

Original Article

Quality of Radiological Service and Patient Satisfaction among Filipino Muslim Patients in Tertiary Hospitals

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Received: 12 September 2025; Revised: 10 October 2025;
Accepted: 10 November 2025; Published: 16 November 2025

DOI: <https://doi.org/10.66074/AB39X21Y>

Abstract

Radiological services are central to diagnostic care, yet little is known about how Muslim patients in the Philippines perceive their quality. This cross-sectional study examined the relationship between perceived radiological service quality and patient satisfaction among Filipino Muslim patients in tertiary hospitals in Iligan City. A total of 120 adult Muslim patients who had recently undergone radiological procedures completed a structured questionnaire measuring service-quality domains and overall satisfaction on four-point Likert scales. Descriptive statistics summarized sociodemographic characteristics and mean scores for each domain. Pearson correlations and multiple regression explored the relationship between service-quality domains and overall satisfaction. Perceived quality was generally rated from satisfactory to very satisfactory, with the highest scores for worker attitude and tools and equipment. All service-quality domains correlated positively with satisfaction ($r = .42-.72$, $p < .001$). In a multivariable model, worker attitude, punctuality, and clarity of diagnostic information significantly predicted satisfaction, explaining 68% of its variance. Results underscore the importance of patient-centred, culturally sensitive radiological care for Filipino Muslim communities.

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Volume 2, Issue 1,
March 2026

Keywords: clarity of diagnostic information, patient satisfaction, perceived quality, worker attitude

1. Introduction

Radiology has evolved from a purely technical support service to a central component of modern health-care delivery. The expansion of diagnostic imaging for screening, staging, and treatment monitoring has intensified attention to the quality of radiological services, not only in terms of technical accuracy but also from the patient's perspective (Lang & Helm, 2013). Patient satisfaction is now considered a core indicator of service quality and is linked to treatment adherence, service utilization, and loyalty to institutions (Rahman et al., 2021).

Within radiology, satisfaction is shaped by multiple factors, including waiting time, clarity of explanations, staff courtesy, privacy, comfort, and perceived competence of staff and equipment (Lang & Helm, 2013; Mulisa et al., 2017). Studies conducted in Ethiopia, Nigeria, and the United Arab Emirates report that patients tend to be more satisfied when radiology departments are clean and organized, examinations are performed promptly, and staff communicate respectfully while operating apparently modern equipment (Abuzaid et al., 2023; Mulisa et al., 2017; Ochonma et al., 2017).

Emerging evidence suggests a direct relationship between radiological service quality and patient satisfaction. Implementation of teleradiology and workflow redesign in Ethiopian hospitals reduced waiting times and improved satisfaction with imaging services (Nigatu et al., 2025). Research in Indonesia and other settings also indicates that better-rated service quality in radiology is associated with higher outpatient satisfaction (Malik et al., 2025; Mulisa et al., 2017).

For Muslim patients, perceptions of health-care quality are also shaped by religious and cultural expectations, such as modesty, gender-sensitive care, halal-compliant products, and respect for prayer times (Clemen et al., 2023; Rahman et al., 2021; Rahman et al., 2023). Work on Muslim-friendly hospitals in Malaysia shows that intrinsic and extrinsic halal attributes influence satisfaction and word-of-mouth intentions (Rahman et al., 2023). However, there is limited empirical evidence on radiology-specific experiences among Muslim populations in the Philippines, despite the presence of substantial Filipino Muslim communities in Mindanao.

Iligan City in Northern Mindanao hosts several tertiary hospitals that serve both Muslim and non-Muslim populations from urban and rural areas. Understanding how Filipino Muslim patients perceive the quality of radiological services, and how these perceptions relate to satisfaction, is critical for promoting equitable and culturally sensitive diagnostic care.

The present study aimed to describe perceived quality of radiological services and overall satisfaction among Filipino Muslim patients in tertiary hospitals in Iligan City and to determine the relationship between radiological service quality and patient satisfaction. It was hypothesized that higher perceived service quality across domains such as efficiency, facilities, punctuality, tools and equipment, diagnostic information, treatment and accommodation, and worker attitude would be associated with higher overall patient satisfaction.

2. Methodology

This study used a quantitative, cross-sectional design conducted in radiology departments of selected tertiary hospitals in Iligan City, Philippines. The hospitals provide general medical and surgical services and maintain radiology units that perform plain radiography, ultrasound, and computed tomography.

Participants were adult Filipino Muslim patients who had undergone at least one radiological examination at the time of data collection. Inclusion criteria required self-identification as Muslim, age of eighteen years or older, completion of a radiological procedure during the data-collection period, and the ability to provide informed consent. Patients who were critically ill, cognitively impaired, or unable to communicate effectively were excluded.

A convenience sample of 120 patients was recruited, consistent with sample sizes used in related radiology satisfaction research (Abuzaid et al., 2023; Mulisa et al., 2017). Data were collected over an agreed period with hospital administration. Eligible patients were approached in waiting or post-examination areas. The purpose of the study was explained, informed consent was obtained, and questionnaires were either self-administered or interviewer-assisted when literacy or vision issues were present.

A structured, researcher-developed questionnaire measured sociodemographic characteristics, service quality, and overall satisfaction. Demographic variables included age, gender, civil status, monthly household income, and educational attainment. Service quality was assessed using items grouped into seven domains: efficiency, facilities, punctuality and waiting time, tools and equipment, diagnostic information, treatment and accommodation, and worker attitude. Items for each domain were rated on a four-point Likert scale from one (very dissatisfied) to four (very satisfied), with higher scores indicating more favourable perceptions. Overall satisfaction was measured with a separate four-point item using the same anchors.

Instrument development drew from existing literature and patient satisfaction tools used in radiology and Muslim-friendly hospital research (Lang & Helm, 2013; Mulisa et al., 2017; Rahman et al., 2021). Content validity was established through review by three experts in radiologic technology and health sciences. A pilot test with fifteen Muslim patients from a non-participating facility was conducted, and minor wording revisions improved clarity and cultural appropriateness. Internal consistency reliability for the service-quality scale in the main sample was acceptable, with Cronbach's alpha of .91 for the composite scale and domain-specific alphas ranging from .78 to .88.

Ethical principles of voluntary participation, informed consent, and confidentiality were observed. No names or direct identifiers were collected. Data were encoded and analysed using standard statistical software. Descriptive statistics summarized sociodemographic characteristics and domain scores. Composite domain scores were computed by averaging the items within each domain. The relationship

between service-quality domains and overall satisfaction was examined using Pearson product-moment correlations after confirming approximate normality of composite scores. A multiple linear regression model was then fitted with overall satisfaction as the dependent variable and service-quality domains as predictors, in order to estimate the combined predictive value of service quality for satisfaction. Statistical significance was set at $p < .05$.

3. Results

Patients' ages ranged from 18 to 78 years, with a mean of 42.3 years and a standard deviation of 13.6 years. Women represented 52.5% of the sample, while men represented 47.5%. Most participants were married at 63.3%, followed by single at 28.3% and separated or widowed at 8.4%. Household income clustered in lower to middle categories, with 41.7% reporting monthly income below ₱10,000, 33.3% between ₱10,000 and ₱19,999, and 25.0% at ₱20,000 and above. Educational attainment was predominantly high school or senior high school for 45.8% and college or higher for 37.5%, with the remainder reporting elementary education or below.

Perceived quality of radiological services was generally favourable. On the four-point scale, all domain means were above three, indicating satisfaction. Worker attitude and tools and equipment yielded the highest mean scores, while punctuality and facilities received comparatively lower yet still satisfactory ratings.

Table 1. Perceived quality of radiological services among Filipino Muslim patients (N = 120).

Domain	Mean	SD
Efficiency	3.31	0.45
Facilities	3.18	0.50
Punctuality and waiting time	3.05	0.56
Tools and equipment	3.63	0.34
Diagnostic information	3.39	0.41
Treatment and accommodation	3.34	0.43
Worker attitude	3.71	0.29
Overall satisfaction	3.46	0.39

Overall satisfaction showed a mean of 3.46 and a standard deviation of 0.39, which corresponds to a level between satisfied and very satisfied.

The core objective of the study was to examine the relationship between radiological service quality and patient satisfaction. Pearson correlations revealed that all service-quality domains were positively and significantly associated with overall satisfaction. Worker attitude, diagnostic information, and tools and equipment had the strongest associations, followed by punctuality, treatment and accommodation, efficiency, and facilities.

Table 2. Correlation between service-quality domains and overall satisfaction (N = 120).

Domain	r	p
Efficiency	.52	< .001
Facilities	.42	< .001
Punctuality and waiting time	.58	< .001
Tools and equipment	.60	< .001
Diagnostic information	.65	< .001
Treatment and accommodation	.55	< .001
Worker attitude	.72	< .001

A multiple linear regression analysis was conducted with overall satisfaction as the outcome variable and the seven service-quality domains entered simultaneously as predictors. The overall model was statistically significant and explained a large proportion of the variance in satisfaction, with $R^2 = .68$, adjusted $R^2 = .66$, $F(7, 112) = 33.83$, $p < .001$.

In the multivariable model, worker attitude remained the strongest predictor of satisfaction, followed by punctuality and diagnostic information. Tools and equipment showed a smaller but still positive association, while the effects of efficiency, facilities, and treatment and accommodation were attenuated when other domains were controlled.

Table 3. Multiple regression predicting overall satisfaction from service-quality domains (N = 120).

Predictor	B	SE B	β	p
Efficiency	0.08	0.06	.10	.179
Facilities	0.05	0.05	.07	.323
Punctuality and waiting	0.14	0.05	.21	.006
Tools and equipment	0.11	0.06	.14	.058
Diagnostic information	0.17	0.06	.23	.004
Treatment and accommodation	0.09	0.05	.12	.084
Worker attitude	0.31	0.07	.38	< .001

The pattern of coefficients indicates that, when the quality domains are considered together, patients' perceptions of how respectfully and empathetically they are treated, how punctual and organized the service is, and how clearly diagnostic information is communicated are particularly influential for overall satisfaction.

4. Discussion

The findings of this study indicate that Filipino Muslim patients in tertiary hospitals in Iligan City generally perceive radiological services as satisfactory to very satisfactory, and that perceived service quality is strongly related to overall patient satisfaction. This pattern is consistent with international research reporting favourable evaluations of radiology services when staff demonstrate professionalism and empathy and when equipment appears modern and reliable (Abuzaid et al., 2023; Alipio et al., 2025; Mulisa et al., 2017; Ochonma et al., 2017).

Worker attitude emerged as the domain with the highest mean score and the strongest correlation with satisfaction. In the regression model, it remained the most influential predictor even after other domains were controlled. These findings echo Lang and Helm's (2013) observation that respectful, caring communication and empathy are central determinants of satisfaction in radiology. They also resonate with work in Muslim-friendly hospitals showing that interpersonal aspects of care, aligned with Islamic values of compassion and dignity, contribute substantially to satisfaction and loyalty (Rahman et al., 2021; Rahman et al., 2023).

Punctuality and waiting time showed lower mean scores than other domains yet still correlated strongly and independently with satisfaction. This is consistent with evidence that delays and poorly managed queues are common sources of frustration and dissatisfaction in radiology departments (Nigatu et al., 2025; Mulisa et al., 2017). The significant predictive effect of punctuality in the regression model underscores the need for process improvements, such as better scheduling, clearer information about expected waiting times, and proactive updates when delays occur. These interventions may be particularly important for patients traveling long distances or juggling work and family responsibilities, as many of the Filipino Muslim patients in this study likely do.

Clarity of diagnostic information was another strong predictor of satisfaction. Patients who felt that radiology staff provided understandable explanations of procedures and results reported higher satisfaction. This aligns with previous work emphasizing that communication about indications, risks, and findings of imaging studies is crucial for patient-centred radiology (Lang & Helm, 2013). For Muslim patients, clear explanations may also reduce anxiety rooted in uncertainty, enable informed decision-making consistent with religious and family values, and strengthen trust in non-Muslim-majority institutions (Rahman et al., 2023).

Tools and equipment yielded high mean scores and strong bivariate correlations, indicating confidence in the technical aspects of radiology. The attenuated effect of this domain in the regression model suggests that, once interpersonal and organisational aspects of care are accounted for, technical quality alone is insufficient to drive satisfaction. This reflects the broader shift in quality paradigms from a purely biomedical model toward one that integrates technical excellence with patient experience.

The cross-sectional design and convenience sampling limit causal inference and generalizability beyond the participating hospitals. The use of self-report measures also introduces potential social desirability bias, particularly in a context where patients may hesitate to voice complaints. Nevertheless, the data mirror the patterns reported in empirical studies across diverse settings and offer a coherent narrative that foregrounds the relationship between radiological service quality and patient satisfaction among Filipino Muslim patients.

5. Conclusion

Filipino Muslim patients in tertiary hospitals in Iligan City generally report high levels of satisfaction with radiological services, particularly with respect to worker attitude and perceived equipment quality. At the same time, domains related to punctuality and facilities remain important areas for ongoing improvement.

The study demonstrates a clear and robust relationship between radiological service quality and patient satisfaction. All service-quality domains are positively associated with overall satisfaction, and worker attitude, punctuality, and diagnostic information emerge as key predictors when considered simultaneously. These results highlight that radiological services cannot be judged solely on technical performance; they must also deliver timely, respectful, and comprehensible care that aligns with the cultural and religious expectations of Filipino Muslim patients.

Hospital administrators and radiology managers can use these findings to prioritize interventions that strengthen staff communication skills, optimize scheduling and workflow, and enhance the physical environment of radiology departments. Future research may incorporate qualitative approaches to explore in greater depth how Muslim patients interpret their radiology experiences and how specific interventions influence both satisfaction and clinical outcomes over time.

Acknowledgment

Sincere appreciation is given to all peer reviewers for their valuable comments and suggestions, which helped the author to improve the quality of the manuscript.

Conflict of Interest Statement

The authors declare no conflict of interest.

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Author Contributions: Pangkat, A.M., Abdulmadid, A., Ali, A., Alipio, M.; Study design, method conception, data collection, data analysis and manuscript writing