

A STUDY ON DIGITAL INTEGRATION OF POLICYHOLDERS, HOSPITALS, AND INSURERS FOR INSTANT HEALTH INSURANCE CLAIMS

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Abstract:

Health Insurance in India are generally confusing and slow. Many people do not understand the terms and conditions in the policy coverage, and it takes long time for claim approval. Hospitals and Insurance Companies also faces issues like fraud and counterfeit bills, excessive paperwork. This study aims at how a centralized digital system can connect policyholders, hospitals and insurance companies in one single platform. The aim is to simplify claim process, and make it fast and clear for everyone. The study is based on survey results about claim types; users experience and their satisfaction levels. The digital platform helps users to view all the details of their policy, upload their documents online, apply for claim easily, and track their claim process. This reduces the excessive paperwork, improves communication between stakeholders, and saves time. This study concludes that digital integration can build trust among stakeholders, reduces stress and reliable health insurance claim system.

Keywords: Medical Coverage, Electronic Platform, Claim Handling, Client Experience, Time-Saving.

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Introduction:

The field of health insurance has undergone many changes over the last few decades. Earlier, the entire system was manual, involving documents and paperwork. However, with the increased use of technology, the entire system has evolved into a partially electronic system. Despite the increased efforts made and the implementation of electronic policy, electronic cards, and cashless hospitalization facilities, the entire system of settling individual insurance claims is still a complex and time-consuming one.

However, because hospitals, insurance companies and policyholders do not work together smoothly problems have come up. These problems include delayed approval, miscommunication, more paperwork and an increase, in claims. This shows why we need a platform that can bring all these groups together. It should allow for transparent and reliable processing of insurance claims. Policyholders, hospitals and insurance companies must work together seamlessly. A digital platform can help achieve this.

Statement of Problem:

Policy holder usually faces difficulties in understanding the policy terms and maybe unaware of registered hospitals covered under the policy. policy holder do not receive timely updates about the claims which may create anxiety and confusion during uncertainties.

Hospital practice the difficulties such as delay in claim verification and settlement process by insurer and also

with lots of paper work which create time consuming and inefficiency. On the same hand Insurance company faces certain issues related to false claims and fake billing long verification process and lack of coordination during uncertainties. These combine the overall health insurance process slow, complicated and less transparency for all Policyholder, insurer and hospitals.

Need of the Study:

The Health Insurance Claims process in India is generally drawn out, complicated and stressful due to inadequate coordination, lack of transparency, excessive paperwork, and fraud. Most of the Hospitals and Insurance Companies deals with fraudulent claims and verification problems, because of that policyholders' experience delays, confusion and miscommunication. Understanding these issues and analyzing how digital integration simplify the claims and settlements, improves communication, mitigate fraud is the primary objectives of the research study. These findings will help in building a digital claims system more trustworthy, transparent and effective for policyholders, hospitals and insurance companies.

Limitations of Study:

1. **High implementation cost:** Developing a digital platform requires high cost for implementation to insurance companies and hospitals.
2. **Data accuracy and documentation issue:** Incomplete documentation or incorrect data may lead to delay in claim verification and approval process.
3. **Cyber security and fraud risk:** Using digital platform is risky as it may lead to misuse of sensitive data of policy holder. hacker may attempt data breach, fraudulent claims.
4. **Lack of digital literacy:** Not all policy holders are familiar with digitalisation. some policy holders may face problems during online claim process.
5. **Technical infrastructure gaps:** Small hospitals and rural areas may have lack of advanced technology and internet connectivity.

Objective:

1. To examine the problems faced by policyholders, hospitals and insurance company for instant health claim.
2. To evaluate how digitalization, speed up and improve the efficiency of claim settlement process.
3. To analyze how digital platforms help reduce fraud, fake claims, and unnecessary paperwork.
4. To make awareness to the untapped areas about the Digital Integration of Policyholders Hospitals and Insurers for Instant Health Insurance Claims.

H0 (Null Hypothesis): Policyholders, hospitals, and insurance companies don't run into any big problems during the health insurance claims process.

H1 (Alternative Hypothesis): Policyholders, hospitals, and insurance companies do run into significant problems with health insurance claims.

H0 (Null Hypothesis): Digital technologies don't really make claim settlements any faster or more effective.

H2 (Alternative Hypothesis): Digital technologies make claim settlements noticeably faster and more effective.

H0 (Null Hypothesis): Digital platforms do not significantly reduce fraud, fake claims, and excessive paperwork in health insurance claims.

H3 (Alternative Hypothesis): Digital platforms significantly reduce fraud, fake claims, and excessive paperwork in health insurance claims.

H0 (Null Hypothesis): Awareness programs have no significant effect on the adoption of digital integration for instant health insurance claims in untapped areas.

H4 (Alternative Hypothesis): Awareness programs have a significant effect on the adoption of digital integration for instant health insurance claims in untapped areas.

Review of Literature:

The impact of technology on health insurance policies and services

Insurtech is transforming health insurance by using technology to improve policies and services. It simplifies claims processing, increases accessibility, and technologies like blockchain and artificial intelligence further enhance efficiency, enabling faster claims and higher customer satisfaction.

(Dr. M. Sumathy, 2024)

Digitisation of Claim Documentation and Process Automation

Digitizing health insurance documents using technologies like OCR and NLP streamlines claims by converting paper records into structured data, enabling automated verification, reducing errors, and speeding up claim adjudication for faster resolutions. (Arora, 2024)

Digital Tools and AI in Claims Processing

Digital technologies and AI can transform healthcare insurance claims by improving efficiency through real-time data access, fraud detection, and better decision-making, but they also raise important ethical and data privacy concerns. (Zuo, 2025)

Influence of Digital Claims Technology in terms of Rejection and Accuracy

Studies show that digital claims solutions reduce claim rejections and improve accuracy compared to paper-based systems by enabling real-time data sharing between hospitals and insurers, speeding up processes and minimizing manual intervention. (Dwomoh, 2023)

Automation and AI in Claims Management

AI is transforming healthcare claims by handling tasks like processing claims, customer interaction, and fraud detection, improving efficiency and engagement. However, managing large data volumes and effectively using AI tools remains a major challenge for the industry. (Alkhelb AA, 2025)

Secure Integrated Claim Processing in Blockchain

A 2025 preprint shows that using blockchain and smart contracts for medical insurance claims creates a secure, tamper-proof system that builds trust and simplifies the claims process for patients, hospitals, and insurers. (Mamoria D., 2025)

Blockchain-Based Systems in Medical Insurance Transactions

The analysis introduces the BMIT platform, a secure blockchain-based system that streamlines insurance and

medical claims by clearly defining roles for patients, hospitals, and insurers. Its tamper-proof records improve data accuracy, build trust, and reduce disputes. (Fei, 2025)

Research Methodology:

This research examines the efficiency with which policy owners, healthcare providers, and insurance firms make use of digital resources for immediate resolution of health insurance claims. We followed a direct strategy: a well-organized questionnaire was distributed, and gathered 110 answers overall—50 responses came from policyholders, 30 responses were from hospitals, and 30 responses came from insurance firms. The primary objective is to determine whether digital systems effectively speed up claims handling, improve clarity, and facilitate better collaboration. We executed statistical analyses using the data in order to compare the way each group understands and experiences integration of digital claims. To explore further, we applied Z-Test and T-Test to see whether there is a significant difference concerning how these three groups regard electronic claim systems.

Research Design:

This research is structured as a quantitative and in-depth study based on primary data through a questionnaire and suggested by secondary data sources such as academic paper, magazine (professional fields) and annual report. A rational analysis among policyholder, hospitals and insurance companies to examine their insight of digitalization in health insurance claims. This research focuses on the impact of digitalization in health insurance claim settlement, effective communication and transparent claim process. Analytical tools are used to evaluate responses over policyholder, hospitals and insurance company.

Quantitative Data:

We used quantitative method for data collection. We collected primary data through structured questionnaire circulated between policyholders, hospital representatives and insurance company officials. Random sampling is accepted to select survey participants. Total sample size of 110 individuals is considered, including 50 policyholders, 30 hospitals representatives and 30 insurance company officials. Secondary data is collected from research papers, journals, articles and reports related to digital health insurance systems and claim processing. The collected data shows the stakeholders experience, challenges and their satisfaction level with digital claim integration.

Qualitative Data:

The study will gather primary data through the Assessment, conversations, and Forms from policyholders, hospital staff, and insurance company officials. Surveys will help understand how satisfied users are with the digital claim process and how fast the claims are settled. Data such as claim request time, approval time, rejection rate, and settlement period before and after digital integration will be collected from the system. Interviews with hospital billing staff and insurance claim officers will give more clarity about the working process and challenges faced. Secondary data will be collected from insurer documents, healthcare payment systems, compliance norms, and digital transaction reports. Protocols from the Insurance Regulatory and Development Authority of India will be referred to for following regulation. Verification of personal details through the unique identification

authority of India will also be taken into consideration. Payment confirmation through UPI, NEFT, and RTGS will also be evaluated. Gathering all these records of information will make it more convenient to analyze how digital integration improves claim settlement by making it faster, more accurate, and more efficient.

Data Analysis and Interpretation:

In this study, the statistical analysis and interpretation of the primary data collected from policyholders, insurance companies, and hospitals about the impact of digital technology on the settlement of health insurance claims are discussed. To test the hypothesis of the study, the researcher has applied the Z-test and One Sample T-test at 5% significance level.

Statistical Tools Used:

Respondent Group	Statistical Test Used	Reason
Policyholders	Z-Test	Large sample size ($n \geq 30$)
Insurance Companies	One-Sample T-Test	Small/finite sample
Hospitals	One-Sample T-Test	Small/finite sample

Hypothesis Testing – Policyholders (Z-Test) Objective 1

To examine if digital technologies significantly speed up and improve the effectiveness of health insurance claim settlements from the policyholders' perspective.

Hypotheses:

H_0 : Digital technologies do not significantly speed up or improve the effectiveness of health insurance claim settlements.

H_1 : Digital technologies significantly speed up and improve the effectiveness of health insurance claim settlements.

Particulars	Values
Sample Size (n)	50
Sample Mean / Proportion	0.60
Hypothesized Mean (μ_0)	0.50
Z-Calculated	1.41
Z-Critical (± 1.96)	1.96
Level of Significance	0.05
Decision	H_0 Accepted

Interpretation:

We used the Z-test to see if digital technologies really make a difference in how quickly and effectively people get their health insurance claims settled. The result came out to 1.41, which falls short of the critical value of ± 1.96 for a 5% significance level. So, we stick with the null hypothesis. That means even though policyholders

feel like things have gotten better thanks to digital tools, the actual improvement in speed and effectiveness doesn't show up as statistically significant.

Hypothesis Testing – Insurance Companies (One-Sample T-Test) Objective 2

To see if digital platforms significantly reduce fraud, fake claims, and excessive paperwork in health insurance claims from the perspective of insurance companies.

Hypotheses:

H_0 : Digital platforms do not significantly reduce fraud, fake claims, and excessive paperwork in health insurance claims.

H_2 : Digital platforms significantly reduce fraud, fake claims, and excessive paperwork in health insurance claims.

Particulars	Values
Sample Size (n)	30 (example)
Sample Mean	0.56
Test Mean (μ_0)	0.50
Standard Deviation	0.50
t-Calculated	0.85
t-Critical	2.045
Level of Significance	0.05
Decision	H_0 Accepted

Interpretation:

We conducted a one-sample t-test to determine whether digital services effectively reduce fraud, fraudulent claims, and paperwork in the health insurance sector. The t-value resulted in 0.85, that is less than the boundary to be significant at the 0.05 tier. Therefore, we held on to the null hypothesis. What's the bottom line? From the perspective of insurance companies, digital systems have yet to make a major difference in decreasing fraud and paperwork up to now.

Hypothesis Testing – Hospitals (One-Sample T-Test) Objective 3:

Let's look at how awareness and digital readiness shape things in places that haven't really been explored yet.

Hypotheses:

H_0 : Awareness programs don't make much difference when it comes to people adopting digital solutions for instant health insurance claims in these untapped areas.

H_3 : Awareness programs actually do make a real difference—they push people to start using digital options for instant health insurance claims in untapped areas.

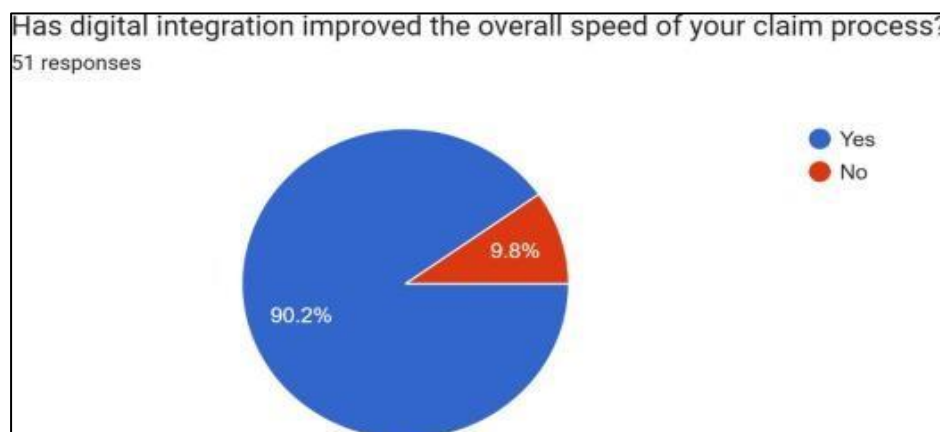
Particulars	Values
Sample Size (n)	30
Mean Score	0.233
Standard Deviation	0.430
Test Mean (μ_0)	0.50
t-value	–3.395
p-value	0.0020
Level of Significance	0.05
Decision	H ₀ Rejected

A t-value of –3.395 and a p-value of 0.002 show clear statistical significance at the 5% level, so we can reject the null hypothesis. Awareness and digital infrastructure really do drive digital integration in hospitals. But here’s the catch—the mean score is just 0.233. So even though these factors matter, most hospitals still aren’t up to speed with awareness or digital readiness. This gap shows we need better policies and more focused training to help hospitals catch up.

The objective of this research is to identify common problems and examine whether digitalization has improved efficiency in claim settlement.

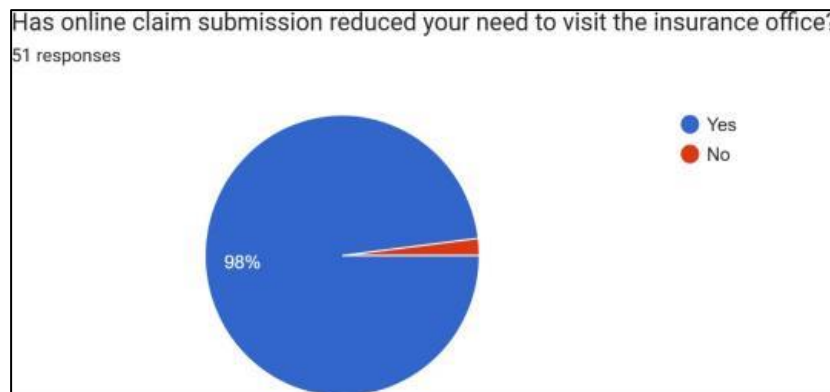
Analysis of Policyholders Responses:

Question 1:



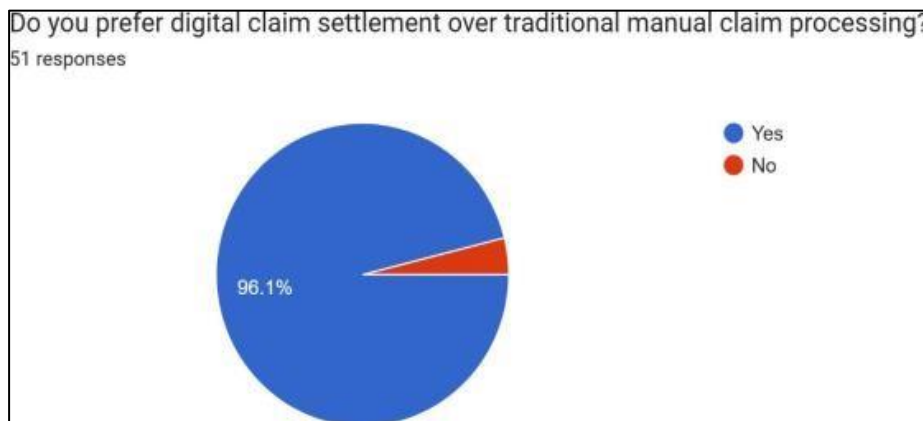
Review the chart: the majority of policyholders—around 90%—state digital connectivity streamlined claims handling. Even so, approximately 10% think things haven’t really changed in their case. Although digital systems definitely assist the majority of individuals receive faster claim processing, some individuals still experiencing the usual delays.

Question 2:



The majority of people—98% of people—state filing claims online eliminates the need to visit to physical insurance offices physically anymore. Even so, there is that 2% who must appear physically, generally due to they face documentation problems or an issue with technology.

Question 3:



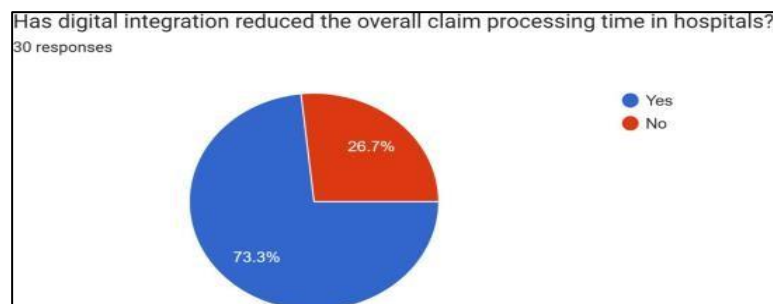
Most individuals—roughly 96%—opt for digital claims processing because they take less time and generally easier to manage. That said, some people, roughly 4%, keep using the traditional method. They either don't trust the digital process, or they're just not comfortable with the tech.

The following is what insurance holders frequently come across:

- Problems and glitches during online filing attempts
- Insufficient understanding on how these digital platforms function
- Applications continue to be delayed, although there are automated systems established
- Having to track things down without automation anyway

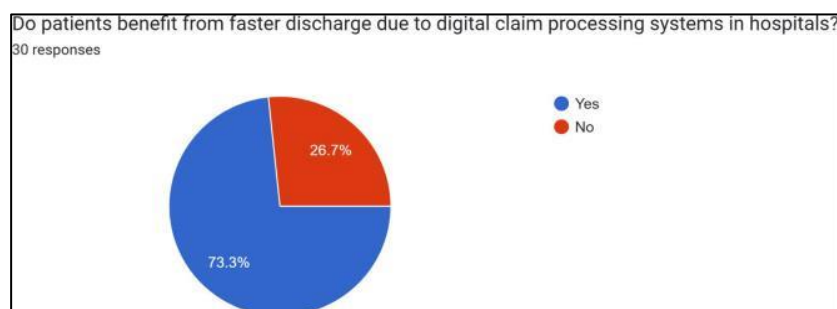
Analysis of Hospitals Responses:

Question 1:



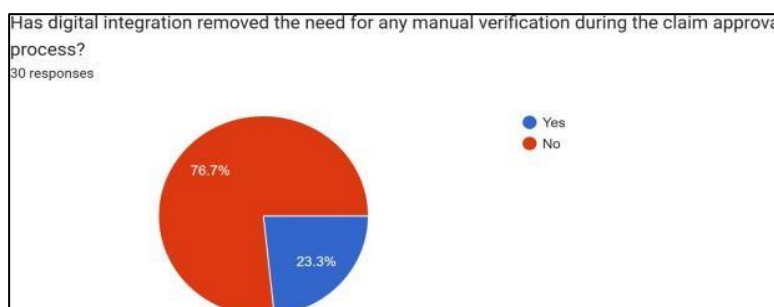
The pie chart indicates that 73.3% of hospitals observed reduced claim processing time after digital integration. However, 26.7% reported minimal change due to system inefficiencies.

Question 2:



Most hospitals 73.3% believe digital claim systems help in faster patient discharge. However, 26.7% stated that approval delays from insurers still affect discharge timing.

Question 3:



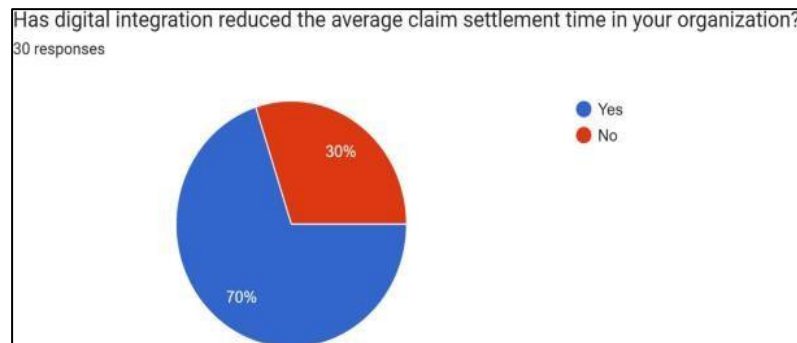
Only 23.3% stated their infrastructures are completely automated. The remaining 76.7% continue to require individuals to get involved and verify papers to ensure accuracy and prevent fraud.

This is what healthcare facilities handle constantly: Networks shut down

- Personnel are still required to confirm details manually
- Insurance providers move cautiously
- Paperwork builds up

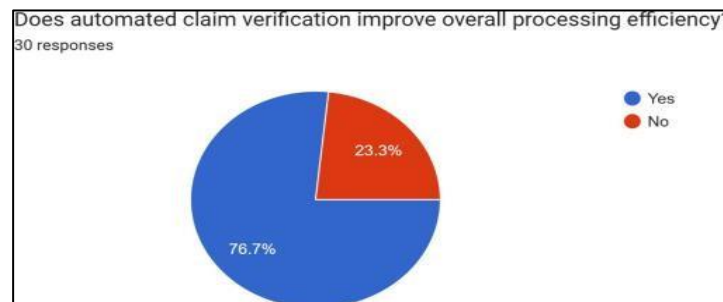
Analysis of Insurance Companies Responses:

Question 1:



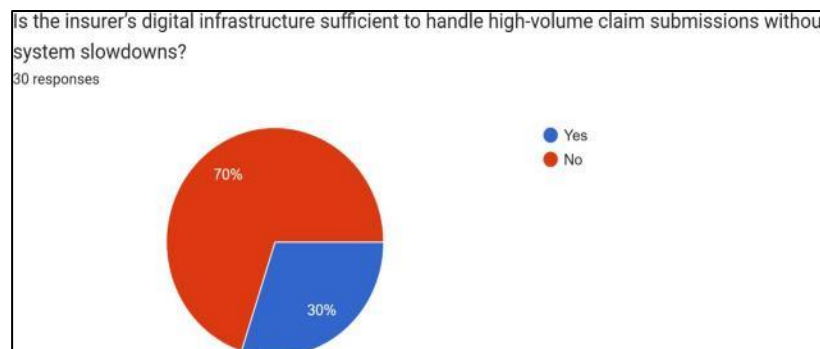
70% of insurers report automation technology helped them settle claims faster. The remaining three experienced only a small improvement.

Question 2:



The majority of insurers—approximately 76.7%—believe automated checks improves the efficiency of their processes. Even so, nearly a 23.3% are concerned about the chance that false claims pass undetected.

Question 3:



In terms of their digital infrastructure, just 30% feel assured it can handle the job. Those remaining—around 70%—work with underperforming systems each time claims increase sharply.



This is what insurance firms face challenges with:

- excessive claims received at once
- errors in detecting fraud
- technology breaking down or lagging at times of heavy activity
- remaining dependent on manual involvement and manage tasks manually

In summary, adopting digital technology has clearly benefited insurance providers operate more effectively. Applications get filed and verified more quickly. The process still has some challenges, including systems delay, technical problems, manual interventions, and claims being held up during the coordination of approval between healthcare providers and insurers. So, even with all this tech, settling claims quickly isn't a guarantee.

Challenges:

1. Data Confidentiality Issues

Hospitals and insurance companies protect the privacy of claim information. They don't provide precise information about how long claims take, how many are rejected, or how frequently fraud occurs. To protect identities, the data is altered. Data collection is slowed because access to digital claim systems is limited and requires approvals. This makes conducting thorough and precise research on health insurance claims challenging.

2. Limited Access to Respondents

Getting Access to respondent is difficult because hospital and insurance officials are usually very busy, policyholder may also lack time or interest to answer questions properly. Some responses may incomplete or not serious, requiring repeated follow ups. This ultimately affects the reliability and quality of the research findings of health insurance.

3. Fraud and Data Sensitivity

Financial information regarding health insurance claims is included in the information about health insurance. Businesses are reluctant to divulge information about health insurance claims or how they identify health insurance fraud. They fear that their reputation will suffer if this health insurance information is misused. The specifics of health insurance fraud cases are not visible to researchers. Concerns regarding health insurance also require us to be cautious about the questions we pose.

4. Digital Awareness Gap

Many health insurance customers specially in some areas do not know how to use smartphones or computers to make digital claims. Some are not even aware that online claim options exist. Because of these, they feel confused while answering survey questions, and their feedback may not be very useful. These makes difficult to judge whether the digital claim system is working properly. Insurance company should focus on spreading awareness and giving proper guidance to reduce this gap.

Remedies:

1. Remedy for Data confidentiality issues:

Use encryption to protect data. Only authorized people should access it using passwords and authentication systems. Regularly check that security systems work properly. Set clear policies to protect data and prevent unauthorized access.

2. Remedy for Fraud and data sensitivity:

By using effective technology to keep our data, we can mitigate the risks of fraud and data sensitivity. Real-time tracking activities helps us to quickly notice and halt improper conduct. Two-factor authentication increases security and guards against unwanted access. Additionally, showing customers, secure procedures lowers the possibility of data sensitivity and fraud. Due to the potential for harm to both individuals and the organization, fraud and data sensitivity are grave concerns.

3. Remedy for Limited access to respondents:

It is really tough to get the information we need because we do not have access to the people we want to ask. We can try to talk to people by using things like surveys and phone calls and face-to-face interviews. If we tell people that what they say will be kept secret then people will be more willing to share their thoughts and views, about the data we are collecting.

4. Remedy for Digital awareness gap:

Many people still do not fully understand technology and digital systems. We can teach people about technology and digital systems through training programs and workshops. This is a way for people to learn about technology and digital systems step by step. We should also tell people about technology and digital systems through awareness campaigns. If technology and digital systems are easy to use people will feel more at ease when they are using technology and digital systems. The government and private institutions must help people learn about technology and digital systems.

Conclusion:

The study shows that digital integration has made health insurance claims faster and easier for people. People can now track their health insurance claim. They can communicate better with hospitals and insurance companies. It has reduced the amount of paperwork that people have to do. It has saved then a lot of time. There are still some problems with health insurance claims. Sometimes the system is slow. It has technical issues, sometimes hospitals and insurance companies do not work together. To make health insurance claim better company should make the technology better.

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