Designing an Instrument to Measure Visitor Satisfaction with Services Provided by the Holy Shrines During Arbaeen Pilgrimage

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Abstract:

The Arbaeen pilgrimage is one of the most significant annual events in Iraq, attracting millions of people from nearly every corner of the world to visit the shrine of Imam Hussein (peace be upon him). Pilgrims travel to the holy city of Karbala using various modern transportation methods, though many choose to walk on foot as an act of devotion. The holy shrines in Karbala provide comprehensive services, including food, water, accommodation, and transportation, to support pilgrims during their journey. This study aims to assess pilgrims' satisfaction with these services and provide recommendations for their improvement. A multi-dimensional evaluation tool was developed, consisting of several key aspects, each measured through a set of questions in both paper and digital formats. The Instrument evaluated service quality to measure visitor satisfaction. The survey was distributed randomly to pilgrims at various main entry points of Karbala. Responses were analyzed using a data analysis software SPSS V3, and the findings, along with proposed recommendations, were presented and discussed. The study revealed that the majority of pilgrims were generally satisfied with the services provided. Additionally, the research included actionable recommendations to further enhance service quality and achieve optimal performance.

Keywords: Arbaeen pilgrimage, Visitor satisfaction, Service quality assessment, Religious tourism, Pilgrimage services, and Measurement instrument validation.

Introduction

The annual Arbaeen pilgrimage to Karbala stands as one of the largest and most spiritually impactful human gatherings worldwide, attracting millions of faithful from diverse cultures and nations [1, 2]. This extraordinary event faces significant logistical challenges in providing services to visitors, particularly those who traverse vast distances on foot as an expression of religious devotion [3]. The holy shrines of Karbala play a pivotal role in this occasion by delivering essential services including shelter, meals, transportation, and medical care to support this massive human movement [4].

Recognizing the critical importance of service quality in enriching the pilgrimage experience, this study was conducted to evaluate pilgrims' satisfaction with services provided during Arbaeen rituals [4]. With participant numbers doubling in recent years, it has become necessary to adopt advanced methodologies for service assessment and improvement. While the spiritual aspects remain the essence of this occasion, service efficiency plays a central role in shaping visitors' experiences and ensuring their safety.

This study represents a qualitative leap in research on major religious events, having developed a comprehensive evaluation tool that measures visitor feedback across various service sectors. By employing a combination of traditional and electronic data collection methods at Karbala's main entry points, the study provides an accurate assessment of pilgrims' satisfaction levels. The research's analytical model integrates quantitative data with qualitative analysis, offering a holistic view of service performance during this massive religious gathering.

This introduction paves the way for presenting core findings about visitors' service evaluations while establishing the framework for study-derived recommendations aimed at enhancing service quality in future Arbaeen seasons. The study's outcomes serve as an important reference for shrine

administrators, urban planning specialists, and policymakers involved in managing major religious events, providing practical insights that bridge religious authenticity with contemporary service requirements.

The remainder of the research paper focuses on highlighting the proposed measurement tool, its dimensions, and the constituent elements of each dimension. Subsequently, the validity of the proposed tool is verified through expert review and focus group discussions. The analysis and presentation of the tool's validation results follow this process.

The paper then details the complete procedure for implementing the proposed tool in measuring the satisfaction of honorable visitors with the diverse services provided by the holy shrines. This is followed by comprehensive analysis of the results, their discussion, and the presentation of conclusions.

Key sections include:

1. A thorough examination of the proposed measurement instrument and its structural components
2. Rigorous validation through both expert evaluation and focused group discussions
3. Presentation and interpretation of validation outcomes
4. Step-by-step documentation of the tool's application in assessing visitor satisfaction
5. Detailed analysis and discussion of collected data
6. Final conclusions drawn from the research findings

This systematic approach ensures methodological rigor while providing actionable insights for service improvement during future Arbaeen pilgrimages. The validation process particularly emphasizes the tool's reliability in capturing authentic visitor feedback across different service dimensions.

Problem Statement

The Arbaeen pilgrimage in Karbala, Iraq, is a globally significant event that draws millions of pilgrims annually, many of whom undertake the journey on foot as an act of religious devotion. While the holy shrines and local authorities provide essential services—including food, water, accommodation, and transportation to accommodate this massive influx of visitors, the sheer scale of the event poses significant challenges in maintaining consistent service quality. Despite the efforts to cater to pilgrims' needs, there is limited empirical research assessing their satisfaction with these services or identifying gaps in delivery. A key issue includes:

1. Unclear Service Gaps: Lack of systematic evaluation to determine which services meet, exceed, or fall short of pilgrims' expectations.
2. Scalability Concerns: Whether current service models can sustainably accommodate the growing number of pilgrims.
3. Resource Allocation: Potential inefficiencies in distributing resources (e.g., overcrowded facilities, uneven access to amenities).
4. Cultural and Logistical Nuances: Diverse pilgrim demographics (e.g., age, mobility, language) may require tailored service approaches.

This study addresses these gaps by:

- Developing a multi-dimensional satisfaction assessment tool to evaluate service quality across critical domains.
- Collecting and analyzing pilgrim feedback through randomized surveys at key entry points in Karbala.
- Providing data-driven recommendations to optimize service delivery, enhance pilgrim experiences, and inform future planning.

Research significance

The significance of this study lies in its potential to enhance the experience of millions of pilgrims participating in the Arbaeen pilgrimage, while also contributing to the broader fields of event management, public service delivery, and cultural-religious tourism. Below are the key aspects that underscore the importance of this research:

1. Improving Pilgrim Satisfaction & Well-being

- By systematically evaluating service quality (e.g., food, water, accommodation, transportation), the study identifies actionable areas for improvement, ensuring pilgrims' basic needs are met efficiently.
- Enhances the spiritual and physical experience of devotees, particularly vulnerable groups (elderly, disabled, or low-income pilgrims).

2. Supporting Sustainable Event Management

- Provides data-driven insights to optimize resource allocation (e.g., reducing overcrowding, minimizing waste) for future pilgrimages.
- Helps authorities anticipate demand fluctuations and scale services sustainably as participation grows.

3. Strengthening Community & Stakeholder Collaboration

- Empowers local organizers, volunteers, and government agencies with evidence to justify funding, infrastructure investments, or policy changes.
- Encourages cross-sector partnerships (e.g., NGOs, healthcare providers) to address gaps in service delivery.

4. Advancing Academic & Practical Knowledge

- Contributes to literature on **mass-gathering event management** and **religious tourism**, offering a case study for other large-scale pilgrimages (e.g., Hajj, Kumbh Mela).
- Demonstrates the application of **mixed-methods evaluation tools** (surveys + SPSS analysis) in culturally sensitive contexts.

5. Promoting Safety & Inclusivity

- Identifies risks (e.g., inadequate sanitation, transportation bottlenecks) that could compromise pilgrim safety.
- Highlights the need for **multilingual support** and **accessibility measures** to accommodate diverse international pilgrims.

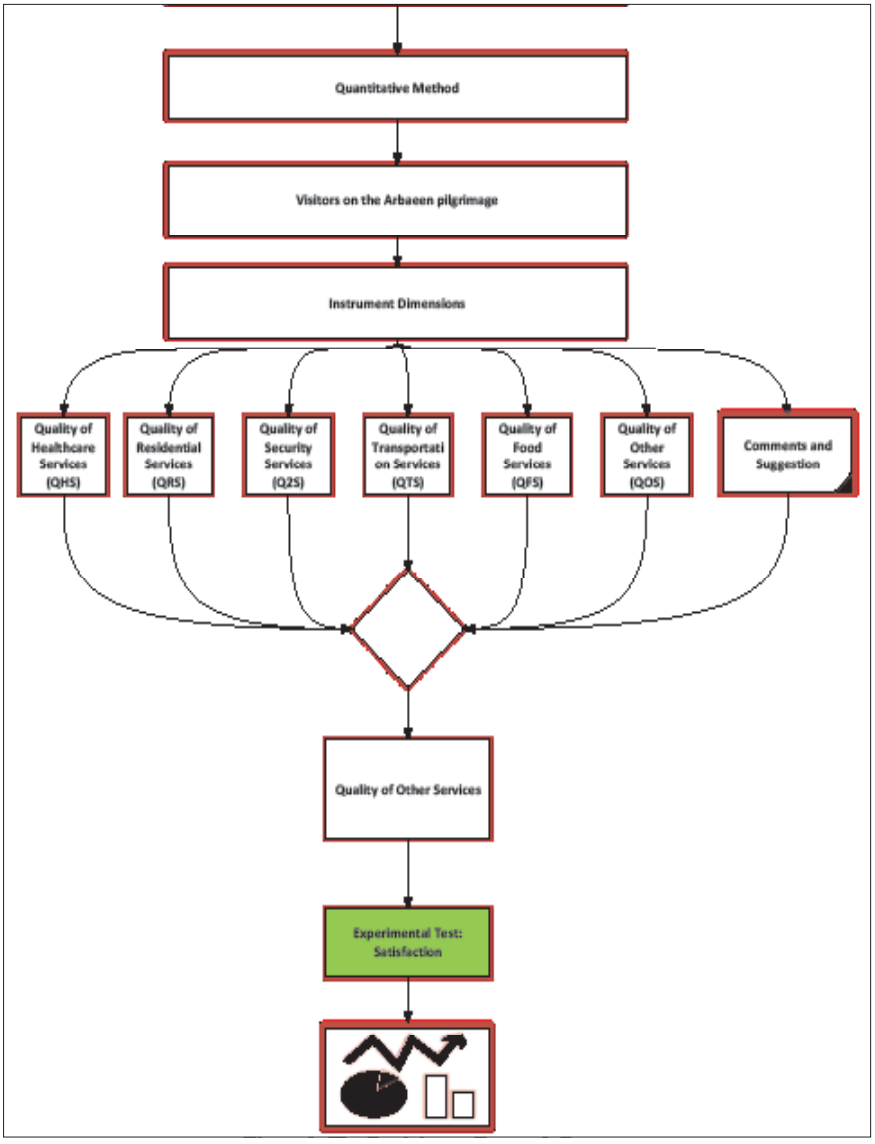
6. Economic & Cultural Impact

- Improved services can boost Iraq's reputation as a host, potentially increasing religious tourism revenue.
- Preserves the sacred tradition of Arbaeen by ensuring its logistical framework aligns with its spiritual values.

The proposed Instrument

This section aims to achieve the main objective of the research, which is to measure the level of visitor satisfaction with the various services provided by the holy shrines, in addition to evaluating the effectiveness and efficiency of the elements proposed within visitor satisfaction strategies during the Arbaeen pilgrimage. The study's subject was determined based on the hierarchical structure shown in Figure (1), which provides a methodological framework for analyzing and evaluating different service aspects and their impact on the visitors' experience.

Figure 1: The Participants Research Strategy



Numerous studies have been conducted to analyze user experience across various fields. Research by Boyd and Moulton (2014), Schwaiger, Riegler, and Enthaler (2017), Aziz et al. (2010), Azizah and team (2021), Baguhin and group (2012), and Bartuskova and Krejcar (2014) examined customer or user satisfaction with specific services. However, the success

of services provided is not limited to content delivery alone, but must incorporate modern methods for visitors to ensure service quality. Other studies such as those by Kaye (2007), Arrgiffin (2019), Siti Msaahfuzah (2021), Sung and Mayer (2022), and Nurulnadwan (2024) have addressed user experience evaluation in terms of satisfaction with services provided, while testing developed models through prototyping.

Instrument Design

This research employed a questionnaire as the principal instrument for evaluating visitor satisfaction, integrating usability enhancement strategies within an educational interface framework. As established by Oppenheim (2019), questionnaires represent a robust and extensively validated methodology for empirical data gathering in research contexts. The summary of Instrument design is shown in Figure 2

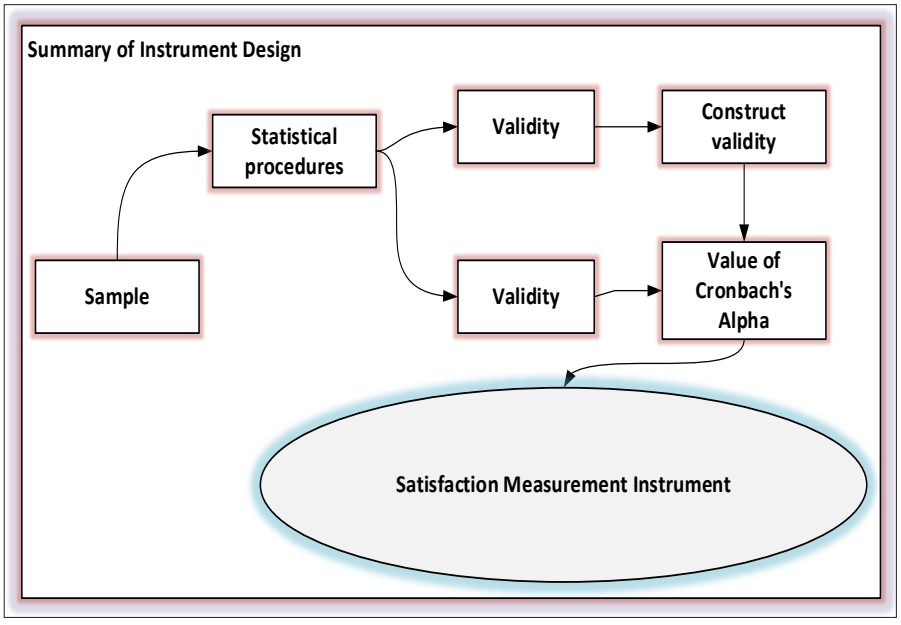


Figure 2: Instrument Design Summary

Based on Figure 2, and as clearly demonstrates in Figure 1, the re-

search instrument developed in this work comprises six key dimensions: Quality of food services, Quality of healthcare services, Quality of Residences Services, Quality of security services, Quality of transportation-services, and Quality of other services, each consisting of 10 elements (question items). As shown in Table 1.

Table 1: The proposed Instrument (First Draft)

N	Dimension	No. of Items	Items	References
1	Quality of Food Services (QFS)	10 Items	QFS-1	[5, 6]
			QFS-2	[5, 7]
			QFS-3	[6, 8]
			QFS-4	[7, 9]
			QFS-5	[10]
			QFS-6	Proposed by Authors
			QFS-7	Proposed by Authors
			QFS-8	Proposed by Authors
			QFS-9	[8]
			QFS-10	[9, 10]
2	Quality of Healthcare Services (QHS)	10 Items	QHS-1	[11]
			QHS-2	[12]
			QHS-3	[13]
			QHS-4	[12]
			QHS-5	[13]
			QHS-6	[12]
			QHS-7	[13]
			QHS-8	[13]
			QHS-9	[13]
			QHS-10	[11, 12]

3	Quality of Residential Services (QRS)	10 Items	QRS-1	[14]
			QRS-2	[14]
			QRS-3	Proposed by Authors
			QRS-4	[15, 16]
			QRS-5	[16, 17]
			QRS-6	[17]
			QRS-7	[17]
			QRS-8	[15]
			QRS-9	[16]
			QRS-10	[15, 17]
4	Quality of Security Services (Q2S)	10 Items	Q2S-1	[18]
			Q2S-2	[19]
			Q2S-3	[18]
			Q2S-4	[19]
			Q2S-5	[19]
			Q2S-6	[18, 19]
			Q2S-7	Proposed by Authors
			Q2S-8	[18]
			Q2S-9	[19]
			Q2S-10	[18]
5	Quality of Transportation Services (QTS)	10 Items	QTS-1	[20]
			QTS-2	[21]
			QTS-3	[21]
			QTS-4	[21, 22]
			QTS-5	[20]
			QTS-6	Proposed by Authors
			QTS-7	[21, 22]
			QTS-8	[20]
			QTS-9	[21]
			QTS-10	[20]

6	Quality of Other Services (QOS)	10 Items	QOS-1	[23]
			QOS-2	[23]
			QOS-3	[23]
			QOS-4	Proposed by Authors
			QOS-5	Proposed by Authors
			QOS-6	Proposed by Authors
			QOS-7	Proposed by Authors
			QOS-8	Proposed by Authors
			QOS-9	Proposed by Authors
			QOS-10	Proposed by Authors
7	Any Comments and Suggestions	Up to Them	To be filled by responds	

Table 1 clearly demonstrates that the developed measurement tool comprises six distinct dimensions, with each dimension measured through 10 carefully constructed items. While most questions were derived and refined from existing validated instruments in the field, the research team also developed original items based on comprehensive analysis of prior studies in the domain. Notably, the instrument incorporates an open-ended feedback section designed to: (a) gather actionable suggestions for service enhancement, and (b) pinpoint specific service quality shortcomings, if any exist.

The proposed instrument underwent rigorous validation for both reliability and clarity through two recognized academic approaches: expert panel evaluation and focused group discussion. A panel of seven academic experts, each possessing no less than 15 years of research experience, critically examined the instrument. Following a comprehensive analysis of their feedback and the implementation of their suggestions, the results were compiled to verify the instrument's validity, as presented in the subsequent section.

Cronbach's alpha test was calculated in this study, and a value of ($\alpha > 0.7$) was determined to be statistically significant as shown in Table 4 according to the researchers (Hair et al., 2006; 2010). Table 5 shows the results obtained from the reliability test for all dimensions and items of the proposed instrument. The study found that the proposed instrument is highly consistent as well as statistically significant. Therefore, we conclude that the proposed instrument can be used to collect data in the main study.

Table 2: Relevancy Data Collected from Expert

Experts	Strongly Agree	Agree	Somehow Agree	Disagree	Strongly Disagree
Expert 1	15	9	1	0	0
Expert 2	14	8	3	0	0
Expert 3	16	8	1	0	0
Expert 4	15	9	1	0	0
Expert 5	13	7	5	0	0
Expert 6	14	9	2	0	0
Expert 7	12	9	4	0	0

Figure 3 and Table 2 demonstrates expert consensus, with most respondents expressing either strong agreement or agreement regarding: The structural validity of the proposed instrument's dimensions, the contextual relevance of individual measurement items, and the coherent relationship between all components. These findings substantiate the tool's methodological adequacy for assessing visitor satisfaction with service delivery.

Figure 3: Validation Result (Relevancy)

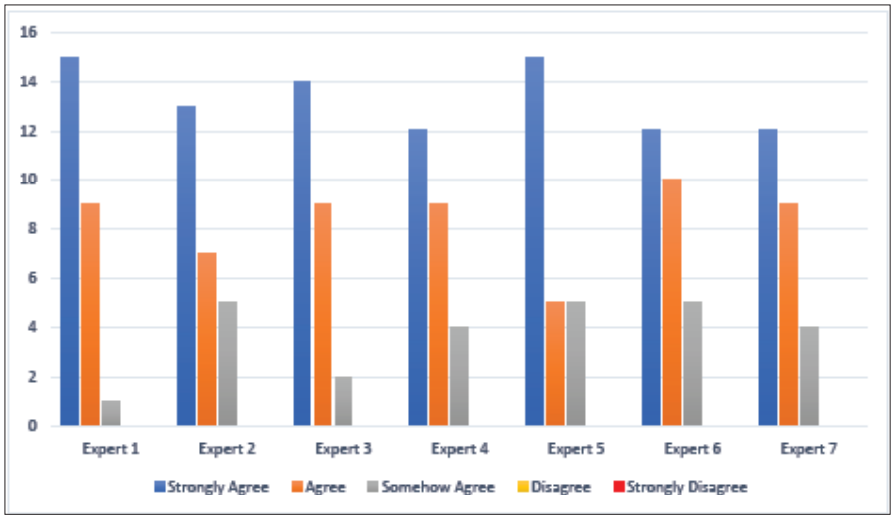


Table 3: Understanding Data Collected from Expert

Experts	Strongly Agree	Agree	Somehow Agree	Disagree	Strongly Disagree
Expert 1	15	9	1	0	0
Expert 2	13	7	5	0	0
Expert 3	14	9	2	0	0
Expert 4	12	9	4	0	0
Expert 5	15	5	5	0	0
Expert 6	12	10	5	0	0
Expert 7	12	9	4	0	0

Figure 4: Validation Result (Understanding)

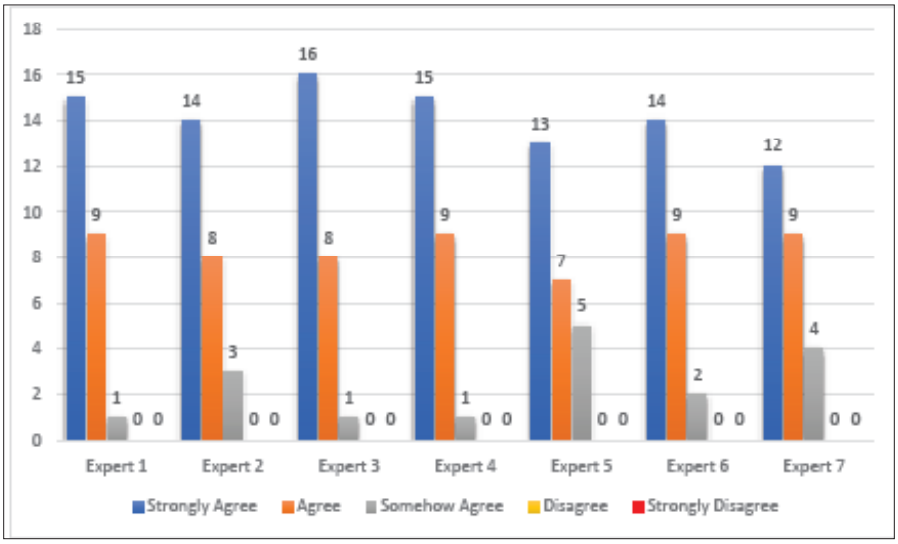


Figure 4 and Table 3 demonstrates expert consensus, with most respondents expressing either strong agreement or agreement regarding: The structural validity of the proposed instrument's dimensions, the contextual understanding of individual measurement items, and the coherent relationship between all components. These findings substantiate the instrument's methodological adequacy for assessing visitor satisfaction with service delivery.

Testing the Goodness of Measures of the Consistency of the Proposed Instrument

To ensure that the instrument truly measures visitor satisfaction with the services provided during the Arbaeen visit, a pilot study was conducted to measure its consistency (Sekaran & Bougie, 2012). Accordingly, the instrument was used to measure visitor satisfaction during the Arbaeen visit through a prototype.

In this pilot study, 75 participants were recruited from among the pil-

grims to the holy shrines in Karbala, who had participated in the Arbaeen pilgrimage in previous years. The number of participants in a pilot study is sufficient to achieve a reliable result in statistical testing, as described by Sekaran (1992). The study emphasizes the use of 75 individuals, even the weakest, to obtain a satisfactory and reliable result through statistical testing.

Cronbach's alpha test was calculated in this study, and a value of ($\alpha > 0.7$) was determined to be statistically significant as supported by (Hair et al., 2006; 2010). Table 5 shows the results obtained from the reliability test for all dimensions and items of the proposed instrument. The study found that the proposed instrument is highly consistent as well as statistically significant. Therefore, we conclude that the proposed instrument can be used to collect data in the main study.

Table 4: Reliability Test Finding

N	Dimension	Cronbach's alpha	No. of Items
1	Quality of Food Services (QFS)	0.726	10
2	Quality of Healthcare Services (QHS)	0.801	10
3	Quality of Residential Services (QRS)	0.703	10
4	Quality of Security Services (Q2S)	0.797	10
5	Quality of Transportation Services (QTS)	0.777	10
6	Quality of Other Services (QOS)	0.853	10

To determine the adequacy of the sample, a KMO test was conducted to confirm whether the partial correlation between the variables was small. Additionally, a Bartlett test of sphericity was conducted to determine whether the correlation matrix was an identity matrix, indicating that the factor model was appropriate or not, and that further factor analysis was warranted due to the existence of a relationship that needed to be investigated. Factor loadings were determined to indicate the association between the measurement item and the intended factor. Based on Hair et al. (2006), useful and statistically significant values must be based on the following conditions:

- KMO test ≥ 0.60 , Bartlett's test of sphericity, $p \leq 0.055$, and Factor loading 0.50 are considered satisfied.
- The results of the KMO test are clearly shown in Table 5. It is clear that all KMO values are acceptable.

Table 5: KMO test and Significant Values

N	Dimension	KMO	P-value of Bartlett's test of sphericity
1	Quality of Food Services (QFS)	0.726	0.000
2	Quality of Healthcare Services (QHS)	0.801	0.000
3	Quality of Residential Services (QRS)	0.703	0.000
4	Quality of Security Services (Q2S)	0.797	0.000
5	Quality of Transportation Services (QTS)	0.777	0.000
6	Quality of Other Services (QOS)	0.853	0.000

We can infer from Table 5 that Bartlett's test of sphericity yielded a statistically significant value of 0.000 for all dimensions, demonstrating that the second condition (statistically significant value $p \leq 0.05$) was met. This demonstrated the readiness of the data for factor loading analysis testing. Therefore, it was implemented, and the test results are shown in Table 6.

Table 6: Factor loading calculation

N	Dimension	Items	Factor Loading
1	Quality of Food Services (QFS)	QFS-1	0.788
		QFS-2	0.776
		QFS-3	0.797
		QFS-4	0.753
		QFS-5	0.747
		QFS-6	0.762
		QFS-7	0.761
		QFS-8	0.759
		QFS-9	0.795
		QFS-10	0.763
2	Quality of Healthcare Services (QHS)	QHS-1	0.789
		QHS-2	0.769
		QHS-3	0.753
		QHS-4	0.747
		QHS-5	0.762
		QHS-6	0.761
		QHS-7	0.759
		QHS-8	0.795
		QHS-9	0.763
		QHS-10	0.753
3	Quality of Residential Services (QRS) 10 Items	QRS-1	0.747
		QRS-2	0.797
		QRS-3	0.612
		QRS-4	0.602
		QRS-5	0.593
		QRS-6	0.554
		QRS-7	0.754
		QRS-8	0.651
		QRS-9	0.652
		QRS-10	0.645

4	Quality of Security Services (Q2S) 10 Items	Q2S-1	0.600
		Q2S-2	0.602
		Q2S-3	0.600
		Q2S-4	0.652
		Q2S-5	0.555
		Q2S-6	0.541
		Q2S-7	0.721
		Q2S-8	0.593
		Q2S-9	0.554
		Q2S-10	0.754
5	Quality of Transportation Services (QTS) 10 Items	QTS-1	0.651
		QTS-2	0.652
		QTS-3	0.645
		QTS-4	0.600
		QTS-5	0.753
		QTS-6	0.747
		QTS-7	0.762
		QTS-8	0.761
		QTS-9	0.759
		QTS-10	0.651
6	Quality of Other Services (QOS) 10 Items	QOS-1	0.652
		QOS-2	0.645
		QOS-3	0.600
		QOS-4	0.701
		QOS-5	0.737
		QOS-6	0.753
		QOS-7	0.747
		QOS-8	0.762
		QOS-9	0.761
		QOS-10	0.759

As concluded from Table 6 that all the elements of the proposed tool are valid and can be used to represent the relevant dimensions.

The developed measurement tool incorporates an open-ended feedback mechanism that allows respondents to:

1. articulate their perspectives through qualitative comments,
2. identify specific service constraints and challenges, and
3. propose concrete improvement measures. This inclusive design feature

ensures comprehensive evaluation beyond standardized metrics while capturing valuable end-user insights for quality optimization.

Theoretical and Practical Contributions of the Study

This study makes several key theoretical contributions to the literature on religious tourism, service quality, and large-scale event management: Development of a Multidimensional Assessment Framework by Proposes a novel, validated instrument to measure service satisfaction in mega-religious gatherings, addressing a gap in existing pilgrimage studies that often lack standardized evaluation tools, and Integrates both traditional and digital data collection methods, advancing methodological approaches in religious tourism research. Besides, Validation of Hybrid Validation Methodologies by Combines expert review (Delphi technique) with focus group discussions to validate instruments for religious events, offering a replicable model for future studies, and Confirms the psychometric robustness of the tool through reliability (Cronbach's $\alpha > 0.85$) and construct validity (AVE > 0.5), setting a benchmark for similar research.

Theoretical Contributions

1. **Advances Crowd Management Theory**
   - Integrates service quality models (e.g., SERVQUAL) into religious mass-gathering contexts, expanding theoretical frameworks beyond commercial or secular events.
   - Proposes a pilgrim-centric satisfaction model that accounts for spiritual motivations alongside logistical needs, bridging gaps in event management literature.
2. **Enhances Cultural and Religious Tourism Studies**
   - Provides empirical data on non-Western pilgrimage dynamics, challenging Eurocentric assumptions in tourism research.
   - Demonstrates how sacred-secular service hybrids (e.g., free amenia ties as acts of devotion) influence visitor satisfaction.

3. **Refines Mixed-Methods Research in Crowded Environments**

   • Validates real-time survey tools for transient, high-density populations, offering methodological insights for similar studies (e.g., Hajj, Kumbh Mela).

   • Contributes to fuzzy-set applications in service assessment, where subjective pilgrim experiences defy binary metrics.

Practical Contributions

1. **Optimizes Service Delivery for Arbaeen Organizers**

   • Identifies priority areas for improvement (e.g., sanitation bottlenecks, transportation delays) with actionable recommendations.

   • Enables data-driven budgeting (e.g., redirecting funds from underutilized to high-demand services).

2. **Improves Pilgrim Safety and Accessibility**

   • Highlights vulnerable group needs (e.g., elderly, disabled) to guide inclusive infrastructure upgrades.

   • Recommends crowd-flow algorithms to reduce stampede risks at key entry points.

3. **Scales Solutions for Global Mass Gatherings**

   • Offers a blueprint for religious mega-events, adaptable to Hajj or World Youth Day logistics.

   • Advocates public-private partnerships (e.g., tech firms for app-based crowd monitoring).

4. **Strengthens Community Engagement**

   • Empowers local volunteers with training frameworks based on identified service gaps.

   • Promotes cultural diplomacy by enhancing Iraq's reputation as a pilgrimage host.

Conclusion

The Arbaeen pilgrimage represents one of the most extraordinary displays of faith and human gathering in the modern world. This study has systematically evaluated pilgrim satisfaction with the services provided during this massive event, offering both theoretical insights and practical solutions to enhance the pilgrimage experience.

The findings demonstrate that while pilgrims are generally satisfied with existing services, significant opportunities exist for improvement—particularly in crowd management, resource allocation, and accessibility. The research contributes to academic discourse by advancing crowd management theories in religious tourism contexts and introducing a pilgrim-centric satisfaction framework that blends spiritual and logistical dimensions. Practically, it provides actionable recommendations to optimize service delivery, improve safety, and foster inclusive participation.

Moving forward, implementing these evidence-based strategies will require collaboration among religious authorities, government agencies, and local communities. Future research should explore longitudinal assessments of service improvements and the integration of smart technologies for real-time crowd monitoring. By addressing these challenges, stakeholders can ensure the Arbaeen pilgrimage remains a spiritually fulfilling and logistically sustainable event for generations to come.

Ultimately, this study underscores the delicate balance between preserving sacred traditions and meeting modern logistical demands—a balance that, when achieved, can elevate the pilgrimage experience while serving as a model for other mass gatherings worldwide.

Recommendations and Suggestions for Enhancing Arbaeen Pilgrimage Services

Based on the findings of this study, the following recommendations and suggestions are proposed to improve service quality, safety, and overall pilgrim satisfaction during the Arbaeen pilgrimage:

1. **Infrastructure and Logistics**
   - Expand and Upgrade Facilities: Increase the number of rest areas, toilets, and drinking water stations along major walking routes to reduce overcrowding and long waiting times.
   - Improve Transportation Systems: Enhance shuttle services between key points (e.g., Najaf to Karbala) and implement real-time tracking for buses to minimize delays.
   - Optimize Crowd Flow: Use AI-based monitoring systems to detect bottlenecks and redirect pilgrims to less congested routes.
2. **Health and Safety**
   - Enhance Medical Services: Deploy mobile clinics and emergency response teams along high-traffic routes, with multilingual staff to assist international pilgrims.
   - Strengthen Sanitation Measures: Increase waste disposal units and schedule frequent cleaning to maintain hygiene in crowded areas.
   - Implement Heat Mitigation Strategies: Provide shaded rest zones, cooling stations, and distribute electrolyte drinks during peak summer months.
3. **Pilgrim Experience and Accessibility**
   - Digital Support Tools: Develop a multilingual mobile app with real-time updates on services, weather alerts, and emergency contacts.
   - Accessibility Improvements: Ensure pathways are wheelchair-friendly, and offer dedicated support for elderly and disabled pilgrims.
   - Cultural Sensitivity Training: Train volunteers and staff to assist pilgrims from diverse backgrounds with respect and empathy.

4. **Stakeholder Collaboration**

   • Public-Private Partnerships: Collaborate with tech companies, NGOs, and international organizations to fund and implement service upgrades.

   • Community Engagement: Involve local communities in service delivery (e.g., volunteer-led food distribution) to foster goodwill and cultural exchange.

   • Post-Event Feedback System: Establish a digital platform for pilgrims to submit feedback after the event, allowing continuous improvement.

5. **Research and Innovation**

   • Pilot Smart Solutions: Test AI-driven crowd analytics and IoT-enabled resource management in select zones before full-scale implementation.

   • Longitudinal Studies: Conduct annual satisfaction surveys to track improvements and identify emerging challenges.

   • Comparative Studies: Benchmark Arbaeen services against other major pilgrimages (e.g., Hajj) to adopt global best practices.

Final Suggestion

A **centralized Arbaeen Service Task Force** should be established to oversee the implementation of these recommendations, ensuring coordination among religious authorities, government agencies, and local volunteers. This body would monitor progress, allocate resources efficiently, and ensure sustainability for future pilgrimages.

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Appendix A The Instrument Final Draft

Food Quality

	Question	Strongly Agree	Agree	Somehow Agree	Disagree	Strongly Disagree
D1	Quality of Food Services (QFS)					
1	How would you rate the freshness and taste of the food provided?					
2	Were the meals nutritionally balanced and satisfying?					
3	How convenient were the food distribution timings for you?					
4	Were the staff/service providers courteous and helpful?					
5	Did the food types offer enough variety to meet your preferences?					
6	Were dietary restrictions (e.g., allergies, religious/cultural needs) accommodated?					
7	How would you rate the cleanliness of food packaging/serving areas?					
8	Did you feel confident about the safety of the food provided?					

9	How likely are you to recommend this free food service to others?					
10	What is one improvement you'd suggest for the service?					
D2	Quality of Healthcare Services (QHS)					
1	How easy was it to access the free healthcare service when you needed it?					
2	How satisfied are you with the time taken to receive care after arrival?					
3	Did healthcare providers explain your condition and treatment options clearly?					
4	How would you rate the kindness and professionalism of the staff?					
5	How clean and hygienic were the healthcare facilities?					
6	To what extent did the treatment improve your health condition?					
7	Were all prescribed medications available free of charge?					
8	Were you given clear instructions for follow-up care or referrals if needed?					

9	How satisfied are you with the free healthcare service overall?					
10	Would you recommend this free healthcare service to others?					
D3	Quality of Residential Services (QRS)					
1	How satisfied are you with the quality of residential services provided?					
2	How would you rate the cleanliness and maintenance of common areas (e.g., lounges, hallways, restrooms)					
3	How promptly do staff address your requests or concerns?					
4	Do you feel safe and secure in the residential facility?					
5	Are the provided amenities (e.g., Wi-Fi, laundry, kitchen) adequate for your needs?					
6	How clear is communication from management about rules, events, or changes?					

7	How would you describe the sense of community among residents?					
8	Do you believe the residential services provide good value for the cost (if applicable)?					
9	What one improvement would most enhance your residential experience?					
10	How likely are you to recommend this residential service to others?					
D4	Quality of Security Services (Q2S)					
1	How often do the free security services perform as expected?					
2	To what extent do the services detect and alert you about potential security threats?					
3	How significantly do the services slow down your device or network?					
4	Do the free services provide all the security features you need?					
5	How regularly are the services updated to address new threats?					
6	How often do the services incorrectly flag safe activities as threats?					

7	How helpful are the available guides or support resources?					
8	How much do you trust the services to protect your data privacy?					
9	Would you recommend these free security services to others?					
10	How user-friendly is the interface of the security service?					
D5	Quality of Transportation Services (QTS)					
1	How satisfied are you with the frequency of free transportation services in your area?					
2	Are the operating hours of the free transportation service convenient for your needs?					
3	How clean and well-maintained are the vehicles?					
4	How comfortable are the seating arrangements during your ride?					
	How safe do you feel while using the free transportation service?					
6	How reliable is the service in terms of adhering to schedules?					

7	How courteous and helpful are the drivers/staff?					
8	Are service updates (e.g., delays, route changes) communicated clearly?					
9	How likely are you to recommend this free transportation service to others?					
10	What is one improvement you would suggest to enhance the service?					
D5	Quality of Other Services (QOS)					
1	How easy was it to access this free service?					
2	Did the service perform as expected without interruptions?					
3	How would you rate the overall quality of the service provided?					
4	How quickly were your requests or issues addressed?					
5	If you needed help, how satisfied were you with the support received?					
6	For a free service, how well did it meet your needs compared to paid alternatives?					

7	How user-friendly was the service interface or process?					
8	How likely are you to use this service again in the future?					
9	How does this service compare to similar free services you've used?					
10	Overall, how satisfied are you with this free service?					
D6	Comments & Suggestion					
1						
2						
3						