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Utilizing Electronic Word-of-Mouth Data to Identify Service Quality Gaps in Healthcare Delivery and Propose Improvement Strategies

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Authors
Pandey A.*[1] *MCom*
Sharma A.[2] *PhD*
Yadav P.S.[3] *PhD*

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[1]"Research Scholar" and "Department of Management, Mittal School of Business", Lovely Professional University, Punjab, India
[2]Department of Management, Mittal School of Business, Lovely Professional University, Punjab, India
[3]Department of Management, School of Business and Management, Christ University, Yeshwanthpur, Bengaluru, India

***Correspondence**
Address: Mittal School of Business, Lovely Professional University, Phagwara-144001, Punjab, India. Postal Code: 144001
Phone: +91 (783) 8273552
aditipandey625@gmail.com

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ABSTRACT

Aims This study examined healthcare management and service quality by integrating electronic word-of-mouth with the SERVQUAL framework to identify service quality gaps in Noida's healthcare sector.

Information & Methods This systematic review using a mixed-methods approach, assessed 28 studies published in PubMed, Scopus, Web of Science, and Google Scholar on the impact of negative electronic word-of-mouth on patients' perceptions of healthcare service quality and their decision-making in Noida, India. Using the SERVQUAL paradigm, the study identified and quantified service quality gaps across five dimensions: tangibles, reliability, responsiveness, assurance, and empathy.

Findings Healthcare service quality was multidimensional, with patient experiences influenced by factors, including reliability, responsiveness, assurance, empathy, tangibility, communication, professional competence, cleanliness, waiting time, and patient-centered care. Electronic word-of-mouth and online patient-generated information played a role in communicating healthcare experiences and shaping perceptions of healthcare providers. The empirical survey further demonstrated the importance of electronic word-of-mouth in healthcare decision-making: 84.7% of respondents searched online reviews before selecting a healthcare provider, while 85.2% reported avoiding a provider because of negative online reviews. Systematic monitoring of electronic word-of-mouth, staff communication and behavioral training, improved waiting-time management, and greater transparency regarding treatment costs may support healthcare service improvement.

Conclusion Considerable gaps between patients' expectations and experiences—particularly in responsiveness and empathy at public health facilities—underscore the need for staff training, queue-management tools, and proactive online reputation management, while recognizing that patients may prioritize doctors' expertise over eWOM when making healthcare decisionse.

Keywords Health; Feedback; Patients; Delivery of Health Care

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Introduction

In the contemporary digital media landscape, electronic word-of-mouth (eWOM) spreads more rapidly and widely than traditional WOM, much like viral marketing [1]. Consumers use online platforms to review hospitals and share their reviews with the general public and service providers. Online reviews, evaluations, and WOM influence consumers' perceptions and decision-making. In recent years, there has been an alarming increase in patients' reliance on eWOM and online reviews. The influence of negative online feedback is particularly important in healthcare because patients often face uncertainty and perceived risk when selecting healthcare services. eWOM has increasingly influenced long-term decision-making, especially decisions about healthcare. Compared with positive eWOM, negative eWOM has a greater influence on people [2].

Healthcare services are among the most elusive and difficult to assess, requiring a high level of trust in service providers [3]. eWOM is highly relevant when evaluating service-oriented businesses such as healthcare organizations. Patients and consumers often receive numerous and diverse services during treatment [4]. These interactions largely shape how they perceive healthcare organizations and how they rate and review them on public platforms.

Medical service providers must be reliable because patients depend on healthcare services for their well-being. SERVQUAL provides a structured framework for assessing different dimensions of perceived service quality [3, 5]. This approach is widely used to assess patients' perceptions of healthcare services. The use of eWOM data provides an additional perspective by capturing patients' opinions and experiences across various platforms [6]. People across all groups widely use digital platforms, which have become an important source of information.

eWOM is an online communication activity in which people share their opinions about services and products they have used. Unlike traditional WOM, which typically occurred within small groups, eWOM can reach larger audiences because of digitalization. eWOM is written and tends to remain available for a longer period, allowing it to have a longer-lasting impact. According to Van Doorn *et al.*, eWOM and WOM are both forms of consumer participation behavior. The valence of the service experience, or the satisfaction gained from that encounter, is reflected in WOM through positive or negative evaluations [7]. Strong experiences lead to strong opinions, and consumers typically take the time to evaluate and review services only under extreme conditions. Several studies show that enjoyment greatly influences WOM [8]. Matos and Vargas Rossi show that satisfaction, loyalty, and service quality are the main factors that determine a review's valence. Significant dissatisfaction results in negative judgments, while high levels of satisfaction produce favorable ones [9]. This phenomenon can be explained by the strong desire to engage in eWOM that results from either favorable or unfavorable experiences with high-quality services [10].

As patients become more empowered and informed, their desire to seek information and validate their decisions increases, especially when those decisions involve healthcare and higher expenses. People use various sources to obtain information, including personal knowledge or previous experiences, referrals, information from healthcare providers, publicly available information, and eWOM. Although these sources can provide useful information, complex or difficult-to-understand information may create information overload for patients. Because healthcare services are viewed as material goods that require a great deal of personal risk and commitment, evaluating their quality is difficult. Compared with consumers in other industries, healthcare consumers rely more on accurate and relevant information when making decisions. Negative eWOM encompasses online expressions of dissatisfaction, unfavorable experiences, or complaints about services or products. Textual or visual content that expresses dissatisfaction through strongly worded negative language constitutes negative eWOM [6].

This study examined healthcare management and service quality by integrating eWOM with the SERVQUAL framework to identify service quality gaps in Noida's healthcare sector. Drawing on a systematic literature review and empirical survey data, it explored how online reviews, particularly negative ones, shape patients' perceptions and decision-making and reveal service delivery pain points. The findings highlight systematic eWOM monitoring as a supplementary source of information for healthcare quality improvement and patient-centered decision-making, and inform strategies healthcare professionals can use to improve patient satisfaction and trust in the digital age.

Information and Methods

This paper systematically reviewed the literature on eWOM and its effects on health care service quality. To ensure transparency and reproducibility, the paper followed the PRISMA methodology. A thorough search was conducted across several academic platforms: PubMed, Scopus, Web of Science, and Google Scholar. The search used keywords, such as "eWOM healthcare," "online reviews," "patient decisions," and "SERVQUAL healthcare gaps."

The inclusion criteria were peer-reviewed journal articles relevant to eWOM or online reviews in

health care, including studies addressing patient perceptions, health care service quality, or health care decision-making. Particular emphasis was placed on empirical studies examining eWOM's influence in these areas. No publication-year restrictions were applied during the search. The 28 studies included in the systematic review were published between 1994 and 2023; this range reflects the publication dates of the included studies, not a search limit. Data extraction involved thematic coding to categorize findings into overarching themes, such as drivers of patient decision-making, SERVQUAL-based service gaps, and challenges specific to both sectors. The Newcastle-Ottawa Scale was used to evaluate study quality and support methodological rigor, with particular emphasis on minimizing the risk of bias. Finally, insights from the author's survey of 196 respondents in Noida strengthened the study's empirical grounding and regional context.

Initially, 450 papers were retrieved from various platforms. After initial screening and duplicate removal, 315 records remained. Of these, 230 were excluded, and 85 were screened by title and abstract. Twelve records that did not meet the relevance criteria were excluded, leaving 73 full-text articles for eligibility assessment. Following the full-text assessment, 45 articles were excluded based on the predefined eligibility criteria. Finally, 28 studies were included in the systematic review (Figure 1).

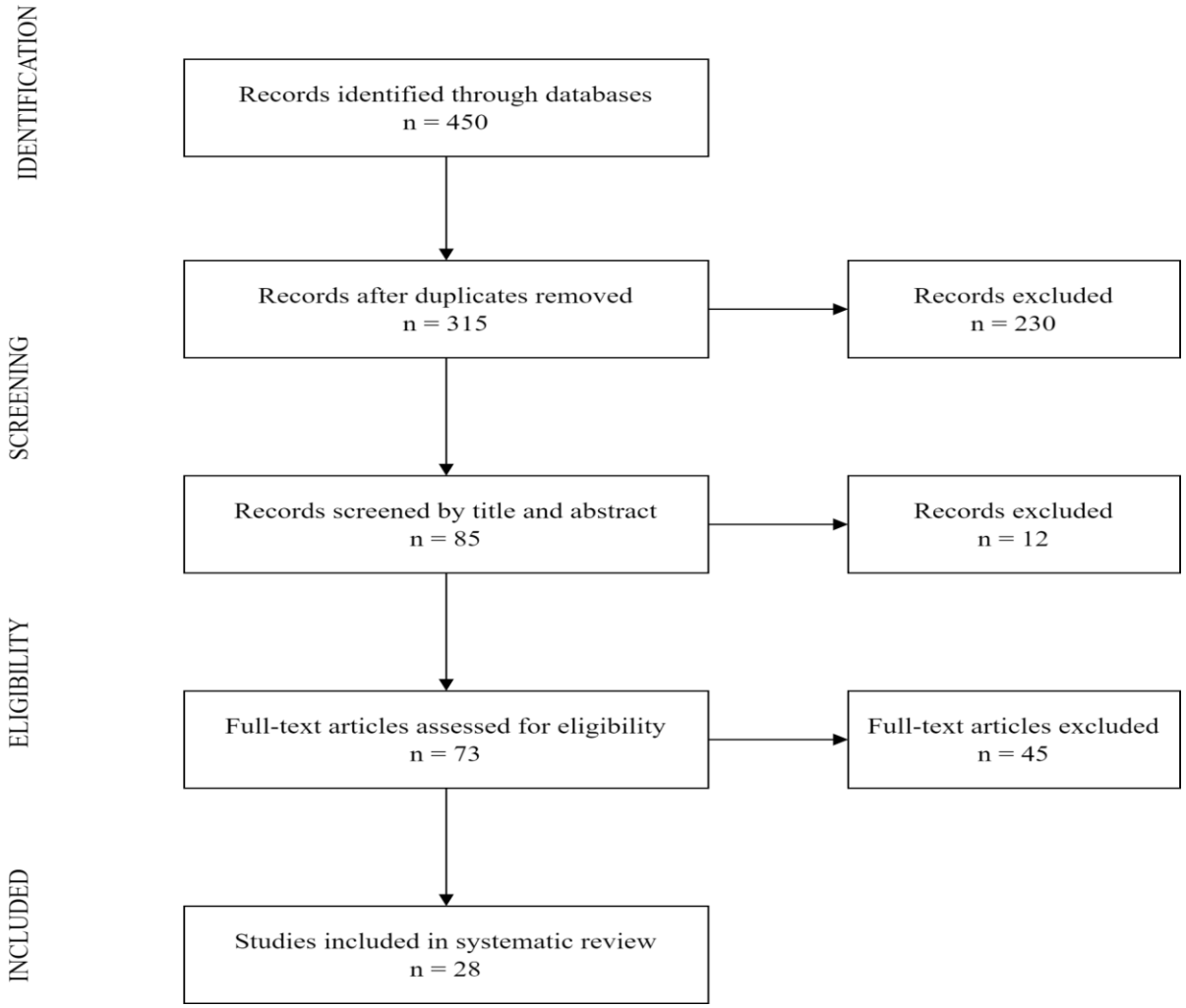

Figure 1. PRISMA flow diagram of the study selection process.

In addition to the systematic literature review, empirical survey data were collected from 196 individuals in Noida who had experienced health care services there. The survey was designed to examine the role of eWOM in the health care decision-making process and identify respondents' major concerns. The questionnaire covered five major areas: respondents' characteristics or demographics and health care use patterns; the use and influence of online reviews; responses to negative eWOM; perceptions of health care service quality and factors influencing health care provider selection; and respondents' views regarding hospitals' reputations and suggestions for improvement. The questionnaire also included questions about misleading and fake reviews, as these have somehow become part of marketing, where disparaging one business to promote another

has become a major goal. It also addressed decision-making based solely on a doctor's expertise and reputation or a hospital's image. In addition, it examined the importance respondents placed on reviews from relatives, friends, or neighbors. The questionnaire also invited respondents to provide detailed suggestions for improvement.

Findings

The 28 included studies covered research on health care service quality, patient perceptions, eWOM, online reviews, and factors influencing patients' evaluations of health care services. The studies used various methodological approaches, including SERVQUAL, gap analysis, cross-sectional surveys, and investigations of online WOM and patient-generated information (Table 1).

Health care service quality is multidimensional and extends beyond clinical outcomes. Factors, such as professional competence, hygiene and cleanliness, medical equipment, waiting time, reliability, responsiveness, communication, empathy, and interpersonal interactions were identified as important components of patients' evaluations of health care services. Studies have examined the gap between patients' expectations and their actual perceptions and showed that this gap can help identify areas for improvement. The literature highlights the importance of eWOM and patient-centered information. It also provides information about both positive and negative experiences shared through online platforms. Important themes in the reviewed literature include communication, interpersonal relationships, trust, and patient-centered care [11-38].

Table 1. Summary of the 28 studies included in the systematic review

Author, year, country	Objective(s)	Method & sample	Key finding(s)	Relevance to eWOM
Torkzad & Beheshtinia; 2019; Iran [11]	To evaluate and prioritize criteria affecting hospital service quality and rank hospitals based on these criteria	A cross-sectional study surveying 385 patients at four Iranian public hospitals, using five MCDM methods to evaluate hospital performance	The study identified four major service-quality criteria, highlighting doctors' competence, cleanliness, medical equipment, and waiting time as important factors.	Highly relevant
Rao & Clarke; 2006; England (UK) [12]	To examine whether older patients' assessments of the quality of primary care correspond with independently measured indicators of technical quality of care based on administrative and clinical records	A population-based survey of 3,487 adults aged 65+ across 18 general practices in southeast England assessed care using the General Practice Assessment Survey.	Patients' ratings of technical quality had weak, non-significant links with record-based measures, but strong links with communication, interpersonal skills, and trust. The authors recommended combining patient assessments with record-based measures.	Indirect but important relevance
La Fata *et al.*; 2017; Italy [13]	To comparatively evaluate and benchmark healthcare service quality in the Italian public healthcare sector and identify areas requiring improvement	The study evaluated service quality at five public hospitals in Sicily, using responses from 12 patients and 6 managers per hospital. It combined Fuzzy Set Theory, ELECTRE III, and Importance-Performance Analysis.	H3 ranked highest in service quality, followed by H2, H5, H4, and H1. Responsiveness was a strength at H2, H4, and H5, while healthcare staff needed improvement at H1 and H4. Relationships, accessibility, and tangibles were generally low-priority areas.	Indirect but highly relevant
Chang *et al.*; 2019; Taiwan [14]	To identify gaps between patients' families' expectations and perceptions of healthcare service quality for patients receiving prolonged mechanical ventilation, and to identify priorities for service-quality improvement	A prospective observational study surveyed family members of patients at a respiratory care center in Taiwan. It used a modified SERVQUAL questionnaire covering five service-quality dimensions and several statistical methods to assess service gaps and improvement priorities.	Expectations and perceptions of care were broadly aligned. Reliability was rated strongest and tangibles weakest. Priority improvements included equipment, accurate records, and more attentive, individualized support for patients and families. The questionnaire demonstrated strong internal consistency.	Highly relevant to healthcare service-quality gap
Scardina; 1994; USA [15]	To adapt and evaluate SERVQUAL as a tool for measuring patient satisfaction with nursing care, particularly by assessing patients' expectations and perceptions of nursing service quality	A pilot study at a large metropolitan hospital in the Mid-Atlantic region surveyed postoperative cardiothoracic patients using a modified SERVQUAL questionnaire covering tangibles, reliability, responsiveness, assurance,	Patients' expectations exceeded their perceptions in most dimensions, while assurance met expectations. Reliability and empathy emerged as the areas most in need of improvement.	It directly demonstrates the use of SERVQUAL to identify gaps between healthcare expectations and perceptions
Lee & Youn; 2009; USA [16]	To examine how different eWOM platforms influence consumers' judgements and whether the valence (positive/negative) of eWOM changes this effect	A study of undergraduate students at a Midwestern U.S. university used an experiment comparing positive and negative electronic word-of-mouth (eWOM) across brand websites, independent review sites, and personal blogs.	Review tone influenced consumer judgments, while platform type had a limited effect. Platform and review tone jointly affected willingness to recommend, but negative reviews reduced recommendation willingness across all platforms.	Very high relevance
Izogo *et al.*; 2022; Nigeria [17]	To examine how consumers' previous online shopping experiences influence the perceived credibility of negative eWOM and how this affects consumer–firm relationship quality	A scenario-based experimental study with two experiments surveyed university staff and students in Southeast Nigeria who had prior online shopping experience. The experiments examined how prior experiences and review characteristics shape responses to negative eWOM.	Positive past experiences reduced the perceived credibility of negative reviews, while negative past experiences increased it. Emotional experience was the strongest factor reducing perceived credibility. Greater credibility of negative eWOM was associated with poorer consumer–firm relationship quality, which also declined as negative reviews became more frequent.	High relevance to eWOM

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Padilla-Fortunatti *et al.*; 2019; Chile [18]	To analyse the difference between the importance and satisfaction of needs among family members of critically ill patients in an ICU	A cross-sectional study in a university hospital's medical-surgical ICU assessed family members' needs using a standardized inventory and importance-performance analysis. Satisfaction fell short of the importance placed on many communication and support needs.	Key gaps involved updates about changes in patients' conditions, knowing whom to contact at the hospital, and receiving bedside guidance.	Direct relevance to healthcare service-quality gaps
Aeyels *et al.*; 2018; Belgium [19]	To identify quality-improvement priorities in ST-elevation myocardial infarction (STEMI) care using Importance-Performance Analysis (IPA)	An observational quality-improvement study reviewed patient records from acute hospitals and used multidisciplinary input to prioritize essential interventions.	Priorities included risk assessment, timely reperfusion through PCI, and secondary prevention. Performance varied across hospitals, as did the improvement priorities identified.	Direct relevance to healthcare service-quality improvement
Mohebifar *et al.*; 2016; Iran [20]	To evaluate the quality of services provided in teaching hospitals using the Importance-Performance Analysis (IPA) matrix	A cross-sectional study in academic hospitals in Qazvin, Iran, used SERVQUAL and importance-performance analysis to assess patient-perceived service quality.	Patients' expectations exceeded their perceptions across all service-quality dimensions, with the greatest gaps in reliability and assurance. The findings indicated a need for improvement across all dimensions.	Very high relevance
Wu & Hsieh; 2012; Taiwan [21]	To evaluate the service quality of an orthopedic department and identify its major strengths and weaknesses from patients' perspectives	A quantitative case study surveyed patients discharged from orthopedic wards using a SERVQUAL-based questionnaire.	Patients rated physicians' expertise as highly important and well delivered, while transportation and parking were rated least favorably. Importance-performance analysis identified several strengths and no major weaknesses.	Very high relevance
Hennig-Thurau *et al.*; 2004; Germany [22]	To identify and examine the motivations that lead consumers to generate eWOM on Web-based consumer-opinion platforms	A quantitative online survey examined people who had previously posted online comments, excluding incomplete or inconsistent responses.	The study identified several motivations for sharing eWOM, including helping other consumers or companies, social and economic benefits, seeking advice, self-enhancement, seeking redress, and expressing positive or negative feelings. Participants could also be grouped into segments based on their motivations.	High relevance to eWOM
Xia & Bechwati; 2008; USA [23]	To examine why some online consumer reviews are more influential than others, focusing on cognitive personalization and its effect on consumers' purchase intentions	Two experimental studies examined how cognitive personalization influenced responses to positive and negative online reviews. Participants evaluated reviews of an airline and a digital camera.	For positive reviews, greater cognitive personalization increased purchase intentions, mainly by making reviews seem more useful. For negative reviews, its effect on purchase intentions appeared for airline reviews but not camera reviews.	High relevance to eWOM
Sloane *et al.*; 1999; Australia [24]	To determine who makes the decision when selecting a hospital and identify the factors considered in the hospital-selection process	A structured survey examined doctors' views in rural and regional New South Wales.	Most respondents believed patients had the final say in choosing a hospital, while others considered doctors the primary decision-makers. Key influences included hospital service standards, nursing care, location, patient preference, and cost or accommodation.	High relevance to healthcare service choice
Robinowitz & Dudley; 2006; USA [25]	To review evidence on public reporting of healthcare provider performance and examine how reporting of quality information affects providers' quality improvement efforts and consumers' perceptions and selection of providers	The paper reviews prior research on public reporting and report cards and proposes ways to make them more useful.	Public reporting had modest effects on care quality, consumer perceptions, and provider choice. The authors recommend making reported information more useful, clear, and valid.	High relevance to patient decision-making and healthcare quality information
Ferguson *et al.*; 2010; Canada [26]	To examine whether customer sociability and different dimensions of the total healthcare service experience influence positive WOM intentions	A cohort study followed surgical patients from before surgery through recovery, examining personality, personal values, information adequacy, discomfort, interactions, and recovery outcomes.	Customer sociability and aspects of the overall service experience were associated with positive WOM intentions. Findings were similar at follow-up assessments.	Very high relevance
Leister & Stausberg; 2007; Germany [27]	To identify the factors patients consider when selecting a hospital and determine the relative importance of these factors, including experience, referrals, quality information, recommendations and hospital characteristics	The study used pilot interviews followed by conjoint analysis with patients from two German hospitals.	Patients valued their own experience most when choosing a hospital. When that information was unavailable, they placed greater importance on hospital staff, quality management, quality reports, and website information. Other factors, such as personal recommendations and distance, were less influential.	Very high relevance
Trigg; 2011; UK [28]	To explore online patient reviews of healthcare providers, focusing on patients as judges of healthcare quality, motivations for posting reviews, use of online review information, and the potential of patient-opinion websites to support patient choice and quality improvement	The article reviewed existing research on online healthcare reviews, patient feedback, and provider choice.	Online reviews can help patients choose providers and support quality improvement, but their credibility and representativeness are concerns. Patients may also find it difficult to judge technical quality from reviews.	Very high relevance

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Walsh & Mitchell; 2010; Germany/UK [29]	To examine how consumer confusion caused by similarity, information overload and ambiguity affects WOM behavior, trust and customer satisfaction	The study surveyed consumers and used statistical modelling to examine relationships between consumer confusion, word of mouth, trust, and satisfaction.	The three types of consumer confusion affected word of mouth differently. Information overload and ambiguity were positively associated with it, while similarity confusion was negatively associated. Some proposed relationships were supported, while others were not.	High relevance to eWOM and patient decision-making
Gruen *et al.*; 2006; USA [30]	To examine the effect of customer-to-customer online know-how exchange (eWOM) on perceived value and customer loyalty, and to identify factors that encourage participation in online know-how exchange.	The study surveyed users of a software product through an online forum and used statistical methods to analyze the data.	Online knowledge exchange increased perceived value and WOM intentions but did not significantly affect repurchase intentions. Motivation and ability encouraged participation, while opportunity did not.	Very high relevance to eWOM
Dobele & Lindgreen; 2011; Australia, UK & Belgium [31]	To explore the nature of customer value in healthcare WOM referrals, particularly why mothers use and value recommendations when selecting healthcare providers	The study used in-depth interviews with mothers to explore how they choose healthcare providers.	Mothers valued referrals that reflected high-quality care, friendly and skilled staff, and trustworthy sources. Personal recommendations helped them assess providers and make decisions more efficiently.	Very high relevance
Harrison-Walker; 2016; USA [32]	To develop and validate measures of WOM communication and examine service quality and customer commitment as antecedents of WOM	The study surveyed consumers evaluating either a hair salon or a veterinary service and analyzed responses using statistical modeling.	Affective commitment was associated with more WOM activity and praise. Service quality had different effects across service types: it increased praise and reduced WOM activity for veterinary services, but showed no significant effects for hair salons.	Very high relevance
Singh; 1990; USA [33]	To examine voice, exit and negative WOM behaviors following consumer dissatisfaction and to determine whether these behaviors differ across service categories	The study surveyed households about recent dissatisfying experiences with automotive repair, medical care, or grocery shopping.	Negative WOM behavior varied across service categories and was less common after grocery-shopping experiences than after automotive or medical-care experiences.	High relevance
Filieri *et al.*; 2021; France [34]	To examine whether hotel/service attributes mentioned in extremely positive and extremely negative online reviews influence perceived review helpfulness, and whether hotel category moderates these relationships	The study analyzed TripAdvisor reviews of French hotels using text-mining and regression methods.	Hotel attributes mentioned in extreme reviews affected how helpful readers found them. These effects varied by rating and hotel category; for higher-category hotels, hospitality-related attributes increased perceived helpfulness, while some amenities reduced it.	Very high relevance to eWOM
Purcarea *et al.*; 2013; Romania [35]	To examine the factors determining the perceived credibility of eWOM messages in healthcare services and their influence on consumers' intention to purchase a healthcare consultation	A cross-sectional survey of women used a self-administered questionnaire and Partial Least Squares analysis.	Argument strength and source credibility were positively associated with intention to purchase a healthcare consultation. Argument strength had the strongest influence.	Very high relevance
Pauli *et al.*; 2023; International [36]	To systematically review existing research on WOM and eWOM in healthcare, identify factors influencing WOM, and identify research gaps	A systematic literature review examined research on word of mouth using business and academic databases.	Most studies focused on how word of mouth is created and its effects, while fewer explored how it spreads. Negative reviews tended to have greater influence than positive ones, often due to service-quality concerns. Online word of mouth and reviews were increasingly important in patients' decision-making.	Extremely high relevance
Lim & Tang; 2000; Singapore [37]	To assess patients' expectations and perceptions of hospital service quality and identify gaps between expected and perceived service performance	A quantitative patient survey used an adapted SERVQUAL questionnaire to assess expectations and perceptions of healthcare services.	Patients' perceptions fell short of their expectations across all service-quality dimensions. Assurance and responsiveness were especially important, while waiting times, explanations of medical conditions, and respectful treatment were notable areas for improvement.	Very high relevance to healthcare service quality
Astuti & Nagase; 2016; Indonesia [38]	To develop a framework explaining patient loyalty to healthcare organizations based on relationship marketing, patient satisfaction, provider switching and retention programmes	A cross-sectional survey examined outpatients at a hospital and a clinic, using structural equation modelling to analyse the data.	Relationship marketing was associated with patient satisfaction and provider switching. Satisfaction was positively related to loyalty, though the association was not statistically significant, while switching providers was linked to lower loyalty. The relationships varied between hospital and clinic patients.	High relevance

Of the 196 respondents in Noida, 166 (84.7%) said they searched for online reviews before selecting a hospital. Regarding the influence of online reviews on provider selection, 27.6% of respondents reported a high level of influence, whereas 64.3% reported a moderate level. Further, 167 respondents (85.2%) reported avoiding a health care provider because of negative online reviews. Google reviews were the most widely used platform (81.6%), followed by Practo (36.2%) and hospital websites (27%). The major concerns reported in negative reviews were poor service quality (54.6%), medical negligence or misdiagnosis (48.0%), cleanliness and hygiene (37.8%), treatment costs (35.7%), waiting times (34.7%), and staff behavior (33.7%).

Respondents verified online information by checking multiple review sources and consulting friends or family. The relationship between

searching for online reviews and avoiding providers because of negative reviews was statistically significant (χ^2=15.57, p<0.001; Cramer's V=0.282). Similarly, the influence of online reviews was positively associated with provider avoidance (ρ=0.280, p<0.001).

The empirical data gathered from 196 respondents in Noida provide important insights into eWOM and its effects on perceptions and decision-making in health care. Negative online reviews had a powerful effect on health care decisions, with 85.2% of respondents reporting that they had avoided providers with bad reviews. This tendency to avoid certain providers is consistent with previous research showing that eWOM is given greater weight in health care than in other sectors because of the severity and risks associated with decisions about medical care.

These findings relate directly to SERVQUAL dimensions, particularly gaps in reliability and responsiveness, which were identified as important determinants of patient satisfaction. Respondents expressed concerns about poor service quality, medical negligence or misdiagnosis, cleanliness, treatment costs, waiting times, and staff behavior. Respondents also indicated that doctors' expertise and reputation take priority over other reviews of a health care provider.

The principal sources of eWOM in the health care arena in urban India were Google Reviews (81.6%), Practo (36.2%), and hospital websites (27.0%), reflecting the digitization of health care information-seeking behavior. However, the extent of their influence varied: 64.3% of respondents were moderately influenced, and 27.6% were extremely influenced, by online reviews when selecting health care providers. This suggests that although eWOM influences most patients, a significant minority consider digital feedback paramount when making crucial decisions about their health.

Discussion

This study examined healthcare management and service quality by integrating eWOM with the SERVQUAL framework to identify service quality gaps in Noida's healthcare sector. In the digital age, eWOM has become a significant factor in patient decision-making and the evaluation of health care services. According to the systematic review and the empirical results from 196 respondents in Noida, patients' opinions of health care services were influenced by various factors, including service experiences, staff behavior, waiting times, communication, affordability, and information available online. Negative eWOM may have behavioral and reputational consequences.

It has become a considerable challenge for health care executives to understand and manage patients' expectations, provide and ensure high-quality care, and maintain the organization's competitiveness [39]. In the current digital age, patients are more informed than ever. They actively seek health information online and compare the care they receive with their expectations. When these expectations are not met because of perceived quality issues, service inefficiencies, or costs, patients are increasingly able to switch providers and express dissatisfaction with them on websites and social media platforms. Thus, although managing patients' expectations was formerly viewed from a clinical perspective, it has now become a strategic priority for health care organizations. Patient satisfaction serves as an important barometer for measuring the quality of health services and is based on the match or mismatch between patients' expectations and their actual experiences. Therefore, health care leaders should proactively seek to understand the root causes of patient discontent through various means, including satisfaction surveys, focus groups, and careful monitoring of eWOM across digital platforms [4]. Patients' satisfaction ratings are influenced not only by medical outcomes but also by nonclinical factors, such as providers' communication skills, staff empathy, and care coordination. Patients who feel genuinely heard and respected by their care teams tend to report higher levels of satisfaction and greater loyalty to their providers.

In addition, eWOM may serve as a proxy for perceived gaps in service quality. Patients' online assessments address interpersonal and operational aspects of health care delivery, in addition to the technical aspects of treatment, as evidenced by complaints about inadequate clinical care, staff behavior, and lengthy wait times. These findings are consistent with the study's application of the SERVQUAL perspective, particularly regarding the importance of reliability, responsiveness, and empathy in influencing patient satisfaction.

Digital platforms are becoming increasingly important sources of health care information. Although Google Reviews and Practo were identified as significant sources of eWOM, only a small percentage of respondents said that online reviews did not influence their choice of health care providers. Thus, health care organizations can no longer manage online patient feedback and service quality independently. Rather, eWOM can provide an additional source of data for identifying persistent patient concerns and understanding areas where expectations may diverge from actual experiences.

Patients' perceptions of health care quality include several specific dimensions that are not captured by traditional measures. One crucial aspect is a patient-centered approach, which focuses on tailoring treatment to individuals, actively involving patients in decision-making, and holistically addressing their physical and emotional needs. Outcomes associated

with this approach have substantially improved patient satisfaction and loyalty, as reflected in positive online reviews and recommendations. Patients are increasingly aware of and appreciative of providers who use their clinical skills to achieve optimal patient outcomes; providers' performance profiles often become a central topic in eWOM discussions [5]. Inadequate communication often prompts negative online feedback and frustration, whereas excellent communication earns praise in patient reviews [40].

The empathy and psychological support provided by health care workers are also significant factors in assessing patient experiences. Patients remember the compassionate care shown to them during times of vulnerability and fragility and are likely to describe it in testimonials, blogs, and on social networking sites [41]. Digital accessibility and convenience also contribute to contemporary care quality. As telehealth services expand, patients increasingly evaluate providers based on the quality of their digital infrastructure, including the ease of use of online portals, the efficiency and simplicity of appointment scheduling, and smooth access to medical records [42]. Cost transparency is another important factor influencing patient satisfaction. Clarifying treatment costs, insurance coverage, and any out-of-pocket expenses builds trust and eases patient apprehension. Unexpected charges and ambiguous billing practices often result in negative online reviews and damage institutional reputations. These alternative dimensions of health care quality directly affect the generation and dissemination of eWOM messages.

Positive experiences in these areas lead to favorable online recommendations, while negative experiences lead to poor reviews that could deter potential patients. Health care organizations that monitor and respond to eWOM can gain invaluable insights for quality improvement and reputation management. By aligning service delivery with the factors patients consider important, providers can enhance satisfaction and build trust, thereby positively influencing their online image in the digital health care era. As providers improve these dimensions of care in response to patient feedback, positive online sentiment increases, strengthening their position. This demonstrates how essential good service quality and online reputation management have become to health care delivery today.

In the health care industry, credibility is one of the foundations of patient trust. Patients consistently seek care providers and health care institutions with established credibility, demonstrated through accurate diagnoses, evidence-based treatment approaches, and open communication. This, in turn, can affect their eWOM, since individuals who view a provider as trustworthy may be more willing to share positive experiences through online reviews and recommendations. Such digital word of mouth can enhance an organization's reputation and serve as a marketing tool to attract new patients to receive care from that organization.

Patient-centered care is an important component of health care quality, focusing on understanding patients' needs and providing personalized care. Empathy, clear communication, and respectful interactions can shape patients' experiences and may be reflected in online reviews. Similarly, the physical and digital aspects of health care facilities, including cleanliness, waiting areas, equipment, patient portals, and telehealth services, can influence patients' perceptions and eWOM. The professional appearance and behavior of health care staff may also contribute to patients' overall evaluations of service quality [43].

Digital health has introduced additional dimensions of health care quality that may influence patient satisfaction and online reviews. User-friendly websites and applications, online appointment booking, and access to medical records can shape patients' digital health care experiences. Monitoring eWOM can help health care providers identify recurring patient concerns and areas that require improvement. Investment in digital infrastructure and staff training may therefore support better patient experiences and online reputations [40].

To close the expectation–experience gap, health care organizations should focus on patient-centered care, transparent communication, meaningful patient involvement, and efficient service delivery [10]. Effective communication and shared understanding can contribute to positive patient experiences, while issues, such as long wait times, poor staff responsiveness, and unclear costs may contribute to negative eWOM. Health care organizations can therefore benefit from systematically monitoring online feedback, responding to patient concerns, and using this feedback to identify areas for service improvement.

From a managerial perspective, improving eWOM starts with improving the actual health care experience rather than simply trying to manage online reviews. Health care organizations can focus on improving staff communication and empathy, reducing wait times, increasing operational efficiency, and being more transparent about costs. Regularly paying attention to patient feedback can also help hospitals identify and address issues that often lead to negative reviews. In this way, eWOM can be viewed not only as a way for patients to share their experiences but also as a useful source of feedback for improving health care services.

Overall, there was a clear connection between patient experience, perceived service quality, eWOM, and health care decision-making. When patients have a positive experience, they are more likely to be satisfied, remain loyal to their health care provider, and share positive experiences online.

Conversely, when their expectations are not met or they encounter problems with the services, they may share negative reviews that can influence other patients' choices. By combining findings from the systematic literature review with the survey conducted in Noida, this study provides a better understanding of how online patient feedback can help identify service quality gaps and support more patient-centered health care services.

Initiatives such as training staff to demonstrate empathy, adopting a transparent approach to pricing, and using AI to analyze sentiment in online reviews will help narrow service quality gaps and improve patient satisfaction. The study also paves the way for healthcare providers to streamline patient feedback mechanisms, particularly within the public health system, to help ensure accountability and trust. The research therefore contributes to the growing discussion of digital patient engagement and calls on healthcare providers to actively monitor and respond to eWOM as a service-improvement strategy. Future research could expand this work through interregional comparisons and by examining the long-term effects of eWOM interventions on health outcomes. Addressing these gaps will enable health systems to better meet patients' needs in an increasingly digital world.

The study contributes to the growing discussion of digital patient engagement by highlighting the potential of eWOM as a supplementary source of information for healthcare quality improvement. Future research may extend this work through interregional comparisons and longitudinal studies examining the longer-term effects of eWOM-based service-improvement interventions.

Conclusion

Electronic word-of-mouth highly shapes patients' health care decisions and highlights persistent SERVQUAL-related gaps, underscoring the need for public and private institutions to improve service quality and better meet patient expectations.

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References

1- Parasuraman A, Zeithaml VA, Berry L. A conceptual model of service quality and its implications for future research. J Mark. 1985;49(4):41-50.

2- Park C, Lee TM. Information direction, website reputation and eWOM effect: A moderating role of product type. J Bus Res. 2009;62(1):61-7.

3- Zeithaml VA. How consumer evaluation processes differ between goods and services. In: Donnelly JH, George WR, editors. Marketing of services. New York: American Marketing Association; 1981. p. 186-90.

4- Liu Z, Park S. What makes a useful online review? Implication for travel product websites. Tour Manag. 2015;47:140-51.

5- Parasuraman A, Zeithaml VA, Malhotra A. ES-QUAL: A multiple-item scale for assessing electronic service quality. J Serv Res. 2005;7(3):213-33.

6- Nadarajan G, Bojei J, Khalid H. The study on negative eWOM and its relationship to consumer's intention to switch mobile service provider. Procedia Comput Sci. 2017;124:338-96.

7- Van Doorn J, Lemon KN, Mittal V, Nass S, Pick D, Pirner P, et al. Customer engagement behavior: Theoretical foundations and research directions. J Serv Res. 2010;13(3):253-66.

8- Wangenheim FV, Bayón T. The chain from customer satisfaction via word-of-mouth referrals to new customer acquisition. J Acad Mark Sci. 2007;35(2):233-49.

9- Matos CA, Vargas Rossi CA. Word-of-mouth communications in marketing: A meta-analytic review of the antecedents and moderators. J Acad Mark Sci. 2008;36(4):578-96.

10- Zeelenberg M, Pieters R. Beyond valence in customer dissatisfaction: A review and new findings on behavioral responses to regret and disappointment in failed services. J Bus Res. 2004;57(4):445-55.

11- Torkzad A, Beheshtinia MA. Evaluating and prioritizing hospital service quality. Int J Health Care Qual Assur. 2019;32(2):332-46.

12- Rao M, Clarke A. Patients' own assessments of quality of primary care compared with objective records-based measures of technical quality of care: Cross-sectional study. BMJ. 2006;333:19.

13- La Fata CM, Lupo T, Piazza T. Service quality benchmarking via a novel approach based on fuzzy ELECTRE III and IPA: An empirical case involving the Italian public healthcare context. Health Care Manag Sci. 2019;22(1):106-20.

14- Chang BL, Kao HO, Lin SJ, Yang SH, Kuo YW, Jerng JS. Quality gaps and priorities for improvement of healthcare service for patients with prolonged mechanical ventilation in the view of family. J Formos Med Assoc. 2019;118(5):922-31.

15- Scardina SA. SERVQUAL: A tool for evaluating patient satisfaction with nursing care. J Nurs Care Qual. 1994;8(2):38-46.

16- Lee M, Youn S. Electronic word of mouth (eWOM): How eWOM platforms influence consumer product judgement. Int J Advert. 2009;28(3):473-99.

17- Izogo EE, Jayawardhena C, Karjaluoto H. Negative eWOM and perceived credibility: A potent mix in consumer relationships. Int J Retail Distrib Manag. 2022;51(2):149-69.

18- Padilla-Fortunatti C, Rojas-Silva N, Arechabala-Mantuliz MC. Analysis of the difference between importance and satisfaction of the needs of family

members of critical patients. Med Intensiva. 2019;43(4):217-24.
19- Aeyels D, Seys D, Sinnaeve PR, Claeys MJ, Gevaert S, Schoors D, et al. Managing in-hospital quality improvement: An importance-performance analysis to set priorities for ST-elevation myocardial infarction care. Eur J Cardiovasc Nurs. 2018;17(6):535-42.
20- Mohebifar R, Hasani H, Barikani A, Rafiei S. Evaluating service quality from patients' perceptions: Application of importance-performance analysis method. Osong Public Health Res Perspect. 2016;7(4):233-8.
21- Wu HH, Hsieh SM. A case study of applying importance-performance analysis in orthopedic department to evaluate service quality. Int J Manag Decis Mak. 2012;12(1):50-68.
22- Hennig-Thurau T, Gwinner KP, Walsh G, Gremler DD. Electronic word-of-mouth via consumer-opinion platforms: What motivates consumers to articulate themselves on the Internet?. J Interact Mark. 2004;18(1):38-52.
23- Xia L, Bechwati NN. Word of mouse: The role of cognitive personalization in online consumer reviews. J Interact Advert. 2008;9(1):2-13.
24- Sloane G, Tidwell P, Horsfield M. Identification of the decision maker for a patient's hospital choice: Who decides which hospital?. J Hosp Mark. 1999;13(1):57-77.
25- Robinowitz DL, Dudley RA. Public reporting of provider performance: Can its impact be made greater?. Annu Rev Public Health. 2006;27:517-36.
26- Ferguson RJ, Paulin M, Bergeron J. Customer sociability and the total service experience: Antecedents of positive word-of-mouth intentions. J Serv Manag. 2010;21(1):25-44.
27- Leister J, Stausberg J. Why do patients select a hospital? A conjoint analysis in two German hospitals. J Hosp Mark Public Relations. 2007;17(2):13-31.
28- Trigg L. Patients' opinions of health care providers for supporting choice and quality improvement. J Health Serv Res Policy. 2011;16(2):102-7.
29- Walsh G, Mitchell VW. The effect of consumer confusion proneness on word of mouth, trust, and customer satisfaction. Eur J Mark. 2010;44(6):838-59.
30- Gruen TW, Osmonbekov T, Czaplewski AJ. eWOM: The impact of customer-to-customer online know-how exchange on customer value and loyalty. J Bus Res. 2006;59(4):449-56.
31- Dobele A, Lindgreen A. Exploring the nature of value in the word-of-mouth referral equation for health care. J Mark Manag. 2011;27(3-4):269-90.
32- Harrison-Walker LJ. The measurement of word-of-mouth communication and an investigation of service quality and customer commitment as potential antecedents. J Serv Res. 2016;4(1):60-75.
33- Singh J. Voice, exit, and negative word-of-mouth behaviors: An investigation across three service categories. J Acad Mark Sci. 1990;18:1-15.
34- Filieri R, Galati F, Raguseo E. The impact of service attributes and category on eWOM helpfulness: An investigation of extremely negative and positive ratings using latent semantic analytics and regression analysis. Comput Hum Behav. 2021;114:106527.
35- Purcarea VL, Gheorghe IR, Petrescu CM. Credibility elements of eWOM messages in the context of health care services: A Romanian perspective. J Med Life. 2013;6(3):254-9.
36- Pauli G, Martin S, Greiling D. The current state of research of word-of-mouth in the health care sector. Int Rev Public Nonprofit Mark. 2023;20:125-48.
37- Lim P, Tang N. A study of patients' expectations and satisfaction in Singapore hospitals. Int J Health Care Qual Assur Inc Leadersh Health Serv. 2000;13(6-7):290-9.
38- Astuti H, Nagase K. A framework for conceptualizing patient loyalty to healthcare organizations. Health Serv Manag Res. 2016;29(3).
39- Bond S, Thomas L. Measuring patients' satisfaction with nursing care. J Adv Nurs. 1992;17(1):52-63.
40- Kitsios F, Kamariotou M, Karanikolas P, Grigoroudis E. Digital marketing platforms and customer satisfaction: Identifying eWOM using big data and text mining. Appl Sci. 2021;11(17):8032.
41- Jones R, Rogers R, Roberts J, Callaghan L, Lindsey L, Campbell J, et al. What is eHealth: A research agenda for eHealth through stakeholder consultation and policy context review. J Med Internet Res. 2005;7(5):e54.
42- Szajna B. Empirical evaluation of the revised technology acceptance model. Manag Sci. 1996;42(1):85-92.
43- Calnan M. The functions of the hospital emergency department: A study of patient demand. J Emerg Med. 1984;2(1):57-63.