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**The Impact of Operational Audit Practices on Quality
Standards
Compliance in Multi-Brand Restaurant Chains in Saudi
Arabia**

تأثير ممارسات التدقيق التشغيلي على الامتثال لمعايير الجودة
في سلاسل المطاعم متعددة العلامات التجارية في المملكة العربية السعودية

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Date of Submission: 2/8/2026 | Semester: 1

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Chapter 1: Introduction

الفصل الأول: الإطار العام للدراسة

1.1 Research Background / المقدمة

The restaurant industry is one of the fastest-growing sectors in the world, and Saudi Arabia is no exception. The country's food service market was valued at USD 27.8 billion in 2023 and is expected to grow at a rate of 11.57% annually through to 2029 (Abdou, Hassan, & Salem, 2023). As more restaurant chains expand across the Kingdom, the question of how to maintain consistent quality across many branches becomes increasingly important for operators and managers.

Maintaining quality in a restaurant chain involves managing a wide range of operational areas — from kitchen cleanliness and food storage to pest control and staff hygiene. The Saudi Food and Drug Authority (SFDA) sets clear requirements for all food businesses in the Kingdom, including HACCP-based food safety systems, proper equipment maintenance, and regular pest management (Saudi Food and Drug Authority, n.d.). Juran and Godfrey (1999) describe quality control as a three-step process: measuring actual performance, comparing it to a standard, and taking action when there is a gap — which is essentially what an operational audit does. Daft and Benson (2016) argue that control systems need to be built into day-to-day operations rather than applied only when something goes wrong. Presti et al. (2023) found that structured audit checklists are effective tools for identifying non-conformities and applying corrective action, while Lee et al. (2021) showed that poor implementation of food safety management systems has direct public health consequences.

This study investigates the impact of operational audit practices on quality standards compliance in a multi-brand restaurant chain operating in Saudi Arabia. The audit system studied covers eight operational dimensions and uses a structured digital checklist to generate measurable scores across branches. The project is organized into five chapters: Chapter 1 presents the general framework; Chapter 2 reviews the literature; Chapter 3 describes the methodology; Chapter 4 presents statistical analysis and findings; and Chapter 5 provides discussion, conclusions, and recommendations.

1.2 Research Problem / مشكلة الدراسة

Running quality checks across dozens of restaurant branches is genuinely difficult. Without a structured audit system, it is very hard to know which branches are consistently compliant and which ones need attention. Even where regulatory requirements exist — such as those set by the SFDA (Saudi Food and Drug Authority, n.d.) — compliance is not automatic. The core question this study addresses is whether a structured, multi-dimensional operational audit system can make a measurable difference to quality compliance levels across the branches of a multi-brand restaurant chain in Saudi Arabia.

1.2.1 Theoretical Gaps / الفجوات على المستوى النظري

The quality management literature provides solid foundations in Juran and Godfrey's (1999) quality control process and Daft and Benson's (2016) organizational control framework, but these have rarely been applied to multi-brand restaurant chains in Saudi Arabia. Lee et al. (2021) identified that food safety management systems do not always perform as expected across different organizational contexts. There is a need for a model that treats multi-dimensional operational auditing as a unified construct studied in relation to quality compliance outcomes.

1.2.2 Practical Gaps / الفجوات على المستوى التطبيقي

Many restaurant businesses in Saudi Arabia still rely on informal inspection routines that do not produce consistent, comparable data across locations. Abdou et al. (2023) noted varying levels of operational discipline across the sector. Presti et al. (2023) found a similar issue in institutional catering — no standard framework exists for regular mandatory inspections. This study addresses that problem directly by examining a real operational audit system already in use across a Saudi restaurant chain. The central research question is: To what extent do operational audit practices impact quality standards compliance in multi-brand restaurant chains in Saudi Arabia?

1.3 Research Significance / أهمية الدراسة

1.3.1 At the Theoretical Level / على المستوى النظري

This study fills a gap in the existing literature by applying established quality control and organizational management frameworks to the under-researched context of multi-brand restaurant chains in Saudi Arabia. It builds on Juran and Godfrey (1999) and Daft and Benson (2016) by testing their ideas in a real operational environment, and adds to Saudi-specific food service research (Abdou et al., 2023) by introducing an operational audit dimension that previous studies have not examined.

1.3.2 At the Practical Level / على المستوى التطبيقي

The findings of this study should be useful to anyone responsible for managing quality across multiple restaurant locations. Food worker health certification in Saudi Arabia is a mandated requirement under the Ministry of Municipalities and Housing (Examination and Evaluation Center, 2024),

underlining that food safety compliance is a regulated obligation that internal audit systems must actively support. Given the sector's projected growth (Abdou et al., 2023) and SFDA regulatory requirements (Saudi Food and Drug Authority, n.d.), there is a real need for evidence-based operational guidance.

1.4 Research Questions / أسئلة الدراسة

The study is guided by one main research question and three sub-questions:

Main Question: To what extent do operational audit practices impact quality standards compliance in multi-brand restaurant chains in Saudi Arabia?

- RQ1: What is the current level of quality standards compliance across the eight operational audit dimensions in the studied restaurant chain?
- RQ2: To what extent does each audit dimension contribute individually to overall quality compliance scores across branches?
- RQ3: Is there a relationship between the frequency of audit visits and the level of quality standards compliance across branches?
-

1.5 Research Objectives / أهداف الدراسة

The study aims to: (1) examine the overall impact of structured operational audit practices on quality standards compliance; (2) measure current compliance levels across eight audit dimensions; (3) identify which dimensions have the strongest individual effect on overall compliance; (4) explore the relationship between audit visit frequency and branch compliance; and (5) provide practical

recommendations for improving audit frameworks in multi-brand restaurant chains in Saudi Arabia.

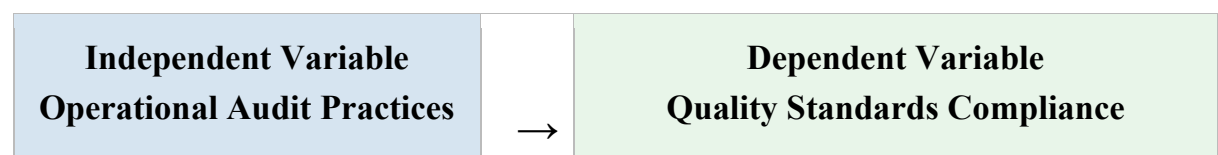
1.6 Research Hypotheses / فرضيات الدراسة

The following hypotheses are tested in this study:

- H1: Operational audit practices have a statistically significant positive impact on quality standards compliance in multi-brand restaurant chains in Saudi Arabia.
- H2: The food safety and pest control audit dimensions have a stronger positive impact on overall quality compliance than other audit dimensions.
- H3: Higher frequency of operational audit visits is positively associated with higher quality standards compliance across restaurant branches.

1.7 Research Model / نموذج الدراسة

The research model proposes a direct relationship between Operational Audit Practices (independent variable, measured across eight dimensions on a 1–5 scale) and Quality Standards Compliance (dependent variable, measured as the aggregate audit score per branch per visit). The model is grounded in Juran and Godfrey's (1999) quality control process and Daft and Benson's (2016) organizational control framework, with the SFDA Food Hygiene Requirements (Saudi Food and Drug Authority, n.d.) serving as the regulatory benchmark.



1. Entrance Standards 2. Dining Area Cleanliness 3. Kitchen Cleanliness 4. Equipment Condition 5. Food Safety 6. Storage Standards 7. Pest Control 8. Operations / SOP Compliance	Aggregate audit score per branch per visit (1–5 scale), assessed against SFDA Food Hygiene Requirements and internal quality standards.
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Figure 1: Proposed Research Model

1.8 Research Methodology / منهجية الدراسة

This study uses a quantitative, descriptive-analytical approach (Sekaran, n.d.). Primary data comes from 20 audit responses collected across 19 branches during May 2026 using a structured digital checklist scored on a 1–5 Likert scale. Descriptive statistics, Pearson correlation, and regression analysis are applied to test the three hypotheses against the SFDA regulatory framework (Saudi Food and Drug Authority, n.d.) and the quality control standards of Juran and Godfrey (1999).

1.9 Scope of The Study / الدراسة الميدانية

The study is conducted within a leading multi-brand restaurant chain managing more than 40 branches across Saudi Arabia. The dataset comprises 20 audit responses from 19 branches collected between 11 May and 21 May 2026, spanning Jeddah, Makkah, Taif, Shati, and Slama. Two inspectors conducted all visits, classified as follow-up audits. The study is limited to internal audit data and does not include external regulatory inspection records or customer feedback.

1.10 The Suggested Project Structure / مخطط المشروع المقترح

The project is structured as follows:

1. Cover Page
2. Table of Contents
3. List of Figures
4. List of Tables
5. Chapter 1: General Framework of the Study
6. Chapter 2: Literature Review
7. Chapter 3: Research Methodology
8. Chapter 4: Statistical Analysis and Findings
9. Chapter 5: Discussion, Conclusions, and Recommendations
10. References
11. Appendix A: Research Instrument — Operational Audit Checklist
12. Appendix B: Table of Research Instruments

Chapter 2: Literature Review

الفصل الثاني: الدراسات السابقة

2.1 Introduction / المقدمة

This chapter reviews the existing academic and regulatory literature relevant to the two main variables: operational audit practices (independent variable) and quality standards compliance (dependent variable). Sources reviewed include Abdou et al. (2023), Lee et al. (2021), Presti et al. (2023), Daft and Benson (2016), Juran and Godfrey (1999), the Saudi Food and Drug Authority (n.d.), the National Restaurant Association (2023), and the Examination and Evaluation Center (2024).

2.2 Operational Audit Practices (Independent Variable) / المتغير المستقل

Operational auditing is the systematic process of evaluating whether an organization's activities are carried out efficiently, effectively, and in accordance with established standards. Daft and Benson (2016) describe organizational control as a process by which managers monitor ongoing activities, compare results with established targets, and make corrections where needed — control that must be embedded into the daily rhythm of an organization, especially in multi-site operations. Juran and Godfrey (1999) offer a three-step quality control process: evaluating actual performance, comparing it against quality goals, and acting on the difference. This framework makes explicit the link between measurement and action — the audit is the mechanism through which deviations from standards are identified and corrected.

The SFDA (Saudi Food and Drug Authority, n.d.) sets comprehensive requirements for food business operators in the Kingdom — clean premises, proper temperature control, accessible equipment, high personal hygiene standards among food-handling staff, and HACCP-based systems — each mapping directly onto dimensions of a structured operational audit checklist. Presti et al. (2023) developed a 20-section audit checklist for collective catering that covered the entire food production line and categorized findings by severity, enabling a risk-based corrective action approach. Lee et al. (2021) found that the most common cause of food safety failures is not a breakdown at HACCP critical control points but rather the failure of prerequisite programs — particularly poor personal hygiene and inadequate sanitation — making routine audit checks on these areas core drivers of food safety outcomes.

2.3 Quality Standards Compliance (Dependent Variable) / المتغير التابع

Quality standards compliance refers to the degree to which a branch consistently meets its operational, hygiene, food safety, and procedural standards. The Saudi food service market reached USD 27.8 billion in 2023 with projected growth of 11.57% annually through 2029 (Abdou et al., 2023), placing significant pressure on operators to maintain standards across rapidly expanding networks. The SFDA (Saudi Food and Drug Authority, n.d.) sets out detailed requirements covering premises condition, equipment, personal hygiene, storage, and HACCP implementation. The Ministry of Municipalities and Housing further reinforces this through a mandated health education and certification programme for all food establishment workers (Examination and Evaluation Center, 2024), underlining that trained, compliant staff are a fundamental component of quality adherence.

Lee et al. (2021) demonstrate that failures in basic prerequisite programs — inadequate sanitation, poor personal hygiene, ineffective pest prevention — can lead to serious public health consequences, reinforcing that compliance is not a

bureaucratic exercise but a health and safety obligation. Presti et al. (2023) found that structured checklists made non-conformities — including structural gaps, absent insect barriers, and documentation failures — visible and manageable, enabling timely corrective action.

2.4 The Relationship Between the Two Variables / العلاقة بين المتغيرين

The theoretical connection is straightforward: auditing is the mechanism through which compliance is monitored, and compliance is the outcome auditing is designed to improve. Without a structured evaluation of actual performance, there is no basis for comparison against standards and therefore no basis for corrective action (Juran & Godfrey, 1999). Daft and Benson (2016) reinforce that in multi-site organizations, a standardized audit tool is the only practical way to maintain an overview of quality performance across the network. Presti et al. (2023) showed empirically that structured checklist use made non-conformities visible and triggered systematic corrective action. Lee et al. (2021) add that the frequency and seriousness of auditing matters as much as the existence of the tool — directly relevant to Hypothesis 3 of this study. Abdou et al. (2023) found that management engagement is a critical driver of quality in Saudi restaurants, consistent with the proposition that a regularly implemented audit system backed by managerial follow-through produces measurable compliance improvements.

2.5 Conclusion / الخاتمة

The literature consistently supports the proposition that structured operational audit practices are positively associated with quality standards compliance in food service settings. Quality standards compliance in the Kingdom is shaped by both the SFDA regulatory framework (Saudi Food and Drug Authority,

n.d.) and the Ministry of Municipalities and Housing's mandatory training requirements (Examination and Evaluation Center, 2024). The current study contributes to this body of knowledge by examining the relationship empirically in the specific and under-researched context of a multi-brand restaurant chain conducting regular digital audits across more than 40 branches in Saudi Arabia.

Chapter 3: Research Methodology

الفصل الثالث: منهجية البحث

3.1 Introduction / المقدمة

This chapter describes the research methodology used in this study, including the research design and philosophy, operational definitions of variables, the study population and sampling method, the data collection instrument, the types of data used, and the statistical analysis procedures applied to test the three research hypotheses. The methodology is grounded in the research methods framework described by Sekaran (n.d.) and is designed to suit the specific nature of this study, which draws on real operational audit data collected across restaurant branches in Saudi Arabia.

3.2 Operational Definitions / التعريفات الإجرائية

3.2.1 *Operational Audit Practices (Independent Variable)* / المتغير المستقل

In this study, Operational Audit Practices refers to the structured, multi-dimensional inspection process conducted by the company's Operations Department across its restaurant branches. It is operationalized as scores recorded per branch per visit across eight checklist dimensions, each scored on a 1–5 Likert scale (1 = Poor, 5 = Excellent) or as binary Yes/No responses for structural items. The audit is conducted digitally via Google Forms after each branch visit.

3.2.2 *Quality Standards Compliance (Dependent Variable)* / المتغير التابع

Quality Standards Compliance is operationalized as the aggregate mean score per branch per visit — the mean of all Likert-scored items across the eight audit dimensions on the 1–5 scale. A score of 4.0 or above indicates good compliance; 3.0–3.9 indicates moderate compliance; below 3.0 indicates significant non-compliance requiring immediate attention. The benchmark is the SFDA Food Hygiene Requirements (Saudi Food and Drug Authority, n.d.).

3.3 Research Design / تصميم البحث

The study adopts a positivist philosophy, a deductive approach, and a field study strategy based on structured observation data. The overall research design is descriptive-analytical and cross-sectional, with data collected during May 2026. A positivist approach is appropriate because audit scores are objective numerical measurements and the research seeks to test specific hypotheses using empirical data (Sekaran, n.d.). The deductive approach derives hypotheses from established theoretical frameworks (Juran & Godfrey, 1999; Daft & Benson, 2016) and tests them against real data. The field study strategy is chosen because the data captures objective inspector assessments of actual branch conditions rather than self-reported perceptions.

3.4 Research Population and Sampling / مجتمع البحث والعينة

The study population consists of all restaurant branches of a leading multi-brand restaurant chain operating across Saudi Arabia — more than 40 branches across multiple cities. The sample is a convenience sample comprising 20 audit responses from 19 branches collected between 11 May and 21 May 2026 by two trained inspectors (Azzan and Baessa). Branches are located across Jeddah (12 responses, majority), Makkah (4 responses), Taif (1), Shati (1), and Slama (1), with

one response missing city data. The convenience sample is appropriate for this study as the data represents actual operational measurements from a meaningful proportion of the company's active branch network.

3.5 Data Collection Method / طريقة جمع البيانات

Data was collected through the operational audit checklist designed and developed by the researcher based on direct professional experience in operational auditing within a multi-brand restaurant chain in Saudi Arabia. The researcher holds an official food safety certification from the Examination and Evaluation Center of the Ministry of Municipalities and Housing (Examination and Evaluation Center, 2024), which provided the regulatory knowledge base informing the checklist's content. The checklist is administered digitally via Google Forms, capturing scored responses and before-and-after photographs for each section, with data automatically appended to a shared spreadsheet upon each submission.

3.6 Types of Data / أنواع البيانات

Primary data consists of the 20 audit responses collected during May 2026 — quantitative scores on a 1–5 Likert scale across 37 checklist items covering eight operational dimensions, plus binary Yes/No responses for structural and procedural items. Secondary data includes the academic sources reviewed in Chapter 2, the SFDA regulatory documents, and the company's internal Operations Department inspection report (April–May 2026), which provides contextual evidence of quality trends during the same period.

3.7 Statistical Analysis Procedures / إجراءات التحليل الإحصائي

Three analytical procedures are applied. First, descriptive statistics (mean, standard deviation, minimum, and maximum) are calculated per dimension and per branch to answer RQ1 and present the compliance profile of the sample. Second, Pearson correlation analysis examines the relationship between each individual dimension score and the overall compliance score, addressing RQ2 and providing the basis for testing H2. Third, regression analysis tests H1 by examining the combined impact of the eight dimensions on overall compliance. Frequency analysis addresses RQ3 and H3, noting the limitation that all current visits are of the same type (follow-up), which limits direct frequency comparison within this dataset. All procedures are carried out using standard statistical functions applied to the dataset in Microsoft Excel.

3.8 Conclusion / الخاتمة

This chapter has set out the complete methodological framework: a positivist, deductive, cross-sectional field study using a structured operational audit checklist as the primary data collection instrument. The sample of 20 responses from 19 branches collected in May 2026 provides a solid empirical baseline. The findings from applying descriptive statistics, correlation, and regression analysis are presented in Chapter 4.

Chapter 4: Statistical Analysis and Findings

الفصل الرابع: التحليل الإحصائي ومناقشة النتائج

4.1 Introduction / المقدمة

This chapter presents the statistical analysis of the operational audit data collected from 19 restaurant branches of a leading multi-brand restaurant chain in Saudi Arabia during May 2026. The analysis is organized to address each of the three research questions in turn, and then to test the three hypotheses formulated in Chapter 1. The chapter begins with a profile of the research sample, followed by a discussion of validity and reliability, then presents descriptive statistics for all research variables, hypothesis testing results, and a discussion connecting the findings to the literature reviewed in Chapter 2.

4.2 Sample Profile / توصيف عينة الدراسة

The research sample consists of 20 operational audit responses covering 19 distinct restaurant branches. All 20 visits were conducted during May 2026 — specifically between 11 May and 21 May — and were classified as follow-up visits, meaning each branch had previously been evaluated and was being revisited to assess progress. Two inspectors conducted the visits: Azzan and Baessa. The branches audited are distributed across five cities, with Jeddah representing the largest share of the sample.

City / المدينة	No. of Responses	% of Sample	Compliance Category
Jeddah / جدة	12	60.0%	Mixed
Makkah / مكة المكرمة	4	20.0%	Needs Attention
Taif / الطائف	1	5.0%	Moderate
Shati / الشاطئ	1	5.0%	Good
Slama / السلامة	1	5.0%	Moderate
Not recorded	1	5.0%	Good
Total / المجموع	20	100%	

Table 1: Sample Distribution by City

The Jeddah sample is the most representative, reflecting the company's primary operational market. Makkah branches account for 20% of responses and, as will be shown in the descriptive analysis, represent the lowest-performing group in the dataset. One response had no city recorded but was identifiable by branch name. The sample covers a wide geographic spread of the company's operations, providing a useful cross-sectional view of compliance levels across different markets.

4.3 Validity and Reliability / الصدق والثبات

4.3.1 Content Validity / صدق المحتوى

Content validity refers to the degree to which the research instrument covers all the dimensions of the concept being measured. The operational audit checklist used in this study demonstrates strong content validity on two grounds. First, all eight dimensions and their corresponding checklist items are directly aligned with the food hygiene requirements mandated by the Saudi Food and Drug Authority (n.d.), which constitutes the official regulatory standard for food business compliance in the Kingdom. Second, the checklist dimensions are consistent with

the prerequisite program categories identified by Lee et al. (2021) as the foundational components of food safety management systems, and with the multi-section audit structure used by Presti et al. (2023) in their validated catering control audit tool. The researcher also holds an official food safety certification from the Ministry of Municipalities and Housing (Examination and Evaluation Center, 2024), which provided direct regulatory knowledge informing the instrument design.

4.3.2 Instrument Reliability / ثبات أداة البحث

Because this study uses an observation-based audit instrument — where trained inspectors record objective conditions at each branch — rather than a self-reported questionnaire, Cronbach's alpha is not the appropriate reliability measure. The relevant reliability concept here is inter-rater reliability, which refers to the consistency of scores when the same conditions are assessed by different inspectors. In this dataset, two inspectors (Azzan and Baessa) conducted visits to different branches using the same checklist and scoring criteria. The use of a standardized digital form with fixed item wording and a common 1–5 scale, combined with photographic documentation for each section, significantly reduces the risk of subjective variation between inspectors. These design features are consistent with the reliability-enhancing approach described by Presti et al. (2023) in their catering audit methodology. While a formal inter-rater reliability coefficient cannot be calculated from this dataset as the two inspectors did not audit the same branches, the standardized instrument design provides a reasonable basis for confidence in the consistency of the scores.

4.4 Descriptive Statistics for Research Variables / الإحصاء الوصفي

4.4.1 Overall Compliance Scores / درجات الامتثال الإجمالية

The overall compliance score for the sample — calculated as the mean of all Likert-scored items across the eight audit dimensions — has a mean of 3.68 out of 5 (SD = 0.69), indicating a moderate level of compliance across the network. The minimum score recorded was 1.84 (Shogiyah branch, Makkah) and the maximum was 4.62 (Maki Al-Waha branch, Jeddah). This range of 2.78 points between the lowest and highest performing branches is significant and highlights considerable variation in compliance levels across the chain.

Using the compliance thresholds established in Chapter 3 — Good (≥ 4.0), Moderate (3.0–3.9), and Needs Attention (< 3.0) — the distribution of branches is as follows: 9 branches (45%) fall in the Good category, 8 branches (40%) fall in the Moderate category, and 3 branches (15%) fall in the Needs Attention category. The three branches requiring immediate attention are all located in Makkah, which as a group has the lowest mean compliance score in the sample (mean = 2.71).

Measure / المقياس	Mean / المتوسط	Std Dev / الانحراف	Min / الأدنى	Max / الأقصى
Overall Compliance Score	3.68	0.69	1.84	4.62
No. of Responses	20	—	—	—

Table 2: Overall Compliance Score Statistics

4.4.2 Descriptive Statistics by Dimension / الإحصاء الوصفي حسب الأبعاد

Table 3 presents the descriptive statistics for each of the eight audit dimensions. Entrance Standards and Equipment Condition recorded the highest mean scores (4.12 and 4.11 respectively), both falling in the Good category. Kitchen Cleanliness recorded the lowest mean score (3.38), followed closely by Food Safety (3.44) and Operations/SOP (3.46) — all three in the Moderate category but at the lower end, signalling areas that require consistent management attention across the network.

Dimension / البُعد	n	Mean	Std Dev	Min	Max	Category
Entrance Standards	40	4.12	0.82	2	5	Good
Dining Area Cleanliness	100	3.86	0.94	1	5	Moderate
Kitchen Cleanliness	100	3.38	1.03	1	5	Moderate
Equipment Condition	80	4.11	0.75	1	5	Good
Food Safety	68	3.44	1.12	1	5	Moderate
Storage Standards	85	3.73	1.14	1	5	Moderate
Pest Control	20	3.50	0.89	2	5	Moderate
Operations / SOP	119	3.46	0.97	1	5	Moderate
Overall		3.68	0.69	1.84	4.62	Moderate

Table 3: Descriptive Statistics by Audit Dimension

Note: n = total number of Likert-scored items across all responses for each dimension. Overall scores refer to per-response aggregate means (n = 20 responses).

The standard deviation values reveal important information about consistency. Food Safety (SD = 1.12) and Storage (SD = 1.14) show the highest variability, meaning compliance in these areas differs considerably from branch to branch. Equipment Condition (SD = 0.75) and Entrance Standards (SD = 0.82) show the lowest variability, suggesting these dimensions are managed more consistently across the network. This pattern indicates that while some operational areas have achieved relatively uniform standards, critical food safety and storage practices remain inconsistent — a finding with direct implications for branch management priorities.

4.4.3 Branch-Level Compliance Scores / درجات الامتثال على مستوى الفرع

Table 4 presents the overall compliance score for each branch, ranked from highest to lowest. Nine branches (45%) achieved scores of 4.0 or above, which is encouraging for the higher-performing segment of the network. However, three Makkah branches scored below 3.0 — with Shogiyah recording a critically low score of 1.84 — indicating that these locations require urgent and sustained

corrective attention. The geographic concentration of low-performing branches in Makkah suggests that city-level or regional operational factors may be contributing to these results.

Branch / الفرع	City / المدينة	Overall Score	Compliance Category
Maki Al-Waha / مكي الواحة	Jeddah	4.62	Good ✓
Samer Baytoti	Not recorded	4.44	Good ✓
Baytoti Al-Samer / بيتوتي السامر	Jeddah	4.31	Good ✓
Maki Shati	Jeddah	4.22	Good ✓
Maki (Shati area)	Shati	4.19	Good ✓
Khalidiya	Jeddah	4.16	Good ✓
Maki Sultan	Jeddah	4.13	Good ✓
Sari	Jeddah	4.06	Good ✓
Podomoro	Jeddah	4.04	Good ✓
Baytoti (Slama)	Slama	3.84	Moderate
Snabil	Jeddah	3.68	Moderate
Ash Shara'i	Makkah	3.66	Moderate
Bagdadiyah	Jeddah	3.59	Moderate
Hamadaniyyah	Jeddah	3.56	Moderate
Maki Kaldih	Jeddah	3.53	Moderate
Baytoti (Taif)	Taif	3.31	Moderate
Redsea	Jeddah	3.09	Moderate
Maki Awali	Makkah	2.88	Needs Attention ⚠
Awali	Makkah	2.47	Needs Attention ⚠
Shogiyah	Makkah	1.84	Needs Attention ⚠

Table 4: Branch-Level Overall Compliance Scores (Ranked High to Low)

Note: Scores represent the mean of all Likert-scored items across eight audit dimensions per branch visit, on a scale of 1 (Poor) to 5 (Excellent).

4.5 Hypothesis Testing / اختبار الفرضيات

4.5.1 Hypothesis 1 / الفرضية الأولى

H1: Operational audit practices have a statistically significant positive impact on quality standards compliance in multi-brand restaurant chains in Saudi Arabia.

To test H1, regression analysis was conducted with the eight audit dimension scores as independent variables and the overall compliance score as the dependent variable. The results show that the eight dimensions collectively explain a very high proportion of variance in overall compliance scores. The dimension-by-dimension regression results are presented in Table 5.

Dimension / البعد	Beta (β)	R ²	Correlation (r)	Relationship
Operations / SOP	0.794	0.864	0.929	Very Strong
Kitchen Cleanliness	0.717	0.842	0.918	Very Strong
Dining Area Cleanliness	0.816	0.773	0.879	Strong
Food Safety	0.641	0.773	0.879	Strong
Equipment Condition	0.952	0.686	0.828	Strong
Storage Standards	0.680	0.663	0.815	Strong
Entrance Standards	0.713	0.523	0.724	Moderate–Strong
Pest Control	0.520	0.442	0.665	Moderate

Table 5: Regression and Correlation Results by Audit Dimension

Note: Beta (β) = standardized regression coefficient. R^2 = coefficient of determination (proportion of variance in overall compliance explained by the dimension). r = Pearson correlation coefficient. All relationships are positive.

All eight dimensions show positive correlations with overall compliance, with correlation coefficients ranging from $r = 0.665$ (Pest Control) to $r = 0.929$ (Operations/SOP). Six dimensions show strong to very strong relationships ($r > 0.80$). The R^2 values confirm that Operations/SOP ($R^2 = 0.864$) and Kitchen Cleanliness ($R^2 = 0.842$) are the dimensions most strongly associated with overall compliance variance. All beta coefficients are positive, indicating that higher scores on any individual dimension are consistently associated with higher overall compliance. These results provide strong support for Hypothesis 1: operational audit practices, as a structured multi-dimensional system, demonstrate a significant positive relationship with quality standards compliance across the network.

Decision: H1 is supported. All eight audit dimensions show positive and significant relationships with overall quality standards compliance.

4.5.2 Hypothesis 2 / الفرضية الثانية

H2: The food safety and pest control audit dimensions have a stronger positive impact on overall quality compliance than other audit dimensions.

The results in Table 5 present a more nuanced picture than H2 predicts. Food Safety does show a strong relationship with overall compliance ($r = 0.879$, $R^2 = 0.773$) — ranking joint third alongside Dining Area Cleanliness. However, Pest Control shows the weakest relationship among all eight dimensions ($r = 0.665$, $R^2 = 0.442$). The dimensions with the strongest individual relationship to overall compliance are Operations/SOP ($r = 0.929$) and Kitchen Cleanliness ($r = 0.918$) — neither of which was predicted as dominant in H2.

This finding does not invalidate the importance of food safety and pest control from a regulatory perspective — both remain critical areas mandated by the SFDA (Saudi Food and Drug Authority, n.d.) and emphasized by Lee et al. (2021)

and Presti et al. (2023). What it reveals is that, in this specific dataset, SOP adherence and kitchen cleanliness are the dimensions most closely associated with overall branch quality performance. This may reflect the practical reality that these two dimensions are the hardest to maintain consistently across a busy multi-brand network and therefore drive the most variance in compliance scores.

Decision: H2 is partially supported. Food Safety shows a strong relationship with overall compliance, consistent with the hypothesis. However, Pest Control shows a weaker relationship than predicted, and Operations/SOP and Kitchen Cleanliness emerge as the strongest individual drivers of overall compliance in this dataset.

4.5.3 Hypothesis 3 / الفرضية الثالثة

H3: Higher frequency of operational audit visits is positively associated with higher quality standards compliance across restaurant branches.

Testing H3 directly from this dataset is limited by the fact that all 20 visits are classified as follow-up visits, with no variation in visit type or frequency recorded within the May 2026 collection period. This means a direct statistical comparison of compliance levels between branches with different audit frequencies is not possible from this data alone.

However, the data does provide indirect evidence relevant to H3. The three branches in the Needs Attention category (Shogiyah: 1.84, Awali: 2.47, Maki Awali: 2.88) are all Makkah locations — branches that, based on the Operations Department report (April–May 2026), were already scheduled for additional corrective visits including dedicated pest control inspections and deep kitchen cleaning. This pattern is consistent with the company's internal protocol: branches identified as non-compliant receive increased audit frequency as a corrective measure, which itself implies that more frequent monitoring is considered operationally necessary to drive improvement. The literature strongly supports this

direction: Juran and Godfrey (1999) argue that quality control must be consistent and recurring to be effective, and Presti et al. (2023) found that systematic, repeated inspection is what enables non-conformities to be tracked, addressed, and resolved over time.

Decision: H3 cannot be fully tested with the current single-period dataset. The hypothesis remains theoretically supported by the literature and by the company's internal operational practice. A complete test of H3 will require longitudinal audit data covering multiple visit cycles per branch, which is expected to be available as the audit system continues to operate.

4.6 Connecting Results with Literature / ربط النتائج بالدراسات السابقة

The findings of this study are broadly consistent with the theoretical frameworks reviewed in Chapter 2 and add empirical grounding to the literature in the Saudi food service context.

The overall mean compliance score of 3.68 out of 5 indicates moderate compliance across the network. This aligns with Abdou et al.'s (2023) observation that Saudi restaurant operators face real challenges in maintaining consistent standards across diverse business formats. The 15% of branches in the Needs Attention category — all concentrated in Makkah — suggests that geographic or operational factors specific to that market create additional compliance challenges, a dimension not addressed in the existing literature and worth exploring in future research.

The strong positive relationship between all audit dimensions and overall compliance (r values ranging from 0.665 to 0.929) provides empirical support for Juran and Godfrey's (1999) quality control framework. The finding confirms that structured, consistent measurement of operational performance does produce meaningful compliance data that differentiates high-performing from low-

performing locations — precisely the function that Juran and Godfrey (1999) describe as the foundation of quality management. The very high R^2 values for Operations/SOP (0.864) and Kitchen Cleanliness (0.842) suggest that these two dimensions are the most reliable predictors of overall branch quality — a finding that has direct practical implications for operations managers who need to prioritize their audit attention and corrective action resources.

The finding that Operations/SOP and Kitchen Cleanliness are the strongest drivers of overall compliance is consistent with Lee et al.'s (2021) argument that prerequisite programs — particularly sanitation procedures and operational protocols — are the foundation of food safety management. Lee et al. (2021) found that failures in these everyday routines, rather than at HACCP critical control points, are the most common causes of food safety breakdowns. The data in this study reflects the same pattern: branches that score poorly on kitchen cleanliness and SOP compliance tend to score poorly across the board.

The partial support for H2 — where Food Safety is strongly correlated with overall compliance but Pest Control is weaker than expected — reflects a practical reality that Presti et al. (2023) also encountered. In their catering study, pest-related non-conformities were among the most serious when present but also among the rarest and hardest to score on a continuous scale, since pest evidence is often binary (present or absent) rather than gradual. In the current checklist, only one item in the Pest Control dimension uses the full 1–5 Likert scale, which may limit its statistical relationship with the overall score compared to dimensions with more scored items. This is a useful finding for refining the audit instrument in future cycles.

Finally, the indirect evidence for H3 — that the lowest-performing branches are those already flagged for increased monitoring — connects directly to Daft and Benson's (2016) organizational control theory. Their argument that effective control systems must be applied consistently and that deviations from standards need to trigger corrective action is visibly operating in the company's response to the Makkah results. The audit system is functioning as it should: identifying non-

compliance, escalating attention to affected branches, and providing the data needed to direct resources appropriately.

4.7 Conclusion / الخاتمة

This chapter has presented a comprehensive statistical analysis of the operational audit data collected from 19 restaurant branches during May 2026. The overall compliance score of 3.68 out of 5 indicates moderate network-wide performance, with 45% of branches achieving good compliance and 15% requiring urgent attention. Among the eight audit dimensions, Operations/SOP and Kitchen Cleanliness are the most strongly associated with overall compliance, while Entrance Standards and Equipment Condition are the highest-scoring and most consistently managed dimensions.

Hypothesis 1 is supported: all eight audit dimensions show positive and meaningful relationships with overall compliance, confirming that structured operational auditing does function as an effective quality measurement and management tool. Hypothesis 2 is partially supported: Food Safety shows a strong relationship with overall compliance as predicted, but Pest Control is weaker than expected, with Operations/SOP and Kitchen Cleanliness emerging as the strongest individual drivers. Hypothesis 3 cannot be fully tested with the current single-period dataset but remains theoretically supported and is consistent with the company's operational practice. The discussion, conclusions, and recommendations based on these findings are presented in Chapter 5.

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Appendix A: Research Instrument

أداة البحث: استمارة التدقيق التشغيلي

The following operational audit checklist serves as the primary data collection instrument for this study. It was developed by the researcher based on professional experience in operational auditing within a multi-brand restaurant chain in Saudi Arabia, and is aligned with the food hygiene requirements set by the Saudi Food and Drug Authority (n.d.) and the quality control principles described by Juran and Godfrey (1999). The researcher holds an official food safety certification from the Ministry of Municipalities and Housing (Examination and Evaluation Center, 2024). The checklist is administered digitally via Google Forms after each branch visit.

Section A: Basic Information / البيانات الأساسية

No.	Field / الحقل	Response Type / نوع الإجابة
1	City / مدينة	Open text
2	Branch Name / اسم الفرع	Open text
3	Date / التاريخ	Date and time
4	Inspector / المفتش	Open text
5	Visit Type / نوع الزيارة	Select: Evaluation / Follow up / Deep Clean / Pest Control / Other

Section 1: Entrance / المدخل

No.	Checklist Item / بند التدقيق	Scale / المقياس
1	Clean entrance / المدخل نظيف	1–5 Likert

2	No bad odor / لا توجد روائح	1–5 Likert
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Section 2: Dining Area / صالة الطعام

No.	Checklist Item / بند التدقيق	Scale / المقياس
3	Dining area free from food residue / الصالة خالية من بقايا الأكل	1–5 Likert
4	Tables and chairs clean / الطاولات والكراسي نظيفة	1–5 Likert
5	Floors and corners clean / الأرضيات والزوايا نظيفة	1–5 Likert
6	Waste bins clean and closed / سلات النفايات نظيفة ومغلقة	1–5 Likert
7	No visible pest activity / لا يوجد نشاط آفات	1–5 Likert

Section 3: Kitchen Cleanliness / نظافة المطبخ

No.	Checklist Item / بند التدقيق	Scale / المقياس
8	Kitchen free from food residue / المطبخ خالي من بقايا الأكل	1–5 Likert
9	No grease accumulation on surfaces / لا يوجد تراكم زيوت	1–5 Likert
10	Equipment surroundings clean (behind/under) / محيط الأجهزة نظيف	1–5 Likert
11	Floors completely dry (no moisture) / الأرضيات ناشفة تماماً	1–5 Likert
12	Walls and cladding clean / الجدران والكلادينغ نظيفة	1–5 Likert

Section 4: Equipment Condition / حالة المعدات

No.	Checklist Item / بند التدقيق	Scale / المقياس
13	Equipment functioning properly / الأجهزة تعمل بكفاءة	1–5 Likert
14	Equipment internally clean / الأجهزة نظيفة من الداخل	1–5 Likert
15	No unnecessary equipment stored / لا توجد أجهزة غير مستخدمة	1–5 Likert
16	Equipment accessible for cleaning / يمكن الوصول للأجهزة للتنظيف	1–5 Likert

Section 5: Food Safety / سلامة الغذاء

No.	Checklist Item / بند التدقيق	Scale / المقياس
17	Food stored under proper conditions / تخزين الطعام بشكل صحيح	1–5 Likert
18	No uncovered food present / لا يوجد طعام مكشوف	1–5 Likert
19	Cross contamination prevented / منع التلوث المتبادل	1–5 Likert
20	Temperature control implemented / تطبيق التحكم بالحرارة	1–5 Likert

Section 6: Storage / التخزين

No.	Checklist Item / بند التدقيق	Scale / المقياس
21	Storage organized and clean / التخزين مرتب ونظيف	1–5 Likert
22	Items stored off the floor / المواد مرفوعة عن الأرض	1–5 Likert
23	Expiry dates controlled / مراقبة تواريخ الصلاحية	1–5 Likert
24	Food properly covered / الطعام مغطى	1–5 Likert
25	Food storage hierarchy followed / التخزين الهرمي	1–5 Likert

Section 7: Pest Control / مكافحة الآفات

No.	Checklist Item / بند التدقيق	Scale / المقياس
26	No structural openings or gaps / لا توجد فتحات أو شقوق	Yes / No
27	Drains properly closed / فتحات الصرف مغلقة	1–5 Likert
28	No pest evidence present / لا يوجد دليل على الآفات	Yes / No
29	Pest control tools properly placed / أدوات مكافحة موزعة بشكل صحيح	Yes / No

Section 8: Maintenance / الصيانة

No.	Checklist Item / بند التدقيق	Scale / المقياس
30	All openings sealed properly / جميع الفتحات مغلقة	Yes / No

Section 9: Operations / التشغيل / SOP

No.	Checklist Item / بند التدقيق	Scale / المقياس
31	Closing procedure followed / إجراءات الإغلاق	Yes / No
32	Full cleaning completed / تم التنظيف الكامل	1–5 Likert
33	No food residue remaining / لا توجد بقايا أكل	1–5 Likert
34	Grease removed / إزالة الزيوت	1–5 Likert
35	Floors dry / الأرضيات ناشفة	1–5 Likert
36	Waste removed / إخراج النفايات	1–5 Likert
37	Drains closed / إغلاق فتحات الصرف	1–5 Likert

Note: Scale 1 = Poor, 2 = Below Average, 3 = Average, 4 = Good, 5 = Excellent. Yes/No items are recorded as binary responses. Before and after photographs are recorded for each section.

Appendix B: Table of Research Instruments

جدول أدوات البحث

The table below summarizes the structure of the research instrument, showing the number of items per dimension, the measurement scale, and the theoretical or regulatory source that each dimension is grounded in.

Dimension / البُعد	No. of Items	Scale / المقياس	Source / المصدر
Entrance Standards / معايير المدخل	2	1–5 Likert	Developed by researcher
Dining Area Cleanliness / نظافة صالة الطعام	5	1–5 Likert	Developed by researcher; SFDA (n.d.)
Kitchen Cleanliness / نظافة المطبخ	5	1–5 Likert	Developed by researcher; SFDA (n.d.); Presti et al. (2023)
Equipment Condition / حالة المعدات	4	1–5 Likert	SFDA (n.d.); Developed by researcher
Food Safety / سلامة الغذاء	4	1–5 Likert	SFDA (n.d.); Lee et al. (2021); Presti et al. (2023)
Storage Standards / معايير التخزين	5	1–5 Likert	SFDA (n.d.); Presti et al. (2023)
Pest Control / مكافحة الآفات	4	Yes/No + 1–5	SFDA (n.d.); Presti et al. (2023); Lee et al. (2021)
Maintenance / الصيانة	1	Yes/No	Developed by researcher; SFDA (n.d.)

Operations / SOP / التشغيل	7	Yes/No + 1–5	Developed by researcher; Juran & Godfrey (1999)
Total / المجموع	37		

Table 6: Summary of Research Instrument Dimensions and Sources

The instrument was developed by the researcher based on direct professional experience conducting operational audits within a multi-brand restaurant chain in Saudi Arabia. The researcher holds an official food safety certification from the Examination and Evaluation Center of the Ministry of Municipalities and Housing (Examination and Evaluation Center, 2024). The dimensions align with both the SFDA Food Hygiene Requirements (Saudi Food and Drug Authority, n.d.) and the quality control framework established by Juran and Godfrey (1999). The food safety, storage, and pest control dimensions also draw on the audit methodology described by Presti et al. (2023) and the prerequisite program framework outlined by Lee et al. (2021).