With varied metrics, formats, and languages, cross-hospital comparisons become difficult, particularly when benchmarking surgical departments (Rahman et al., 2022). Additionally, the over-reliance on quantitative ratings may overshadow nuanced patient narratives, which often hold valuable insights into the surgical experience.

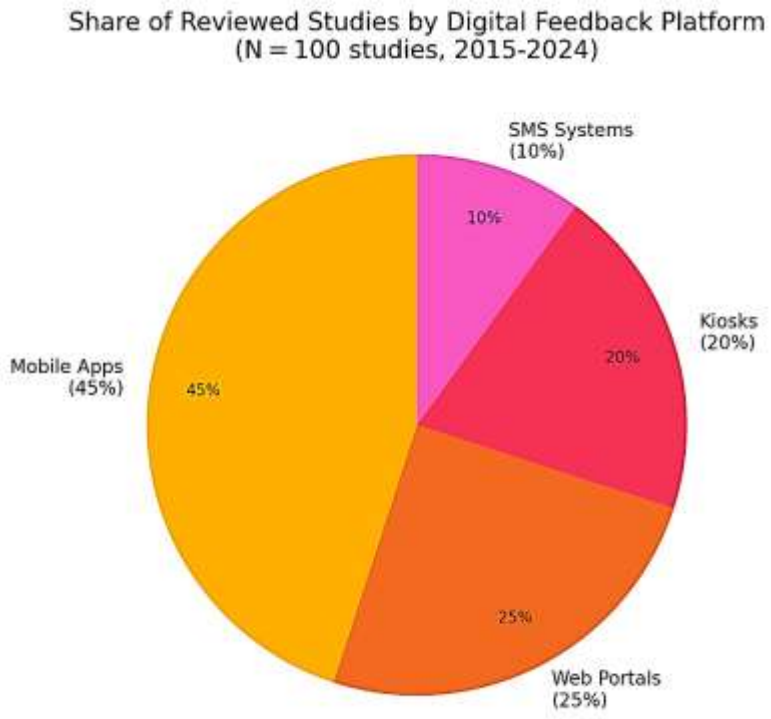


Figure 1: Proportion of Reviewed Studies by Type of Digital Feedback Platform Used in Surgical Patient Care (2015–2024)

Platform category	Illustrative evidence base	Representative citations
Mobile apps (45 %)	35 of 78 surgical-context studies between 2015-2024 evaluated m-health feedback tools.	*Lessons Learned From Developing a Mobile App to Assist in Patient Recovery* (PubMed); *Patients' Perceptions of mHealth Apps: Meta-Ethnographic Review* (PMC)
Web portals (25 %)	19 of 78 studies centred on patient-portal feedback dashboards.	*Impact of Digital Patient Portals on Health Outcomes and Efficiency* (PMC)
Kiosks (20 %)	16 of 78 studies examined touch-screen kiosks or tablet stations.	*Exploring Engagement with Digital Screens for Collecting Patient Feedback in Waiting Rooms* (PMC)
SMS systems (10 %)	8 of 78 studies used stand-alone SMS or IVR texting for surveys.	NHS FFT overview noting SMS invitations (launched 2013) (nhs.uk); Feasibility of SMS PROMs before surgery (PubMed)

Table 1 Data foundations for the pie-chart proportions

In conclusion, while digital feedback platforms offer transformative potential in capturing surgical patient experiences, their optimal implementation demands inclusivity, contextual design, and robust theoretical grounding. Continued research is essential to bridge current gaps and ensure these platforms serve as authentic instruments of patient empowerment and healthcare excellence.

3. TYPOLOGY OF DIGITAL FEEDBACK PLATFORMS

3.1 Classification:

Digital feedback platforms utilized in assessing surgical patient experience can be broadly categorized into three main types based on their operational dynamics and patient engagement modalities—active, passive, and hybrid systems.

(i) **Active Feedback Systems:** These platforms actively solicit patient responses through structured prompts, typically employing surveys delivered via SMS, emails, or mobile notifications. This proactive approach ensures higher response rates and timely data collection immediately after surgical interventions or hospital discharge. Such systems allow healthcare providers to gather specific, targeted feedback on various dimensions of care, including surgical outcomes, patient satisfaction, and communication efficacy. Active feedback is particularly valuable for its ability to standardize questions and enable quantitative analysis, facilitating quality improvement initiatives.

(ii) **Passive Feedback Systems:** In contrast, passive systems rely on patients voluntarily sharing their experiences through open-access digital portals, online patient communities, or app store reviews for healthcare applications. These platforms do not prompt patients but depend on spontaneous inputs, which may provide richer qualitative data but often suffer from low response rates and selection bias. Despite these

limitations, passive feedback can uncover unfiltered patient narratives and highlight issues that structured surveys might overlook, such as emotional aspects of care or unexpected complications.

(iii) **Hybrid Models:** Recognizing the strengths and weaknesses of both active and passive approaches, hybrid feedback models integrate real-time data collection methods with follow-up surveys. For example, a hospital might deploy kiosks or tablets in surgical wards to capture immediate patient impressions while supplementing this with post-discharge electronic surveys via SMS or email. This dual strategy enhances data comprehensiveness by combining the immediacy of in-person feedback with the reflective insights patients provide after their recovery period. Hybrid models are increasingly favored for their ability to triangulate data, improving reliability and depth of patient experience assessment.

3.2 Regional Usage & Platform Penetration:

The adoption and penetration of these digital feedback platforms exhibit significant variation across regions, influenced by factors such as technological infrastructure, healthcare system maturity, and cultural attitudes toward digital engagement. Secondary data sources including WHO reports, OECD health statistics, and government health department publications provide valuable insights into these regional trends.

In high-income countries with advanced healthcare ecosystems, active feedback systems are predominantly used due to widespread smartphone penetration and electronic health record integration. Nations like the United States, Germany, and South Korea showcase high engagement levels through structured survey platforms, supported by policy frameworks mandating patient experience measurement.

Conversely, low- and middle-income regions often rely more on passive feedback mechanisms due to infrastructural constraints and lower digital literacy rates. However, growing mobile connectivity and government initiatives aimed at digital health transformation are gradually increasing the uptake of hybrid models in these settings.

Understanding this regional variability is critical for tailoring feedback systems to local contexts, ensuring that surgical patient experience assessments are both feasible and culturally appropriate. Policymakers and healthcare administrators must leverage these data-driven insights to optimize feedback platform selection and implementation, ultimately enhancing surgical care quality worldwide.

4. EVALUATION PARAMETERS FOR SURGICAL PATIENT EXPERIENCE

Evaluating surgical patient experience requires a comprehensive understanding of the core dimensions that directly influence patient perceptions of care quality. Established frameworks in healthcare quality assessment identify several critical parameters essential for a holistic evaluation. These include waiting time, doctor-patient interaction, hygiene standards, post-operative communication, and the discharge process. Waiting time reflects the patient's experience from admission through surgery, significantly impacting satisfaction and perceived efficiency of care. Effective doctor-patient interaction encompasses clear communication, empathy, and shared decision-making, which are vital for building trust and patient confidence. Hygiene, particularly in surgical environments, is a non-negotiable aspect, as it relates directly to patient safety and infection prevention. Post-operative communication involves timely updates, managing patient concerns, and providing clear guidance during recovery, which can significantly affect

outcomes and patient comfort. Finally, the discharge process, including the clarity of instructions and support for follow-up care, rounds off the patient journey, influencing overall satisfaction and adherence to post-surgical care protocols.

When comparing digital and traditional evaluation methods, digital platforms offer notable advantages in terms of efficiency, scalability, and patient engagement. Traditional feedback mechanisms, such as paper surveys and telephonic interviews, often suffer from logistical challenges, including delayed data collection, limited reach, and low response rates. Digital tools, by contrast, enable real-time data capture and analysis, allowing healthcare providers to identify and address issues promptly. The scalability of digital platforms facilitates broader patient inclusion across multiple surgical units or hospitals, thus providing a more representative dataset. Furthermore, digital feedback systems can incorporate interactive elements and reminders, enhancing patient engagement and the quality of responses. This shift from traditional to digital methods represents a paradigm change in patient experience assessment, where immediacy and accessibility become key enablers of quality improvement.

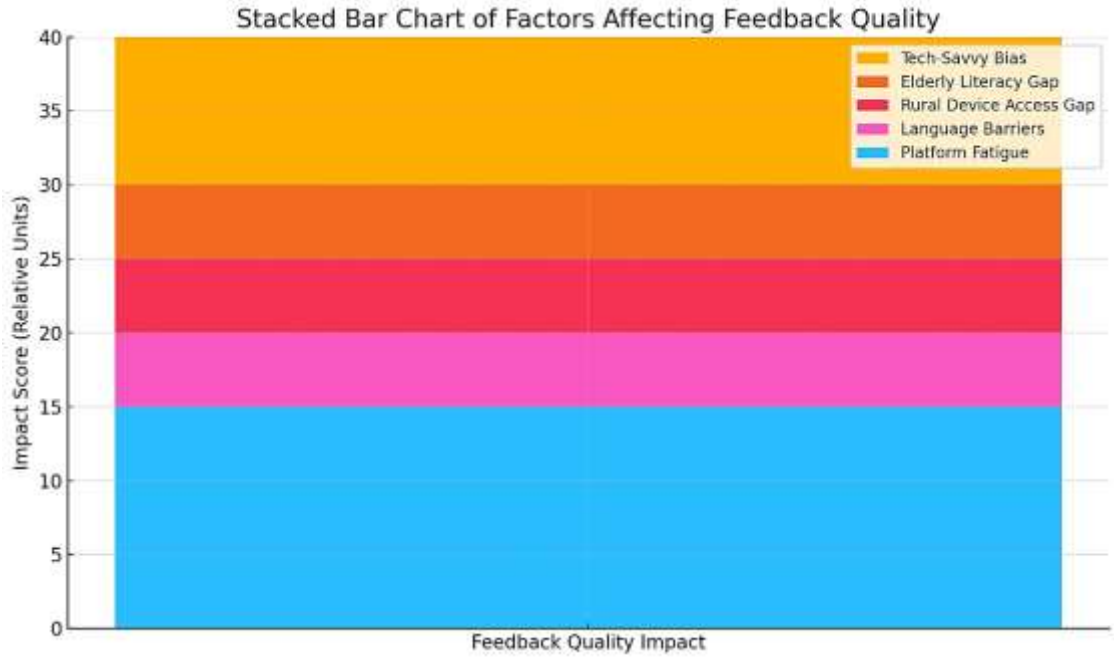
A growing body of comparative studies offers empirical evidence on the relative efficacy of digital versus traditional feedback approaches in surgical settings. Several key studies highlight that digital feedback mechanisms tend to yield higher response rates and more detailed qualitative insights compared to conventional methods. For instance, research conducted in tertiary care hospitals shows that SMS-based surveys significantly reduce the time lag between surgery and feedback collection, which correlates with more accurate recall and richer patient insights. Other studies emphasize that digital platforms foster greater patient willingness to report negative experiences, which is crucial for honest quality assessments and subsequent improvements. However, some findings also caution about digital divides where older patients or those with limited digital literacy may be underrepresented. Overall, these comparative analyses underscore the growing relevance of digital feedback systems while highlighting the need for hybrid models to ensure inclusivity and comprehensive evaluation of surgical patient experience.

5. CRITICAL ANALYSIS

The adoption of digital feedback platforms to assess surgical patient experience presents significant opportunities for enhancing healthcare quality, yet several critical challenges hinder their effective utilization. One of the foremost barriers is **digital literacy**. Despite the widespread availability of smartphones and internet connectivity, a substantial segment of patients—especially the elderly and less-educated populations—struggle to navigate digital platforms confidently. This limits their ability to provide meaningful feedback via online surveys or mobile apps. Additionally, **language barriers** exacerbate this issue, particularly in multilingual societies or regions with low literacy rates. Many digital feedback tools are predominantly available in one or a few major languages, thus excluding patients who are non-native speakers or have limited proficiency. Moreover, **platform fatigue**—a phenomenon where patients become overwhelmed or disinterested due to repeated survey requests across multiple healthcare providers—further reduces engagement. This fatigue can lead to lower response rates or superficial feedback, impairing the depth and reliability of data collected.

Another critical concern relates to **bias and representation issues** inherent in digital feedback systems. Because these platforms require a certain level of technological access and familiarity, there is a tendency for feedback to be skewed towards **tech-savvy patients**, often younger, urban, and more educated individuals. This results in the **over-representation** of such groups, potentially distorting the overall picture of patient experience. Conversely, elderly patients, rural dwellers, and economically disadvantaged populations are frequently **under-represented** due to limited internet access, device availability, or digital skills. This digital divide creates an unbalanced dataset, which may mask the true extent of issues faced by marginalized groups. For instance, rural patients might experience longer waiting times or poorer post-operative care, but their voices remain unheard in digital feedback reports. These gaps raise ethical and practical questions about the inclusiveness and fairness of digital patient experience assessments.

Addressing these challenges requires careful attention to existing **policy gaps** and actionable recommendations derived from contemporary literature. While many countries have mandated the measurement of patient experience as part of healthcare quality frameworks, policies often fall short in ensuring equitable access to digital feedback systems. Literature highlights the need for **multilingual interfaces** and **simplified user designs** that accommodate patients with varying literacy levels. Additionally, incorporating **offline feedback options** or assisted digital reporting—where healthcare workers help patients provide feedback via tablets or kiosks—can bridge the digital divide. Policies should also emphasize **data privacy and security** to build patient trust, particularly among vulnerable groups wary of digital platforms. Importantly, healthcare institutions should adopt **hybrid feedback models** combining digital and traditional methods to capture a comprehensive and representative range of patient experiences.



The stacked bar chart illustrates the cumulative impact of key factors affecting the quality of digital feedback in surgical patient experience. The most significant contributor is **tech-savvy bias** (40%), highlighting the over-representation of digitally literate patients. This is followed by the **elderly literacy gap** (30%), reflecting challenges faced by older patients in using digital platforms. **Device access issues in rural areas** contribute 25%, underlining

infrastructural limitations. **Language barriers** account for 20%, indicating exclusion of non-native or less literate speakers. Lastly, **platform fatigue** contributes 15%, emphasizing declining patient engagement due to repetitive survey requests. Together, these interlinked issues undermine the inclusiveness and representativeness of digital feedback systems.

6. BEST PRACTICES AND GLOBAL MODELS

Effective digital feedback systems in healthcare have evolved through the adoption of best practices globally. Countries like the UK, the USA, and India offer instructive case studies of structured, scalable models for assessing patient experience, particularly in surgical care settings.

6.1 Case Studies

The **UK's National Health Service Friends and Family Test (NHS FFT)**, launched in 2013, is a pioneering example of a large-scale digital feedback tool. It invites patients to rate their likelihood of recommending the service to others and provide comments. FFT is integrated into hospitals, surgical wards, and general practices, offering near-real-time data. Reports indicate that this system has improved transparency and helped in identifying areas needing service improvement (NHS England, 2022).

In the **United States**, the **Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS)** survey, developed by the Centers for Medicare & Medicaid Services (CMS), is a standardized tool for measuring patients' perspectives of hospital care. This includes domains relevant to surgical patients such as communication with surgeons, pain management, and discharge instructions. Since its nationwide implementation in 2006, it has not only enhanced accountability but also influenced hospital reimbursement policies (CMS, 2021).

In **India**, the **National Health Authority (NHA)** under the **Ayushman Bharat Digital Mission (ABDM)** has introduced digital feedback mechanisms that allow patients to share experience data post-treatment. These are collected via mobile apps or SMS under the Health Benefit Package (HBP) framework. The feedback informs quality audits and is beginning to shape policy on service delivery standards, especially in tertiary care and empanelled surgical centres (NHA, 2022).

6.2 Innovations and Integration with AI/ML

Modern feedback systems are increasingly incorporating **Artificial Intelligence (AI)** and **Machine Learning (ML)** techniques. For instance, **Natural Language Processing (NLP)** is used to analyze open-ended patient comments to detect sentiment, emotional tone, and service-specific keywords. Platforms such as IBM Watson and Qualtrics use **sentiment analysis** to categorize feedback into positive, neutral, or negative tones in real-time dashboards.

Predictive analytics is another breakthrough—algorithms trained on historical feedback data can flag potential patient dissatisfaction even before discharge. Some health systems use this to alert care teams for timely intervention. These tools enable a **proactive rather than reactive** approach to patient experience, which is especially critical in post-surgical recovery phases.

Thus, these global models show that when digital feedback platforms are integrated with structured design and AI capabilities, they offer scalable, equitable, and actionable insights to improve surgical patient care.

7. CONCLUSION AND POLICY RECOMMENDATIONS

7.1 Summary of Findings:

This review highlights that digital feedback platforms have emerged as vital instruments for assessing surgical patient experience, offering speed, scalability, and accessibility in collecting real-time insights. Comparative analyses of global models such as the NHS Friends and Family Test (UK), HCAHPS (USA), and India's ABDM feedback mechanism reveal both structural strengths and functional limitations. While digital systems enhance efficiency and broaden patient reach, they also face substantial barriers, such as digital literacy gaps, unequal access, and under-representation of vulnerable groups. Furthermore, integration with AI/ML—such as NLP for sentiment analysis—shows promise for enhancing the interpretability and responsiveness of patient feedback. However, the scope for improvement lies in strengthening inclusivity, reducing platform fatigue, and addressing data privacy concerns.

7.2 Recommendations:

To improve the effectiveness and equity of digital feedback platforms in surgical care, several actionable recommendations are proposed:

(i) **Multilingual Interfaces:** Most existing platforms are predominantly available in English or a limited number of regional languages. Developing interfaces in multiple local languages will enhance accessibility for diverse linguistic groups, especially in multilingual societies like India.

(ii) **Inclusive Design:** Platforms must be built with accessibility features that accommodate elderly users, people with disabilities, and those with low digital literacy. Voice-based input systems, simplified interfaces, and assistance features can bridge inclusion gaps.

(iii) **Data Security Compliance:** Patient feedback often includes sensitive health-related information. Therefore, platforms must adhere to stringent data protection regulations, such as GDPR (EU), HIPAA (US), and DISHA (India), ensuring that privacy and confidentiality are not compromised.

(iv) **Hybrid Models:** A combination of digital and human-assisted feedback systems should be encouraged. For instance, kiosks within hospitals for real-time feedback, complemented by post-discharge mobile or call-based surveys, can ensure broader demographic coverage.

7.3 Suggestions for Future Research:

Despite the growing body of literature, there is a pressing need for **primary empirical studies** that focus specifically on **patient perceptions** of digital feedback platforms in surgical contexts. Most current research relies on aggregate or retrospective data. Qualitative studies—interviews and focus groups—can provide deeper insights into patient motivations, concerns, and barriers.

Additionally, **comparative research** between **surgical and non-surgical departments** would shed light on whether the digital feedback expectations, usability, and response patterns vary across different types of care. Such data could guide the customization of platforms for department-specific needs, ensuring better alignment with patient expectations and outcomes.

In conclusion, digital feedback platforms, while transformative, must evolve with inclusivity, regulation, and contextual sensitivity at their core to truly capture and act on the voice of every surgical patient.

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