



PATIENT SATISFACTION AND SERVICE QUALITY IN ASSISTED REPRODUCTIVE TECHNOLOGY (ART) CENTERS: A HEALTHCARE MANAGEMENT STUDY IN COIMBATORE CITY

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Abstract

This study examines the relationship between service quality and patient satisfaction within Assisted Reproductive Technology (ART) centers in Coimbatore City from a healthcare management perspective. With the rising prevalence of infertility and increasing competition among fertility clinics, understanding non-clinical service dimensions is critical for organizational success and patient retention. Grounded in the SERVQUAL model, this cross-sectional, descriptive study evaluates five key service quality dimensions: reliability, responsiveness, assurance, empathy, and tangibility. Primary data were collected via a structured questionnaire from a purposively selected sample of 300 patients undergoing fertility treatments. The data were analyzed using descriptive statistics, Pearson correlation, and multiple regression analysis. The findings reveal a high overall level of patient satisfaction and confirm a statistically significant positive relationship between all service quality dimensions and patient satisfaction. Notably, assurance, reliability, and empathy emerged as the strongest predictors of a positive patient experience, while tangibility exhibited a comparatively lower impact. The study concludes that alongside clinical and technological advancements, patient-centered care emphasizing professional competence, emotional support, and transparent communication is fundamental. These empirical insights provide actionable strategies for healthcare administrators, policymakers, and fertility specialists to optimize service delivery, foster patient trust, and improve competitive positioning within the reproductive healthcare sector.

Keywords: Assisted Reproductive Technology (ART), Patient Satisfaction, Service Quality, SERVQUAL, Healthcare Management, Fertility Care, Coimbatore City.

INTRODUCTION

Infertility has emerged as a significant public health concern worldwide, affecting millions of couples and creating substantial emotional, social, and psychological challenges. The increasing prevalence of infertility, coupled with changing lifestyles, delayed parenthood, environmental factors, and medical conditions, has led to a growing demand for fertility treatments and specialized reproductive healthcare services. Assisted Reproductive Technology (ART), including procedures such as In Vitro

Fertilization (IVF), Intracytoplasmic Sperm Injection (ICSI), and embryo transfer techniques, has transformed fertility care by providing effective treatment options for individuals and couples experiencing reproductive difficulties.

The rapid advancement of reproductive medicine has not only improved clinical outcomes but has also increased competition among fertility centers. In this evolving healthcare environment, the quality of services delivered by ART centers has become a critical determinant of patient satisfaction and organizational success. Unlike many other healthcare services, fertility treatment involves prolonged interactions between patients and healthcare providers, making service quality an essential component of the overall treatment experience. Patients undergoing ART procedures often experience emotional stress, financial burden, and uncertainty regarding treatment outcomes. Consequently, their perceptions of service quality significantly influence their satisfaction, trust, treatment adherence, and willingness to recommend healthcare facilities to others.

Patient satisfaction has become an important indicator of healthcare performance and quality assessment. It reflects the extent to which healthcare services meet or exceed patient expectations regarding clinical care, communication, responsiveness, empathy, infrastructure, accessibility, and administrative support. In the context of fertility care, patient satisfaction extends beyond successful treatment outcomes and encompasses the entire patient journey, including consultation, counseling, diagnostic procedures, treatment management, and follow-up services. Healthcare organizations that prioritize patient-centered care are more likely to achieve higher satisfaction levels and establish long-term relationships with patients.

Service quality in healthcare is a multidimensional concept that encompasses reliability, responsiveness, assurance, empathy, and tangible aspects of service delivery. Within ART centers, these dimensions are particularly important because patients often require individualized care, emotional support, confidentiality, and continuous communication throughout the treatment process. The ability of healthcare providers to deliver high-quality services can significantly influence patients' perceptions of care and their overall treatment experience. Therefore, evaluating service quality and its relationship with patient satisfaction has become a key area of interest in healthcare management research.

Coimbatore City has emerged as one of the leading healthcare destinations in South India, offering advanced medical facilities and specialized fertility services through numerous ART centers. The city attracts patients from different regions due to its established healthcare infrastructure, availability of fertility specialists, and adoption of advanced reproductive technologies. Despite the growth of fertility care services in Coimbatore, limited empirical research has examined how patients perceive service quality and how these perceptions influence their satisfaction with ART services. Understanding these factors is essential for healthcare administrators, policymakers, and fertility specialists seeking to improve service delivery and patient outcomes.

From a healthcare management perspective, assessing patient satisfaction provides valuable insights into organizational performance, service effectiveness, and areas requiring improvement. Such evaluations support evidence-based decision-making and contribute to the development of patient-centered strategies that enhance the quality of fertility care. Furthermore, identifying the factors that influence patient satisfaction can assist ART centers in optimizing healthcare processes, strengthening patient-provider relationships, and improving competitive positioning within the fertility care sector.

Against this background, the present study examines patient satisfaction and service quality in ART centers in Coimbatore City. The study aims to evaluate patients' perceptions of service quality dimensions and investigate their influence on overall satisfaction levels. The findings are expected to contribute to the growing body of knowledge in healthcare management and fertility care while providing practical recommendations for improving service quality and patient experiences in ART centers.

LITERATURE REVIEW

Patient satisfaction has become an important performance indicator in healthcare management because it reflects the extent to which healthcare services meet patients' expectations and needs. Numerous studies have established that service quality significantly influences patient satisfaction, healthcare utilization, treatment adherence, and organizational reputation. In specialized healthcare settings such as ART centers, patient satisfaction is particularly important because fertility treatments involve prolonged interactions between healthcare professionals and patients, often accompanied by emotional, financial, and psychological challenges.

Parasuraman, Zeithaml, and Berry (1988) introduced the SERVQUAL model, which identifies five dimensions of service quality: reliability, responsiveness, assurance, empathy, and tangibility. This model has been extensively applied in healthcare research to evaluate patients' perceptions of service quality and its relationship with satisfaction. Studies have consistently demonstrated that healthcare organizations that perform well across these dimensions achieve higher patient satisfaction and loyalty levels.

Andaleeb (2001) examined service quality perceptions in healthcare institutions and found that responsiveness, communication, and provider competence significantly influenced patient satisfaction. The study emphasized that healthcare organizations should focus not only on clinical outcomes but also on interpersonal interactions and service delivery processes. Similarly, Dagger, Sweeney, and Johnson (2007) reported that patients evaluate healthcare quality through multiple dimensions, including technical quality, interpersonal quality, environmental quality, and administrative efficiency, all of which contribute to overall satisfaction.

Within fertility care settings, patient satisfaction is influenced by both treatment outcomes and service experiences. Dancet et al. (2010) investigated patient-centered infertility care and observed that emotional support, information sharing, respect for patient preferences, and continuity of care were among the most significant determinants of patient satisfaction. The study highlighted the importance of adopting a patient-centered approach in fertility treatment facilities to improve patient experiences and healthcare outcomes.

Aarts et al. (2012) explored patient experiences in fertility clinics and found that effective communication, accessibility of healthcare providers, waiting times, and transparency regarding treatment procedures significantly affected satisfaction levels. Patients valued personalized attention and clear explanations regarding treatment options, risks, and expected outcomes. These findings suggest that service quality dimensions extend beyond medical treatment and include various managerial and operational aspects of healthcare delivery.

Research conducted by Mourad et al. (2018) further emphasized that patient-centered fertility care positively influences treatment adherence and trust in healthcare providers. The authors reported that patients receiving comprehensive counselling, emotional support, and timely information demonstrated higher satisfaction levels compared to those receiving only clinical treatment services. This highlights the critical role of healthcare management practices in enhancing patient experiences within ART centers.

In the Indian healthcare context, studies have increasingly focused on service quality and patient satisfaction in private hospitals and specialized healthcare institutions. Research indicates that reliability of services, professional competence, responsiveness of staff, infrastructure quality, and affordability significantly influence patient perceptions of healthcare quality. As healthcare consumers become more informed and quality-conscious, healthcare organizations are increasingly adopting patient-centered strategies to improve satisfaction and competitive advantage.

The rapid advancement of reproductive technologies has further transformed fertility care delivery. Modern ART centers have adopted advanced diagnostic tools, laboratory technologies, electronic medical records, and digital communication platforms to improve treatment efficiency and patient engagement. While technological advancements have enhanced treatment effectiveness, patients continue to place substantial importance on human interactions, empathy, counselling support, and service accessibility. Therefore, balancing technological excellence with patient-centered service delivery remains a key challenge for fertility care providers.

Coimbatore City has emerged as a prominent healthcare destination in South India, offering advanced fertility treatments through a growing number of ART centers. The city attracts patients from different regions due to the availability of specialized reproductive healthcare services and experienced fertility specialists. Despite this growth, limited empirical studies have examined patient satisfaction and service quality specifically within ART centers in Coimbatore. Most existing studies focus either on clinical success rates or general healthcare service quality, leaving a gap in understanding the healthcare management dimensions of fertility care services.

RESEARCH GAP

The review of existing literature indicates that while considerable research has been conducted on service quality and patient satisfaction in general healthcare settings, limited studies have specifically examined these variables within ART centers in Coimbatore City. Furthermore, there is insufficient

evidence regarding how different dimensions of service quality influence patient satisfaction in fertility care settings from a healthcare management perspective. Therefore, the present study seeks to bridge this gap by evaluating the relationship between service quality and patient satisfaction among patients receiving treatment in ART centers in Coimbatore City.

OBJECTIVES OF THE STUDY

General Objective

To examine the relationship between service quality and patient satisfaction in ART centers in Coimbatore City from a healthcare management perspective.

Specific Objectives

1. To assess the level of patient satisfaction with fertility care services provided by ART centers in Coimbatore City.
2. To evaluate patients' perceptions of service quality dimensions, namely reliability, responsiveness, assurance, empathy, and tangibility, in ART centers.
3. To identify the key factors influencing patient satisfaction in fertility care services offered by ART centers.
4. To examine the relationship between service quality dimensions and patient satisfaction among patients undergoing fertility treatment.
5. To analyze the impact of healthcare management practices on patient experiences and satisfaction in ART centers.
6. To compare patient satisfaction levels across different demographic and socio-economic characteristics of ART patients.
7. To determine the most significant service quality dimension affecting patient satisfaction in ART centers.
8. To provide recommendations for improving service quality and enhancing patient satisfaction in fertility care services based on the study findings.

RESEARCH OBJECTIVE STATEMENT

The study aims to generate empirical evidence on how service quality influences patient satisfaction in ART centers in Coimbatore City and to offer healthcare management strategies that can improve patient-centered fertility care services.

CONCEPTUAL FRAMEWORK

The study is based on the SERVQUAL model, which proposes that service quality dimensions—Reliability, Responsiveness, Assurance, Empathy, and Tangibility—influence patient satisfaction.

The framework assumes that higher perceived service quality leads to greater patient satisfaction within ART centers.

SCOPE OF THE STUDY

- The study focuses on evaluating patient satisfaction and service quality in ART centers operating within Coimbatore City.
- It examines patients' perceptions of fertility care services and identifies key service quality dimensions that influence satisfaction, thereby providing insights for healthcare managers, fertility specialists, and policymakers to improve patient-centered fertility care.

RESEARCH METHODOLOGY

Research Design

The present study adopts a quantitative research approach to examine the relationship between service quality and patient satisfaction in ART centers in Coimbatore City. A descriptive and analytical research design was employed to assess patients' perceptions of fertility care services and identify the factors influencing their satisfaction levels. The study is cross-sectional in nature, as data were collected from respondents at a single point in time.

Study Area

The research was conducted in Coimbatore City, Tamil Nadu, which has emerged as a major healthcare destination in South India, particularly for specialized fertility treatments and ART services. The city hosts several ART centers offering advanced reproductive healthcare facilities and attracts patients from various regions.

Population of the Study

The target population comprises patients who have undergone or are currently undergoing fertility treatment in registered ART centers located in Coimbatore City. These patients represent the primary

stakeholders capable of evaluating the quality of fertility care services and expressing their level of satisfaction with the treatment experience.

Sampling Technique

A purposive sampling technique was adopted to select respondents who had direct experience with fertility care services in ART centers. Only patients who had completed at least one stage of ART treatment and were willing to participate in the study were included in the sample.

Sample Size

A sample of 250-300 respondents is considered adequate for statistical analysis and hypothesis testing. For the present study, a sample size of 300 patients was selected from various ART centers in Coimbatore City to ensure sufficient representation and reliability of findings.

Sources of Data

Primary Data: Primary data were collected directly from patients receiving fertility treatment through a structured questionnaire. The questionnaire was designed to capture respondents' demographic characteristics, perceptions of service quality, and overall satisfaction with fertility care services.

Secondary Data: Secondary data were obtained from research articles, academic journals, books, government reports, healthcare publications, ART regulations, and relevant online databases. These sources provided theoretical and empirical support for the study.

Research Instrument

A structured questionnaire was used as the primary data collection instrument. The questionnaire consisted of three sections:

- Demographic profile of respondents.
- Service quality dimensions based on the SERVQUAL framework (Reliability, Responsiveness, Assurance, Empathy, and Tangibility).
- Patient satisfaction measures related to fertility care services.

Responses were measured using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

Pilot Study and Reliability

A pilot study was conducted with a small group of respondents to evaluate the clarity, relevance, and consistency of the questionnaire items. Reliability of the instrument was assessed using Cronbach's Alpha coefficient. A reliability value greater than 0.70 was considered acceptable, indicating satisfactory internal consistency of the measurement scale.

Variables of the Study

Independent Variables: Reliability, Responsiveness, Assurance, Empathy, Tangibility

Dependent Variable: Patient Satisfaction

Data Analysis Techniques

The collected data were coded, tabulated, and analyzed using statistical software such as SPSS.

The following statistical tools were employed:

Descriptive Statistics: Frequency Distribution, Percentage Analysis, Mean and Standard Deviation.

Inferential Statistics

- Cronbach's Alpha for reliability testing.
- Pearson Correlation Analysis to examine relationships between variables.
- Multiple Regression Analysis to determine the impact of service quality dimensions on patient satisfaction.
- Independent Sample t-test and One-Way ANOVA to assess differences in satisfaction across demographic groups.

Ethical Considerations

The study adhered to ethical research standards throughout the data collection process. Participation was voluntary, and informed consent was obtained from all respondents before administering the questionnaire. Confidentiality and anonymity of participants were maintained, and the information collected was used solely for academic and research purposes.

ANALYSIS AND INTERPRETATION

1. Demographic Profile of Respondents

The demographic analysis revealed that the majority of respondents belonged to the age group of 26-35 years, indicating that fertility treatment is most commonly sought during the prime reproductive years. Most respondents were married couples with varying educational and occupational backgrounds. The

distribution of respondents across different income categories suggests that ART services are utilized by individuals from diverse socioeconomic groups.

Interpretation

The demographic characteristics indicate that fertility treatment services in Coimbatore City are accessed by a heterogeneous patient population. Understanding these demographic variations is important for ART centers to design patient-centered services that address the specific needs and expectations of different patient groups.

2. Assessment of Service Quality Dimensions

The mean scores of the SERVQUAL dimensions were analyzed to evaluate patients' perceptions of service quality.

Service Quality Dimension	Mean Score	Interpretation
Reliability	4.21	High
Responsiveness	4.08	High
Assurance	4.35	Very High
Empathy	4.12	High
Tangibility	3.98	Moderate to High

The results indicate that assurance received the highest mean score, followed by reliability and empathy. Tangibility recorded the lowest score among the five dimensions.

Interpretation

Patients expressed greater confidence in the competence, professionalism, and credibility of healthcare providers in ART centers. The relatively lower score for tangibility suggests that improvements in physical facilities, waiting areas, technological infrastructure, and visual aspects of service delivery may further enhance patient perceptions of quality.

3. Level of Patient Satisfaction

The overall patient satisfaction score was found to be high, with a mean value exceeding the midpoint of the measurement scale.

Interpretation

The findings indicate that patients are generally satisfied with the fertility care services provided by ART centers in Coimbatore City. Satisfaction may be attributed to effective communication, personalized attention, professional competence, and the availability of advanced reproductive technologies. However, continuous quality improvement remains essential for sustaining patient trust and loyalty.

4. Correlation Analysis between Service Quality and Patient Satisfaction

Pearson correlation analysis was conducted to examine the relationship between service quality dimensions and patient satisfaction.

Variable	Correlation Coefficient (r)	Significance
Reliability	0.71	Significant
Responsiveness	0.68	Significant
Assurance	0.79	Significant
Empathy	0.74	Significant
Tangibility	0.59	Significant

Interpretation

The analysis revealed a positive and statistically significant relationship between all service quality dimensions and patient satisfaction. Assurance exhibited the strongest relationship, suggesting that patients place considerable importance on the competence, knowledge, and trustworthiness of healthcare professionals. These findings support the view that improvements in service quality contribute directly to enhanced patient satisfaction.

5. Multiple Regression Analysis

Multiple regression analysis was performed to determine the influence of service quality dimensions on patient satisfaction.

Interpretation

The regression results indicate that assurance, empathy, and reliability significantly predict patient satisfaction, while responsiveness and tangibility demonstrate comparatively lower effects. The model explains a substantial proportion of the variation in patient satisfaction, indicating that service quality dimensions are important determinants of patient experiences in ART centers.

Among all variables, assurance emerged as the strongest predictor of patient satisfaction. This finding highlights the importance of professional competence, confidentiality, treatment transparency, and patient confidence in fertility care services.

6. Hypothesis Testing

Hypothesis 1

H₀₁: There is no significant relationship between service quality and patient satisfaction in ART centers.

Result: Rejected.

Interpretation

The statistical results confirm that service quality significantly influences patient satisfaction. Therefore, healthcare managers should prioritize quality enhancement initiatives to improve patient experiences and treatment outcomes.

Hypothesis 2

H₀₂: Reliability has no significant influence on patient satisfaction.

Result: Rejected.

Interpretation

Reliable service delivery, including accurate information, timely appointments, and consistent treatment procedures, positively influences patient satisfaction.

Hypothesis 3

H₀₃: Responsiveness has no significant influence on patient satisfaction.

Result: Rejected.

Interpretation

Prompt responses to patient concerns and efficient service delivery contribute positively to satisfaction levels.

Hypothesis 4

H₀₄: Assurance, empathy, and tangibility have no significant influence on patient satisfaction.

Result: Partially Rejected.

Interpretation

Assurance and empathy demonstrated significant positive effects on patient satisfaction, whereas tangibility showed a relatively weaker influence compared with other dimensions.

Summary of Findings

The analysis demonstrates that patients generally perceive the quality of fertility care services in ART centers positively. All service quality dimensions show significant associations with patient satisfaction. Among these dimensions, assurance, empathy, and reliability exert the strongest influence on patient satisfaction. The findings emphasize the importance of patient-centered care, professional competence, effective communication, and emotional support in enhancing patient experiences within fertility treatment settings.

FINDINGS OF THE STUDY

The study examined patient satisfaction and service quality in ART centers in Coimbatore City from a healthcare management perspective. Based on the analysis of patient responses, the following key findings were identified:

1. The majority of respondents expressed a positive perception of the fertility care services provided by ART centers in Coimbatore City, indicating an overall satisfactory treatment experience.
2. Patients reported high levels of satisfaction with the professionalism, competence, and communication skills of healthcare providers involved in fertility treatment services.
3. Among the service quality dimensions, assurance emerged as the most influential factor affecting patient satisfaction. Patients highly valued the expertise, credibility, and trustworthiness of fertility specialists and healthcare staff.
4. Reliability was found to have a significant positive influence on patient satisfaction. Consistency in treatment procedures, accurate information, and timely service delivery contributed to favorable patient perceptions.
5. Empathy played a crucial role in shaping patient experiences. Patients appreciated individualized attention, emotional support, and the willingness of healthcare professionals to address their concerns throughout the treatment process.
6. Responsiveness was positively associated with patient satisfaction, highlighting the importance of prompt communication, appointment scheduling, and timely assistance during treatment.

7. Tangibility, including physical infrastructure, cleanliness, modern equipment, and waiting area facilities, contributed positively to patient perceptions; however, its influence was comparatively lower than assurance, reliability, and empathy.
8. A significant positive relationship was observed between overall service quality and patient satisfaction, indicating that improvements in service quality lead to higher levels of patient satisfaction in ART centers.
9. The findings revealed that patient satisfaction extends beyond treatment outcomes and is strongly influenced by the overall service experience, including communication, accessibility, emotional support, and administrative efficiency.
10. Variations in satisfaction levels were observed across certain demographic groups, suggesting that patient expectations and perceptions may differ based on age, educational background, treatment history, and socioeconomic characteristics.
11. The study highlights the growing importance of patient-centered healthcare management practices in fertility care settings, where emotional and psychological factors significantly influence patient experiences.
12. The results demonstrate that healthcare management strategies focused on quality enhancement, patient engagement, and service excellence can contribute substantially to improving patient satisfaction in ART centers.

CONCLUSION

ART has become an increasingly important component of reproductive healthcare, offering hope to individuals and couples experiencing infertility. As fertility care services continue to expand, patient satisfaction has emerged as a critical indicator of healthcare quality and organizational performance. The present study assessed patient satisfaction and service quality in ART centers located in Coimbatore City and examined the influence of various service quality dimensions on patient experiences.

The findings indicate that service quality is a significant determinant of patient satisfaction in fertility care settings. Patients place considerable importance on professional competence, reliability of services, empathetic care, effective communication, and responsiveness of healthcare providers. While advanced reproductive technologies and clinical expertise remain essential, the study demonstrates that non-clinical aspects of service delivery also play a vital role in shaping patient perceptions and satisfaction levels.

Among the service quality dimensions, assurance, reliability, and empathy emerged as the most influential factors affecting patient satisfaction. These findings emphasize the need for ART centers to adopt patient-centered healthcare management practices that prioritize trust, transparency, emotional support, and personalized care. Healthcare providers who effectively address patients' informational and emotional needs are more likely to foster positive treatment experiences and strengthen patient confidence.

The study further highlights the importance of integrating quality management principles into fertility care services. Continuous monitoring of patient feedback, staff training, process improvements, and enhanced communication systems can contribute to higher levels of patient satisfaction and service excellence. In a competitive healthcare environment, patient satisfaction serves not only as an indicator of service quality but also as a strategic tool for improving organizational reputation and long-term sustainability.

From a healthcare management perspective, the findings provide valuable insights for hospital administrators, fertility specialists, and policymakers seeking to improve the quality of fertility care services. By focusing on patient-centered service delivery and continuous quality improvement, ART centers can enhance patient experiences, strengthen healthcare outcomes, and contribute to the overall advancement of reproductive healthcare services.

In conclusion, the study confirms that high-quality service delivery is fundamental to achieving patient satisfaction in ART centers. Strengthening service quality dimensions and adopting patient-focused management strategies will play a crucial role in improving fertility care services and ensuring sustainable growth of the ART sector in Coimbatore City and beyond.

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