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Technology Acceptance and Complaint-Related Readiness in Mobile JKN: A Systematic Review of Acceptance, Satisfaction, and Feedback Outcomes

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Abstract: This systematic review synthesized empirical evidence on technology acceptance and complaint-related digital readiness in Mobile JKN, Indonesia's national health insurance mobile application. Searches were conducted in Scopus, PubMed, Google Scholar, and Portal Garuda for studies published between 2018 and 2025, following PRISMA 2020. Ten empirical studies were included in the narrative synthesis. Perceived usefulness and perceived ease of use were consistently associated with Mobile JKN acceptance, intention to use, satisfaction, continued intention, and self-reported actual system use. However, none of the included studies directly measured complaint-specific intention or verified complaint submission through Mobile JKN. These findings suggest that technology acceptance may create enabling conditions for digital complaint readiness, but actual complaint behavior also requires trust, perceived responsiveness, privacy assurance, technical reliability, and clear follow-up mechanisms. Future studies should integrate TAM with consumer complaint behavior frameworks and use longitudinal designs, verified application data, and complaint log analysis to validate the pathway from Mobile JKN acceptance to actual digital patient voice behavior.

Keywords: Mobile JKN, Technology Acceptance Model, Perceived Usefulness, Perceived Ease of Use, Digital Complaint, Patient Feedback, User Satisfaction, Health Insurance Application, Digital Patient Voice

INTRODUCTION

Indonesia's Jaminan Kesehatan Nasional (JKN) is one of the world's largest national health insurance programs, covering more than 90 percent of the population and administered by BPJS Kesehatan through a nationwide network of healthcare providers. To support participant access, BPJS Kesehatan developed Mobile JKN as a digital service platform offering membership management, queue registration, facility changes, and a digital complaint and feedback channel. As digital service adoption in the JKN system expands, understanding whether participants are willing to use this channel to voice service problems has become

increasingly important for complaint governance and service quality improvement (Kumah et al., 2017; Reader et al., 2014; Wong et al., 2020).

Patient complaints represent a critical mechanism for institutional accountability and quality improvement in healthcare systems. When patients can submit complaints and receive meaningful responses, organizations gain early signals of administrative barriers, access problems, and unmet expectations (Reader et al., 2014). In digital health insurance platforms, this feedback loop depends on two conditions: first, that users accept the application as useful and accessible; and second, that users trust the institution will acknowledge and act on submitted complaints. These two conditions do not automatically co-occur. A participant may actively use Mobile JKN for administrative tasks while still avoiding its complaint feature due to uncertainty about follow-up, fear of consequences, or perceived futility, behaviors well described in the Consumer Complaint Behavior literature (Hirschman, 1970; Singh, 1988). Evidence from digital health and patient feedback research suggests that application adoption does not necessarily translate into complaint engagement. Users may remain reluctant to use formal feedback channels because of barriers related to trust, digital literacy, perceived responsiveness, and the clarity of complaint procedures (AlQudah et al., 2021; Kusumo et al., 2021; Wong et al., 2020).

The Technology Acceptance Model (Davis, 1989) and Consumer Complaint Behavior frameworks (Hirschman, 1970; Singh, 1988) have each generated substantial empirical literature, but they have rarely been integrated. TAM explains adoption; CCB explains how users respond to dissatisfaction. In the Mobile JKN context, integrating these frameworks is particularly important because the complaint feature sits at the intersection of both: it requires users to accept the platform as a legitimate and functional complaint channel (a TAM condition) and to believe that voicing dissatisfaction will produce meaningful institutional response (a CCB condition). Without this integration, studies that measure only perceived usefulness and perceived ease of use cannot determine whether users who accept Mobile JKN are also willing to use it to submit complaints. This gap is not merely theoretical. BPJS Kesehatan complaint governance relies on participant feedback through Mobile JKN to identify service failures at primary healthcare facilities, yet the available Mobile JKN literature provides limited direct empirical evidence on whether technology acceptance is associated with complaint-specific behavior in this context.

A review of existing Mobile JKN studies reveals a systematic pattern: research has concentrated heavily on acceptance, usage intention, and satisfaction, while complaint-specific behavior remains entirely unmeasured. Table 1 summarizes this gap.

Table 1. Comparison Between What Has Been Studied and What Remains Unstudied in the Mobile JKN Literature

Dimension	What Has Been Studied	What Has Not Been Studied
Theoretical framework	TAM, UTAUT, C-TAM-TPB applied to general Mobile JKN use	Integration of TAM with Consumer Complaint Behavior frameworks
Outcome variables	Perceived usefulness, perceived ease of use, attitude, behavioral intention, satisfaction, self-reported actual system use, continued intention	Complaint-specific intention, verified complaint submission, digital patient voice behavior
Study design	Cross-sectional self-reported surveys	Longitudinal studies, application log analysis, verified behavioral data
Analytical scope	General application adoption and service satisfaction	Complaint channel use, complaint follow-up engagement, complaint-related trust
Contextual factors	Digital literacy, usability, service convenience	Trust in institutional response, privacy assurance, perceived complaint effectiveness

This evidence gap indicates that existing Mobile JKN literature cannot yet answer whether technology acceptance translates into willingness to use the complaint feature. This

review therefore asks: To what extent do existing studies on Mobile JKN provide evidence linking technology acceptance constructs to digital complaint readiness? By synthesizing available evidence and explicitly mapping what remains untested, this review aims to distinguish general application adoption from actual digital patient voice behavior and to establish a research agenda for integrating TAM with CCB in the context of Indonesia's national health insurance digital platform.

METHODS

This study was designed as a systematic literature review to synthesize empirical evidence on the relationship between technology acceptance constructs and complaint-related digital readiness in Mobile JKN. The review primarily focused on perceived usefulness and perceived ease of use as the two core constructs of TAM, while also considering studies using UTAUT and C-TAM-TPB (Davis, 1989; Taylor & Todd, 1995; Venkatesh et al., 2003). The review was conducted in accordance with PRISMA 2020 (Page et al., 2021). An internal review protocol was developed prior to the search, specifying the review objective, eligibility criteria, information sources, search strategy, screening procedures, data extraction items, quality appraisal approach, and synthesis plan. Although the protocol was not registered in PROSPERO, it is provided in full as Appendix A of this article. Readers wishing to replicate the search may consult Appendix A for the complete eligibility criteria, search strings per database, data extraction form, and quality appraisal items.

The literature search was conducted using Scopus, PubMed, Google Scholar, and Portal Garuda. Scopus and PubMed were used to identify peer-reviewed international studies, while Portal Garuda was used to capture Indonesian publications not indexed in major international databases. For Scopus and PubMed, full Boolean search strings combining terms related to Mobile JKN, technology acceptance constructs, complaint or feedback behavior, satisfaction, user experience, and primary healthcare settings were applied. The main search string was:

("Mobile JKN" OR "JKN application" OR "BPJS mobile" OR "BPJS Kesehatan mobile" OR "health insurance application" OR "national health insurance mobile application") AND ("technology acceptance" OR "Technology Acceptance Model" OR "TAM" OR "UTAUT" OR "C-TAM-TPB" OR "perceived usefulness" OR "perceived ease of use" OR "performance expectancy" OR "effort expectancy" OR "attitude toward use" OR "behavioral intention" OR "actual system use") AND ("complaint" OR "complaint behavior" OR "e-complaint" OR "digital complaint" OR "service complaint" OR "patient feedback" OR "grievance" OR "voice behavior" OR "satisfaction" OR "user experience" OR "continued intention" OR "intention to use") AND ("primary health care" OR "puskesmas" OR "clinic" OR "general practitioner" OR "healthcare service" OR "health insurance service")

For Portal Garuda, equivalent Indonesian-language terms were used including "aplikasi Mobile JKN," "persepsi kebermanfaatan," "kemudahan penggunaan," "minat menggunakan," "kepuasan pengguna," "perilaku komplain," and "pengaduan digital." For Google Scholar, Publish or Perish (version 8) was used to execute structured queries and export results in a reproducible format. Three queries were executed using Publish or Perish with a maximum of 100 results per query, sorted by relevance, to improve search reproducibility compared with manual Google Scholar browsing. The three queries and their result counts are reported in Appendix A. The search covered studies published between January 2018 and December 2025. The final search was conducted on January 15, 2026.

All records were exported to Mendeley for organization and deduplication. Duplicate records were removed through automated detection based on title, author, year, and publication source, followed by manual verification. Study selection was conducted in three stages: title and abstract screening, full-text eligibility assessment, and final inclusion. Two reviewers independently conducted screening and data extraction, and disagreements at each stage were resolved through discussion. Where consensus could not be reached, a third reviewer was

consulted. Extracted information included author, year, country, study design, sample size, population characteristics, technology acceptance constructs examined, outcome variables, analytical method, direction of association, effect size or path coefficients where reported, statistical significance where reported, and key conclusions.

Eligibility criteria were developed using the Population-Exposure-Outcome-Study Design framework (Page et al., 2021). The population included JKN participants, Mobile JKN users, patients in primary healthcare settings, or users of comparable digital health insurance applications. Although the search allowed comparable national health insurance applications, all eligible studies in the final dataset were conducted in Indonesia and focused specifically on Mobile JKN. The exposure was the use or acceptance of Mobile JKN, particularly where perceived usefulness, perceived ease of use, or related technology acceptance constructs were examined. The review distinguished three levels of outcome: primary outcomes included actual complaint behavior, complaint intention, e-complaint intention, and voice behavior; secondary outcomes included patient feedback, user experience, and feedback-related service outcomes; supporting outcomes included application adoption, satisfaction, self-reported actual system use, continued intention, and general usage intention, included only when theoretically linked to complaint or feedback mechanisms and not treated as equivalent to complaint behavior.

Table 2. Eligibility Criteria for Study Inclusion and Exclusion

Component	Inclusion Criteria	Exclusion Criteria
Population	JKN participants, Mobile JKN users, patients in primary healthcare settings, or users of comparable digital health insurance applications	Populations unrelated to healthcare service access or national health insurance services
Exposure	Mobile JKN or comparable national health insurance mobile applications	General mobile health applications not related to health insurance services
Theoretical construct	TAM, UTAUT, C-TAM-TPB, or related technology acceptance constructs, including perceived usefulness, perceived ease of use, performance expectancy, effort expectancy, attitude, behavioral intention, actual system use, satisfaction, or continued intention	Studies without explicit technology acceptance constructs
Primary outcomes	Actual complaint behavior, complaint intention, e-complaint intention, or voice behavior	Studies focusing only on clinical or biomedical outcomes
Secondary outcomes	Patient feedback, user experience, or feedback-related service outcomes	Studies unrelated to complaint, feedback, or service experience
Supporting outcomes	Application adoption, satisfaction, actual system use, continued intention, or general usage intention when theoretically linked to complaint or feedback mechanisms	General application use without relevance to Mobile JKN or digital health insurance services
Study design	Quantitative, mixed-methods, quasi-experimental, or qualitative studies with empirical data	Editorials, opinions, commentaries, or non-empirical reports
Publication period	2018-2025	Studies published before 2018
Language	English or Indonesian	Articles without sufficient English or Indonesian information for eligibility assessment
Verification	Traceable source with complete bibliographic information, either with a valid DOI or a stable journal/repository URL	Non-verifiable source, placeholder DOI information, or incomplete publication details

Methodological quality was assessed using tools appropriate to each study design: the Joanna Briggs Institute Critical Appraisal Checklist for Analytical Cross-Sectional Studies (Moola et al., 2020), the AXIS tool for survey studies (Downes et al., 2016), and the Mixed Methods Appraisal Tool version 2018 for qualitative and mixed-methods studies (Hong et al., 2018). Studies were categorized as high quality when they met 75 percent or more of applicable items, moderate quality when they met 50 to 74 percent, and low quality when they met fewer than 50 percent. Quality assessment was conducted independently by two reviewers, and disagreements were resolved through discussion. Item-level appraisal results are presented in Supplementary Table S1. Quality appraisal was used to contextualize the interpretation of findings, and no studies were excluded solely on the basis of quality given the small number of eligible studies.

A meta-analysis was not conducted because the included studies varied considerably in design, measurement instruments, outcome definitions, and statistical reporting, and not all reported comparable effect sizes or confidence intervals. Structured narrative synthesis was used instead. Findings were grouped by technology acceptance construct, mapped by outcome type, and summarized using vote counting by direction of effect. It is important to note that vote counting in this review was used strictly as a descriptive aid to summarize whether associations were reported as positive, negative, mixed, or not significant across studies. Vote counting does not weight associations by sample size, effect magnitude, or methodological quality, and it cannot be used to infer causal relationships or generalize effect sizes. This limitation means that a study with $n = 37$ and a study with $n = 431$ contribute equally to the count, which may overrepresent small-sample findings. Where available, path coefficients, regression coefficients, correlation values, and p-values from individual studies are reported in Table 3 alongside the direction of effect to partially compensate for this limitation. The overall interpretation of findings was additionally weighted by study quality, conceptual directness, and relevance to complaint-related outcomes in the Mobile JKN context.

RESULTS AND DISCUSSION

Results

Study Selection

The database search identified 847 records from Scopus, PubMed, Google Scholar, and Portal Garuda. After removing 189 duplicates, 658 records were retained for title and abstract screening. A total of 591 records were excluded because they were not related to Mobile JKN or comparable digital health insurance applications, did not apply TAM, UTAUT, or closely related technology acceptance constructs, or did not examine application acceptance, intention, satisfaction, feedback, or complaint-related service outcomes. The remaining 67 full-text articles were assessed for eligibility. Studies with unverifiable bibliographic information, placeholder DOI information, unclear publication status, or no relevance to Mobile JKN or national health insurance digital services were excluded. After verification, ten empirical studies were retained for final narrative synthesis (Damanik et al., 2024; Febisatria & Liliyan, 2024; Harsono et al., 2021; Khairunnisa et al., 2023; Liliyan et al., 2024; Meisari et al., 2024; Nikmah et al., 2024; Rahman & Chaniago, 2025; Syamsuar & Al Reza, 2022; Wahyudi et al., 2021).

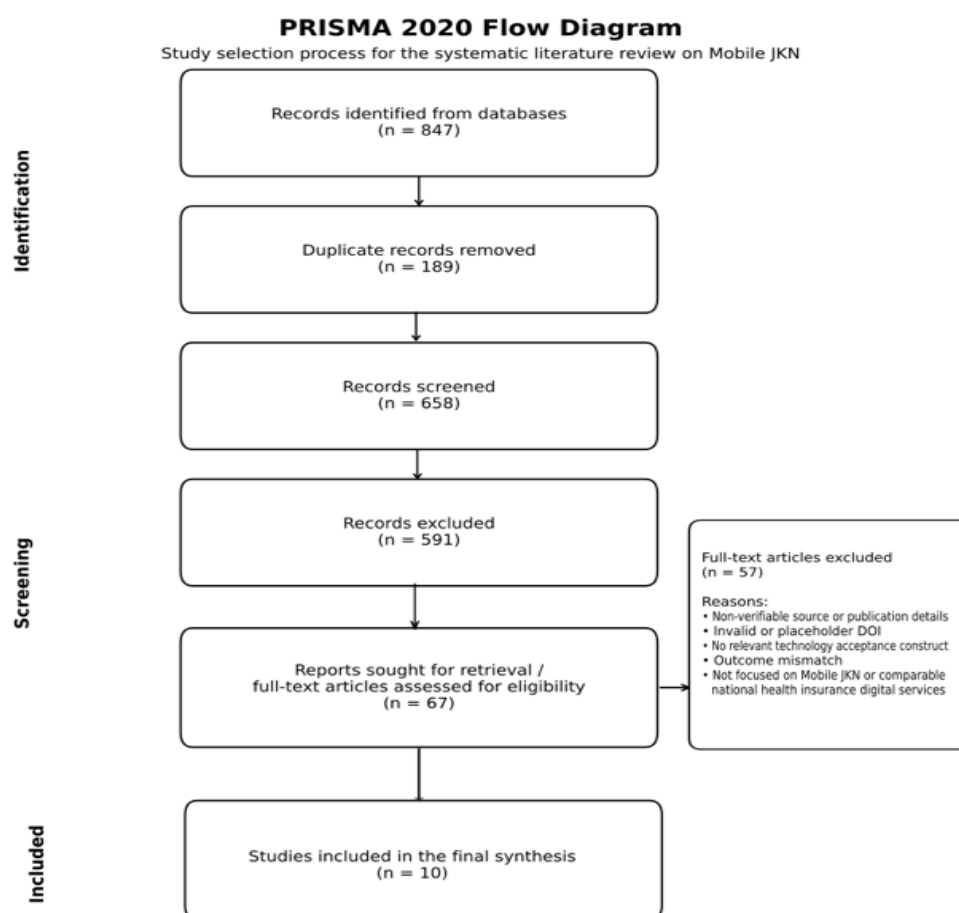
Table 3. PRISMA-Based Study Selection Summary

Selection Stage	Number of Records	Description
Records identified	847	Records identified from Scopus, PubMed, Google Scholar, and Portal Garuda
Duplicates removed	189	Duplicate records removed through automated and manual checking
Records screened	658	Titles and abstracts screened

Records excluded	591	Excluded because of irrelevance to Mobile JKN, TAM/UTAUT constructs, or complaint/feedback-related outcomes
Full-text articles assessed	67	Articles assessed for eligibility
Full-text articles excluded	57	Excluded because of non-verifiable sources, placeholder DOI information, lack of technology acceptance constructs, or outcome mismatch
Studies included in final synthesis	10	Verifiable empirical studies on Mobile JKN or comparable national health insurance mobile applications

The complete study selection process is presented in the PRISMA flow diagram (Figure 1). The diagram summarizes the identification, screening, eligibility assessment, and final inclusion stages used to determine the studies included in the narrative synthesis.

Figure 1. PRISMA 2020 flow diagram of study selection



Characteristics of Included Studies

All ten included studies were conducted in Indonesia and focused specifically on Mobile JKN. Although the search allowed comparable national health insurance applications, no eligible study from outside Indonesia met the inclusion criteria. Most studies used quantitative survey designs and examined TAM-based or TAM-related constructs, particularly perceived usefulness, perceived ease of use, attitude toward use, behavioral intention, self-reported actual system use, satisfaction, and user acceptance (Damanik et al., 2024; Harsono et al., 2021; Liliyan et al., 2024; Meisari et al., 2024; Nikmah et al., 2024; Rahman & Chaniago, 2025; Wahyudi et al., 2021). Several studies extended the technology acceptance framework by incorporating UTAUT, C-TAM-TPB, or additional constructs including subjective norm and

perceived behavioral control (Khairunnisa et al., 2023; Syamsuar & Al Reza, 2022). No study in the final dataset directly measured verified complaint submission behavior through the Mobile JKN complaint feature. Only a small number discussed complaints, application errors, slow response, or service dissatisfaction as contextual issues (Damanik et al., 2024; Febisatria & Liliyan, 2024; Rahman & Chaniago, 2025), confirming that the literature provides an indirect but relevant basis for understanding complaint-related readiness.

Table 4. Characteristics of Included Studies with Effect Direction and Statistical Significance

Study	Design	n	Model	Main Variables	Direction	Effect Size / Key Statistic	Outcome Type	Quality
Harsono et al. (2021)	Quantitative cross-sectional descriptive	38	TAM	PU, PEOU	Positive	PU: 82.5% rated very useful; PEOU: 84% rated very easy (descriptive percentage; no inferential statistic reported)	Supporting: general perception	Moderate-High
Wahyudi et al. (2021)	Quantitative SEM-PLS (SmartPLS)	190	TAM	PEOU, SN, PU, ATU, intention	Positive	PEOU significant on PU and ATU; SN significant on PU and ATU; ATU significant mediator to intention ($p < 0.05$; path coefficients: see article)	Supporting: intention to use	Moderate
Syamsuar & Al Reza (2022)	Quantitative SEM-PLS	125	UTAUT	PE, EE, SI, FC, BI, UB	Positive (PE, SI, FC, BI); Not significant (EE)	PE on BI ($p < 0.05$); SI on BI ($p < 0.05$); EE on BI (not significant); FC on UB ($t = 4.013$, $p < 0.05$); BI on UB ($t = 5.636$, $p < 0.05$); $R^2(BI) = 34.3\%$; $R^2(UB) = 59.3\%$	Supporting: use behavior	Moderate
Khairunnisa et al. (2023)	Quantitative SEM (AMOS)	431	C-TAM-TPB	PU, PEOU, ATU, SN, PBC, BIUS	Positive (PU, PEOU on ATU; SN on BIUS); Not significant (ATU, PBC on BIUS)	PU on ATU ($p < 0.05$); PEOU on ATU ($p < 0.05$); ATU on BIUS (not significant); SN on BIUS ($p < 0.05$); PBC on BIUS (not significant)	Supporting: behavioral intention	Moderate
Febisatria & Liliyan (2024)	Qualitative descriptive; content analysis	Not specified	TAM (descriptive)	PU, PEOU	Mixed (negative PEOU;	No inferential statistic; qualitative: PEOU rated	Secondary: user experience	Moderate

					positive PU)	unsatisfying; recurring themes of errors, slow performance, and complaint- related concerns identified		
Liliyan et al. (2024)	Quantitative survey; regression	100	TAM	PU, PEOU, interest in use	Positive	PU significant on interest in use ($p < 0.05$); PEOU significant on interest in use ($p < 0.05$); specific beta coefficients: see article	Supporting: interest in use	Moderate
Nikmah et al. (2024)	Quantitative correlational; chi-square	382	TAM	PU, PEOU, interest in use	Positive	PU correlated with interest in use (chi- square, $p < 0.05$); PEOU correlated with interest in use (chi-square, $p < 0.05$); effect size not reported	Supporting: interest in use	Moderate
Meisari et al. (2024)	Quantitative SEM-PLS (SmartPLS)	37	TAM	PEOU, PU, ATU, BI	Positive	PEOU significant on ATU ($p < 0.05$); PU significant on ATU ($p < 0.05$); PEOU significant on BI ($p < 0.05$); PU significant on BI ($p < 0.05$); ATU significant mediator ($p < 0.05$); specific path coefficients: see article	Supporting: behavioral intention	High
Damanik et al. (2024)	Quantitative cross- sectional; regression (SPSS)	406	TAM	PU, PEOU, ATU, ASU	Positive	PU, PEOU, ATU simultaneously significant on self-reported ASU (F sig. = 0.000; R^2 = 0.827); mean: PU = 4.20, PEOU = 4.16, ATU = 4.25, ASU = 4.33 (scale 1-5);	Supporting: self- reported actual system use	High

						specific beta coefficients: see article		
Rahman & Chaniago (2025)	Quantitative survey; regression	100	TAM	PU, PEOU, satisfaction, continued intention	Positive	PU significant on satisfaction and continued intention ($p < 0.05$); PEOU significant on satisfaction and continued intention ($p < 0.05$); specific beta coefficients: see article	Supporting: satisfaction and continued intention	Moderate

Note: "See article" indicates values available in the original publication but not extractable from the accessible version of the article. PU = Perceived Usefulness; PEOU = Perceived Ease of Use; ATU = Attitude Toward Use; BI = Behavioral Intention; ASU = self-reported Actual System Use; SN = Subjective Norm; PBC = Perceived Behavioral Control; BIUS = Behavioral Intention to Use; PE = Performance Expectancy; EE = Effort Expectancy; SI = Social Influence; FC = Facilitating Conditions; UB = Use Behavior. No included study measured complaint-specific intention or verified complaint submission; all outcomes are therefore classified as supporting rather than primary outcomes.

Quality Appraisal

The overall quality of evidence was moderate. The most common methodological weaknesses across included studies were cross-sectional design, small sample sizes in several studies, non-probability sampling, reliance on self-reported measures, limited adjustment for confounders, and absence of verified behavioral data from the Mobile JKN system. These weaknesses reduce the ability of the review to draw causal conclusions about actual complaint behavior. Two studies were categorized as high quality (Damanik et al., 2024; Meisari et al., 2024), eight as moderate quality, and none as low quality. These limitations are reflected in the interpretation of all findings, and the review conclusions are accordingly framed as exploratory and hypothesis-generating rather than confirmatory.

Table 5. Quality Assessment of Included Studies

Study	Tool	Score	Category	Main Limitation
Harsono et al. (2021)	JBIChecklist	6/8	Moderate-High	Small sample and descriptive cross-sectional design
Wahyudi et al. (2021)	AXIS	Moderate	Moderate	Focuses on intention rather than actual use or complaint behavior
Syamsuar & Al Reza (2022)	JBIChecklist	6/8	Moderate	Uses broader UTAUT framework and not complaint-specific
Khairunnisa et al. (2023)	MMAT	3/5	Moderate	Focuses on acceptance rather than complaint behavior
Febisatria & Liliyan (2024)	JBIChecklist	6/8	Moderate	Descriptive perception evidence and limited generalizability
Liliyan et al. (2024)	JBIChecklist	6/8	Moderate	Outcome limited to interest in using Mobile JKN
Nikmah et al. (2024)	JBIChecklist	6/8	Moderate	Correlational design and geographically restricted sample
Meisari et al. (2024)	JBIChecklist	7/8	High	Cross-sectional survey and intention-based outcome
Damanik et al. (2024)	JBIChecklist	7/8	High	No direct measurement of actual complaint submission
Rahman & Chaniago (2025)	JBIChecklist	6/8	Moderate	Satisfaction and intention outcomes, not complaint behavior

Outcome Classification

Because no included study directly measured complaint-related readiness or complaint-specific intention, all references to complaint-related readiness in this review represent conceptual inferences derived from technology acceptance evidence rather than empirical conclusions. Outcome classification was necessary because complaint behavior, complaint intention, satisfaction, and general application adoption are conceptually distinct (Hirschman, 1970; Singh, 1988). The final dataset confirms that the strongest evidence concerns Mobile JKN acceptance and general usage intention. Evidence on actual complaint behavior remains entirely absent, while evidence on complaint-related feedback appears mainly through qualitative descriptions of user complaints, application errors, dissatisfaction, or responsiveness concerns (Damanik et al., 2024; Febisatria & Liliyan, 2024; Rahman & Chaniago, 2025).

Table 6. Outcome Classification in the Final Dataset

Outcome Category	Studies (n)	Direction	Interpretation
Actual complaint behavior	0	Not available	No verified study directly measured actual complaint submission through Mobile JKN
Complaint intention or e-complaint intention	0	Not directly measured	Complaint-specific intention remains underexplored
Patient feedback or user experience	3	Mostly mixed; identifies technical barriers and usability concerns	Relevant contextual evidence for complaint governance
Satisfaction or perceived value	2	Generally positive association with PU and PEOU	Contextual outcome, not equivalent to complaint behavior
Application adoption or general usage intention	10	Mostly positive association with TAM/UTAUT constructs	Strongest available evidence concerns acceptance and use rather than complaint behavior

To strengthen the transparency of the narrative synthesis, the direction and strength of evidence were summarized by outcome domain. Because the included studies did not report comparable effect sizes, the strength of evidence was interpreted descriptively using study quality, consistency of findings, and directness of outcome measurement.

Table 7. Direction and Strength of Evidence Across Outcome Domains

Outcome Domain	Studies (n)	Direction	Strength	Interpretation
Mobile JKN acceptance or general usage intention	10	Positive	Moderate	Consistent support across studies, but mostly based on cross-sectional self-report data
Satisfaction or continued intention	2	Positive	Low to moderate	Relevant but context-specific and not equivalent to complaint behavior
User experience or feedback-related concerns	3	Mixed	Low to moderate	Useful contextual evidence, especially on technical barriers and dissatisfaction
Complaint intention or e-complaint intention	0	Not available	Insufficient	No study directly measured complaint-specific intention
Actual complaint behavior	0	Not available	Insufficient	No study measured verified complaint submission through Mobile JKN

Synthesis of TAM Constructs

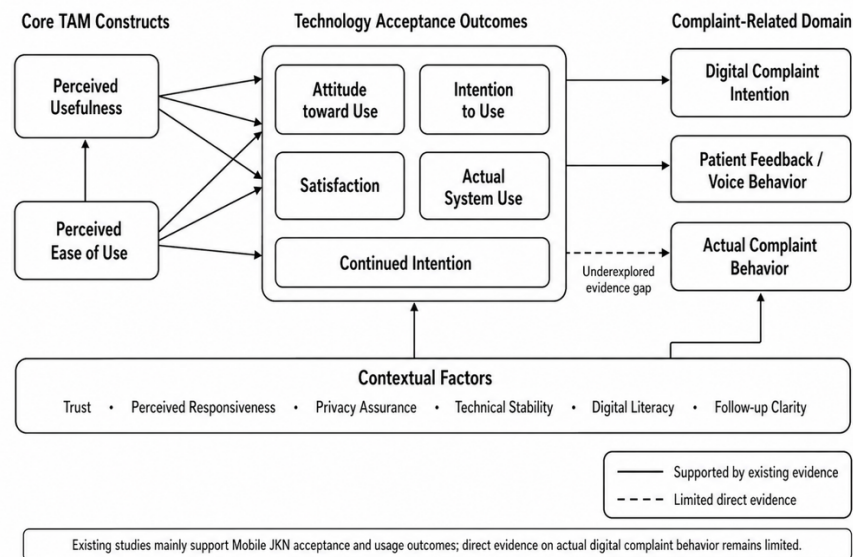
Across the final dataset, perceived usefulness was one of the most consistently reported determinants of Mobile JKN acceptance and intention to use. Studies generally suggest that users are more likely to accept or continue using Mobile JKN when they perceive the

application as beneficial for accessing health insurance services, reducing administrative burden, simplifying registration, and improving service convenience (Damanik et al., 2024; Harsono et al., 2021; Liliyan et al., 2024; Meisari et al., 2024; Nikmah et al., 2024; Rahman & Chaniago, 2025; Wahyudi et al., 2021). In contrast, the evidence does not support a direct conclusion that perceived usefulness increases actual complaint behavior. Usefulness in general Mobile JKN services should not be equated with usefulness in complaint submission, as a user may find the application helpful for checking membership status while still hesitating to submit complaints if the process is unclear or unresponsive. For complaint-related use, perceived usefulness must encompass not only usefulness for accessing services, but also usefulness for solving service problems, receiving feedback, and protecting patient rights.

Perceived ease of use was also consistently relevant across the included studies. Users are more likely to accept Mobile JKN when they perceive the application as easy to learn, easy to operate, and not requiring excessive effort (Damanik et al., 2024; Harsono et al., 2021; Liliyan et al., 2024; Meisari et al., 2024; Nikmah et al., 2024). Meisari et al. (2024) showed that perceived ease of use and perceived usefulness influenced behavioral intention through attitude as a significant mediator. For complaint-related use, perceived ease of use is particularly important because submitting a complaint requires users to locate the feature, describe a service problem, attach supporting information, and monitor follow-up responses. If this process is difficult or technically unstable, users may avoid complaint submission even when they recognize the value of reporting dissatisfaction.

The available evidence suggests that perceived usefulness and perceived ease of use may create enabling conditions for complaint-related digital readiness, but their direct relationship with complaint-specific intention or verified complaint submission remains entirely untested. To clarify the theoretical framework underlying this review, Figure 2 presents a conceptual mapping of how TAM constructs connect to technology acceptance outcomes and complaint-related domains in Mobile JKN.

Figure 2. Conceptual mapping of technology acceptance and complaint-related readiness in Mobile JKN



The framework distinguishes three stages of the pathway from technology acceptance to digital patient voice behavior. The first stage concerns TAM constructs including perceived usefulness and perceived ease of use, each operating at two levels: usefulness and ease for general administrative functions, and usefulness and ease specifically for complaint submission. The second stage concerns complaint-related readiness, shaped by trust and institutional responsiveness, including perceived safety, perceived institutional response, and

willingness to voice a complaint. The third stage concerns digital complaint behavior, comprising complaint intention, actual complaint submission, and follow-up engagement. Existing Mobile JKN evidence is concentrated on the first stage and does not extend to the second or third. This positioning makes the evidence gap precise and empirically defensible.

Discussion

Principal Findings

This review found that perceived usefulness and perceived ease of use are consistently associated with Mobile JKN acceptance, intention to use, satisfaction, continued intention, and self-reported actual system use across ten empirical studies. In contrast, existing evidence does not establish a direct relationship between technology acceptance constructs and digital complaint behavior, as none of the included studies measured complaint-specific intention or verified complaint submission through Mobile JKN. Three core messages emerge from these findings. First, Mobile JKN acceptance is not equal to complaint readiness, because accepting an application for administrative purposes does not imply willingness to use it for complaint submission. Second, complaint readiness is not equal to actual complaint behavior, because even users who recognize the value of complaining may remain silent due to distrust, fear, or perceived futility. Third, digital complaint behavior requires institutional responsiveness, not only application usability, because the decision to submit a complaint depends on whether users believe the institution will acknowledge, process, and respond meaningfully to their input.

Interpretation in Relation to Theory

The results indicate that Mobile JKN complaint use sits at the intersection of two theoretical domains: technology acceptance and consumer complaint behavior. TAM and related frameworks explain why users may accept or reject a digital platform, while Consumer Complaint Behavior explains how users respond to dissatisfaction and why they choose to voice concerns or remain silent (Davis, 1989; Hirschman, 1970; Singh, 1988; Venkatesh & Davis, 2000). In the JKN context, a patient may experience a service problem at a primary healthcare facility but still choose not to complain if the complaint channel is perceived as ineffective, unsafe, or unlikely to produce change. Complaint submission through Mobile JKN therefore requires more than general acceptance. It requires a belief that the digital channel is useful as a complaint mechanism and that the institution behind the channel will respond appropriately.

This review contributes theoretically by conceptualizing digital complaint behavior as a multi-stage process shaped by both technology acceptance and complaint governance. Users must first accept the application as useful and easy to use, then recognize the complaint feature as legitimate and safe, and finally trust that submitted complaints will be acknowledged and resolved. Therefore, improving Mobile JKN complaint governance requires both front-end usability and back-end institutional responsiveness. Healthcare technology acceptance studies consistently show that perceived usefulness and perceived ease of use are important but often insufficient without considering trust, usability, system quality, and perceived reliability (Alexandra et al., 2021; AlQudah et al., 2021). At the same time, patient feedback research emphasizes that users' willingness to voice dissatisfaction depends not only on the availability of a channel but also on whether organizations respond, learn, and improve services based on patient input (Kumah et al., 2017; Reader et al., 2014; Wong et al., 2020). Perceived usefulness in a complaint context should therefore be conceptualized not only as usefulness for accessing services, but also as usefulness for solving service problems, receiving feedback, and protecting patient rights. Similarly, perceived ease of use should encompass not only ease of navigating the application but also ease of submitting a complaint, attaching relevant information, tracking complaint progress, and understanding institutional responses.

A key implication of this theoretical framework is that digital complaint readiness should be understood as a multi-stage process. Users must first accept the application as useful and

easy to use, then recognize the complaint feature as legitimate and safe, and finally trust that submitted complaints will be acknowledged and resolved. Therefore, improving Mobile JKN complaint governance requires both front-end usability and back-end institutional responsiveness.

Comparison with Previous Literature

The findings of this review are consistent with broader healthcare technology acceptance literature, where perceived usefulness and perceived ease of use are repeatedly identified as central determinants of mHealth application acceptance (AlQudah et al., 2021; Alexandra et al., 2021). Despite this, the extension of TAM constructs to complaint governance remains insufficiently examined across health insurance contexts. Prior studies on patient feedback and complaints have highlighted that complaint behavior depends on institutional responsiveness, organizational learning, and the perceived effectiveness of complaint channels (Kumah et al., 2017; Reader et al., 2014; Wong et al., 2020). The current review confirms that this gap persists in the Mobile JKN literature, where complaint-specific outcomes have not yet been operationalized or empirically tested. This distinction is important because satisfaction with an application does not necessarily predict willingness to use it for complaint submission, particularly when complaint behavior involves emotional vulnerability, power asymmetry, and institutional trust.

Implications for Mobile JKN

For BPJS Kesehatan and primary healthcare facilities, the findings indicate that complaint-feature optimization should not be limited to interface improvement. Users need to perceive that the complaint feature produces meaningful outcomes. Complaint submission should be followed by visible acknowledgment, clear status updates, timely responses, and transparent resolution processes. Without these backend improvements, users may perceive the feature as administratively available but practically ineffective.

Perceived ease of use should be addressed through user-centered design. The complaint menu should be easy to locate, the reporting steps should be simple, and the language should be understandable for users with varying levels of digital literacy. Trust is also central. Patients may hesitate to submit complaints if they are uncertain whether their identity will be protected or whether the complaint will affect their relationship with healthcare providers. Trust-building measures may include clear privacy statements, reassurance that complaints are handled professionally, and transparent communication regarding complaint escalation and resolution. Primary healthcare facility staff can also play a role as digital health literacy facilitators by guiding patients in using Mobile JKN and explaining the complaint process (Kusumo & Kusumawati, 2022; Kusumo et al., 2021).

Table 8. Practical Recommendations for Strengthening Mobile JKN Digital Complaint Governance

Area	Problem	Recommended Strategy
Usability	Complaint menu difficult to locate and navigate	Make complaint feature visible in main navigation; simplify reporting steps and language
Responsiveness	Users unsure whether complaints are followed up	Provide complaint ticket number and real-time status tracking after submission
Trust	Fear of negative consequences from submitting complaint	Add privacy assurance statement and non-retaliation guarantee in complaint interface
Digital literacy	Users unfamiliar with complaint feature and process	Facilitate staff-assisted complaint submission at BPJS Kesehatan offices and primary healthcare facilities
Institutional learning	Complaints not systematically used for quality improvement	Classify complaints by type, severity, and service area and integrate findings into quality improvement system

Evidence from patient feedback research shows that feedback becomes meaningful only when organizations have mechanisms for interpreting, responding to, and translating user input into service improvement (Kumah et al., 2017; Wong et al., 2020). Patient complaint research similarly indicates that complaints can support patient safety and quality improvement when systematically classified and used for organizational learning (Reader et al., 2014).

Strengths and Limitations

This review has several strengths. It was conducted in accordance with PRISMA 2020, applied a structured eligibility framework, used multiple databases including Indonesian repositories, distinguished outcome types to avoid overgeneralizing from general acceptance to complaint behavior, applied appropriate quality appraisal tools for different study designs, and provided item-level quality appraisal in supplementary files.

Several limitations should be noted. The included studies are dominated by cross-sectional designs, which cannot establish causal relationships. Most studies rely on self-reported measures, which may not reflect actual application behavior. This limitation is particularly relevant for complaint research because users may express willingness to complain but still avoid actual complaint submission due to fear, distrust, or perceived futility. It is also important to note that self-reported actual system use, as measured in several included studies, should not be equated with verified usage data extracted from Mobile JKN application logs. The included studies vary in theoretical scope, with some applying TAM directly and others using UTAUT, C-TAM-TPB, or broader user experience frameworks, which enriches the review but limits direct comparability. The inclusion of Google Scholar and Indonesian repositories improved contextual coverage but may reduce search reproducibility compared with fully indexed databases. Additionally, most included studies were published in Indonesian-language or local journals, which may limit international comparability while increasing contextual relevance for the Indonesian health insurance setting. The review protocol was not registered in PROSPERO, though it is available as Supplementary File 1.

Future Research

Future research should move beyond general Mobile JKN acceptance and examine complaint-specific outcomes more directly. Six priority directions are identified. First, future studies should develop and validate a Digital Complaint Readiness scale adapted for Mobile JKN users, incorporating perceived usefulness for complaint submission, perceived ease of complaint process, trust in institutional response, and privacy assurance. Second, empirical studies should test an integrated TAM-CCB model examining the pathway from perceived usefulness and perceived ease of use through complaint readiness to actual complaint submission. Third, studies should use verified complaint log data from Mobile JKN rather than self-reported measures to assess actual digital complaint behavior. Fourth, comparative studies should examine differences between users who have used the complaint feature and those who have not, exploring what distinguishes digital patient voice from digital silence. Fifth, qualitative studies should investigate why patients choose to remain silent even when dissatisfied, focusing on trust, fear, perceived futility, and institutional power dynamics. Sixth, future research should test the role of trust and perceived responsiveness as mediators or moderators between TAM constructs and complaint behavior, as these factors are theoretically important but empirically unexplored in the Mobile JKN context.

CONCLUSION

This systematic review shows that perceived usefulness and perceived ease of use are consistently associated with Mobile JKN acceptance, satisfaction, intention to use, continued intention, and self-reported actual system use across ten empirical studies. However, existing

evidence does not establish a direct link between technology acceptance and digital complaint behavior, as no included study measured complaint-specific intention or verified complaint submission through Mobile JKN. This gap indicates that general application acceptance should not be equated with digital patient voice behavior. Digital complaint readiness requires not only usability and perceived usefulness, but also trust, privacy assurance, technical reliability, perceived responsiveness, and transparent follow-up mechanisms. Future studies should integrate TAM with Consumer Complaint Behavior frameworks and use longitudinal designs, application log data, and complaint records to validate the pathway from Mobile JKN acceptance to actual digital complaint behavior.

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