

Midocean University
Faculty of Management
Department / Specialization: Project Management

**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

Student Name: Mohamed Ali Azzan
Student ID: 233001502

Graduation Project – 2
Faculty of Management – Midocean University

Supervisor
Dr. Abd Al-Rahim Nader
Faculty Member – Faculty of Management – Midocean University

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

Abstract / ملخص الدراسة

The food service industry in Saudi Arabia is one of the fastest-growing sectors in the Kingdom, yet the challenge of maintaining consistent quality standards across multiple restaurant branches remains a significant operational management problem. This study investigates the impact of operational audit practices on quality standards compliance in a multi-brand restaurant chain operating in Saudi Arabia. The independent variable — Operational Audit Practices — is measured across eight dimensions: entrance standards, dining area cleanliness, kitchen cleanliness, equipment condition, food safety, storage standards, pest control, and operations/SOP compliance. The dependent variable — Quality Standards Compliance — is operationalized as the aggregate audit score per branch per visit on a 1–5 Likert scale.

The study adopts a quantitative, descriptive-analytical approach grounded in a positivist philosophy and deductive reasoning. Primary data was collected through a structured digital audit checklist deployed across 19 branches of the restaurant chain during May 2026, producing a sample of 20 audit responses. Three statistical procedures were applied: descriptive statistics, Pearson correlation analysis, and regression analysis.

The findings reveal an overall mean compliance score of 3.68 out of 5 ($SD = 0.69$), indicating moderate network-wide compliance. Compliance varied significantly across branches, from a low of 1.84 to a high of 4.62, with three Makkah branches requiring urgent corrective attention. Among the eight audit dimensions, Operations/SOP compliance ($r = 0.929$) and Kitchen Cleanliness ($r = 0.918$) showed the strongest positive relationships with overall compliance. Hypothesis 1 is supported: all audit dimensions show significant positive relationships with overall quality standards compliance. Hypothesis 2 is partially

supported: Food Safety shows a strong relationship as predicted, but Operations/SOP and Kitchen Cleanliness emerge as the strongest drivers — stronger than Pest Control. Hypothesis 3 cannot be fully tested with the current single-period dataset but remains theoretically supported.

The study concludes that structured operational audit practices are effective tools for measuring and supporting quality standards compliance in multi-brand restaurant chains, and that Operations/SOP adherence and Kitchen Cleanliness should be prioritized as the highest-impact dimensions in audit programs. Recommendations are provided for operations managers, audit system developers, and industry practitioners.

Keywords: operational audit, quality standards compliance, food safety, multi-brand restaurant chain, Saudi Arabia, inspection checklist

Table of Contents / جدول المحتويات

Abstract / ملخص الدراسة.....	2
Chapter 1: Introduction / الفصل الأول: الإطار العام للدراسة.....	4
1.1 Research Background / المقدمة.....	4
1.2 Research Problem / مشكلة الدراسة.....	5
1.2.1 Theoretical Gaps / الفجوات على المستوى النظري.....	5
1.2.2 Practical Gaps / الفجوات على المستوى التطبيقي.....	5
1.3 Research Significance / أهمية الدراسة.....	6
1.3.1 At the Theoretical Level / على المستوى النظري.....	6
1.3.2 At the Practical Level / على المستوى التطبيقي.....	6
1.4 Research Questions / أسئلة الدراسة.....	7
1.5 Research Objectives / أهداف الدراسة.....	7
1.6 Research Hypotheses / فرضيات الدراسة.....	7
1.7 Research Model / نموذج الدراسة.....	8
1.8 Research Methodology / منهجية الدراسة.....	9
1.9 Scope of The Study / الدراسة الميدانية.....	9
1.10 The Suggested Project Structure / مخطط المشروع المقترح.....	10
Chapter 2: Literature Review / الفصل الثاني: الدراسات السابقة.....	11
2.1 Introduction / المقدمة.....	11
2.2 Operational Audit Practices (Independent Variable) / المتغير المستقل.....	11
2.3 Quality Standards Compliance (Dependent Variable) / المتغير التابع.....	12
2.4 The Relationship Between the Two Variables / العلاقة بين المتغيرين.....	13
2.5 Conclusion / الخاتمة.....	14
Chapter 3: Research Methodology / الفصل الثالث: منهجية البحث.....	15

3.1	Introduction / المقدمة	15
3.2	Operational Definitions / التعريفات الإجرائية	15
3.3	Research Design / تصميم البحث	16
3.4	Research Population and Sampling / مجتمع البحث والعينة	17
3.5	Data Collection Method / طريقة جمع البيانات	17
3.6	Types of Data / أنواع البيانات	18
3.7	Statistical Analysis Procedures / إجراءات التحليل الإحصائي	18
3.8	Conclusion / الخاتمة	19
Chapter 4: Statistical Analysis and Findings / الفصل الرابع: التحليل الإحصائي ومناقشة النتائج		
4.1	Introduction / المقدمة	20
4.2	Sample Profile / توصيف عينة الدراسة	20
4.3	Validity and Reliability / الصدق والثبات	21
4.4	Descriptive Statistics for Research Variables / الإحصاء الوصفي	22
4.5	Hypothesis Testing / اختبار الفرضيات	24
4.6	Connecting Results with Literature / ربط النتائج بالدراسات السابقة	27
4.7	Conclusion / الخاتمة	28
Chapter 5: Discussion, Conclusions, and Recommendations / الفصل الخامس		
5.1	Introduction / المقدمة	29
5.2	Discussion of Main Findings / مناقشة النتائج الرئيسية	29
5.3	Research Limitations / حدود البحث	31
5.4	Recommendations / التوصيات	32
5.5	Conclusions / الاستنتاجات	33
References / قائمة المراجع		35
Appendix A: Research Instrument — Operational Audit Checklist / أداة البحث		36

Appendix B: Table of Research Instruments / جدول أدوات البحث	37
--	----

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). This growth is connected to a number of factors — a young population, changing eating habits, and strong government investment in the hospitality and entertainment sector as part of Vision 2030. 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.

Despite this, there is surprisingly little research on how operational audit systems work within multi-brand restaurant chains in Saudi Arabia. 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. Each branch operates under slightly different conditions — different staff, different customer volumes, different physical layouts — and yet all of them are expected to meet the same standards. Even where regulatory requirements exist — such as those set by the SFDA (Saudi Food and Drug Authority, n.d.) — compliance is not automatic. It requires regular monitoring, clear scoring, and follow-up action. 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 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 the Saudi context. 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). Presti et al. (2023) found a similar issue in institutional catering — no standard framework exists for regular mandatory inspections. This study addresses that gap 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 frameworks empirically, 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 are 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 clear 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.) as the regulatory benchmark.

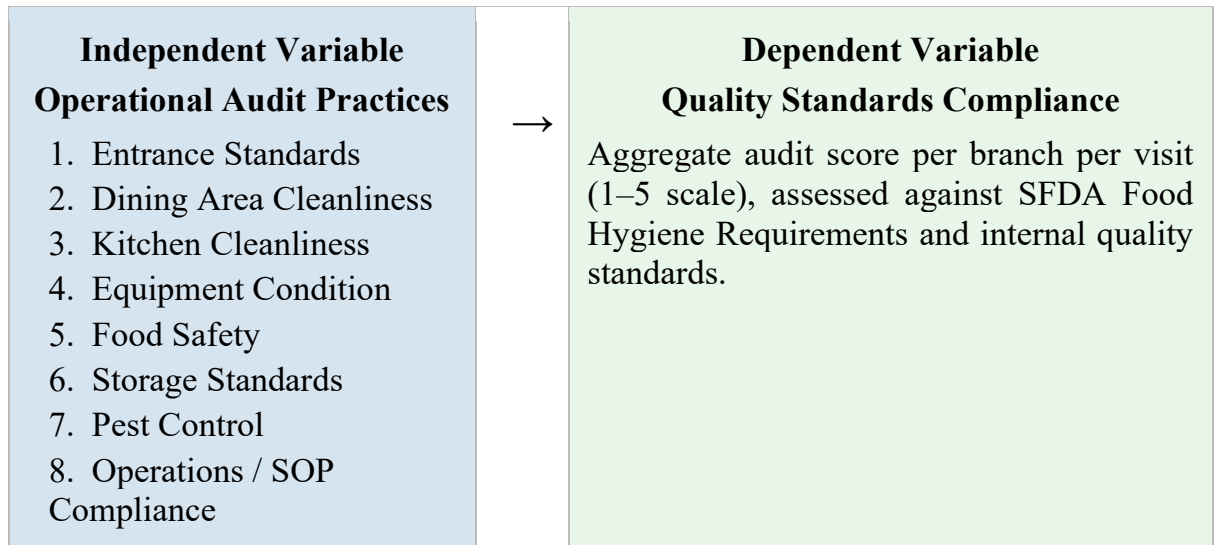


Figure 1: Proposed Research Model

1.8 Research Methodology / منهجية الدراسة

This study uses a quantitative, descriptive-analytical approach grounded in positivist philosophy and deductive reasoning (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 analysis, and regression analysis are applied to test the three hypotheses.

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 primary dataset comprises 20 audit responses from 19 branches collected between 11 May and 21 May 2026, covering Jeddah, Makkah, Taif, Shati, and Slama. Two inspectors (Azzan and Baessa) 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. Abstract
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 of this study: operational audit practices (the independent variable) and quality standards compliance (the 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 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 mapping directly onto audit checklist dimensions: clean premises allowing effective pest control, proper food temperature management, accessible equipment, high personal hygiene standards, and HACCP-based systems. Presti et al. (2023) developed a 20-section audit checklist for collective catering covering the entire food production line, categorizing findings by severity to enable risk-based corrective action. Lee et al. (2021) found that the most common cause of food safety failures is the breakdown of prerequisite programs — particularly poor sanitation and personal hygiene — making routine audit checks on these areas core drivers of food safety outcomes rather than peripheral concerns.

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 detailed requirements covering premises, 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 can lead to serious public health consequences, reinforcing that compliance is 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 and demonstrating the direct link between audit use and compliance improvement.

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 that auditing is designed to improve. Without 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 oversight of quality performance across the network. Presti et al. (2023) demonstrated 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 itself — directly relevant to Hypothesis 3. Abdou et al. (2023) found that management engagement is a critical driver of quality outcomes 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 Saudi Arabia

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, types of data, and statistical analysis procedures. The methodology is grounded in the research methods framework of 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.

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. Scores of 4.0 or above indicate good compliance; 3.0–3.9 indicate moderate compliance; below 3.0 indicate 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, holding that knowledge is grounded in observable, measurable facts (Sekaran, n.d.). A deductive approach derives hypotheses from established theoretical frameworks — Juran and Godfrey (1999) and Daft and Benson (2016) — and tests them against real data. The research strategy is a field study based on structured observation data captured through the operational audit checklist, giving the data a level of objectivity that self-reported surveys cannot achieve. The overall design is descriptive-analytical and cross-sectional, with data collected during May 2026.

3.4 Research Population and Sampling / مجتمع البحث والعينة

The study population consists of all branches of a leading multi-brand restaurant chain operating across Saudi Arabia — more than 40 branches. The sample is a convenience sample of 20 audit responses from 19 branches collected between 11 May and 21 May 2026 by two trained inspectors (Azzan and Baessa). Branches are distributed across Jeddah (12 responses), Makkah (4), Taif (1), Shati (1), and Slama (1), with one response missing city data. Convenience sampling is appropriate 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 after each visit, capturing scored responses and before-and-after photographs for each section.

3.6 Types of Data / أنواع البيانات

Primary data consists of the 20 audit responses collected during May 2026 — quantitative scores 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. Descriptive statistics (mean, standard deviation, minimum, and maximum) are calculated per dimension and per

branch to answer RQ1. Pearson correlation analysis examines the relationship between each dimension score and the overall compliance score, addressing RQ2 and providing the basis for testing H2. Regression analysis tests H1 by examining the combined impact of the eight dimensions on overall compliance. Frequency analysis addresses RQ3 and H3, with the acknowledged limitation that all current visits are of the same type, limiting direct frequency comparison within this dataset.

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 operational audit data collected from 19 restaurant branches during May 2026. The analysis addresses the three research questions in turn and tests the three hypotheses. It begins with a profile of the research sample, followed by validity and reliability assessment, descriptive statistics, hypothesis testing results, and a discussion connecting 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 branches, all collected between 11 May and 21 May 2026. All visits were follow-up visits, conducted by two inspectors (Azzan and Baessa). The branches are distributed across five cities, with Jeddah representing the largest share.

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

Jeddah is the most represented city (60%), reflecting the company's primary market. Makkah branches account for 20% of responses and, as the descriptive analysis shows, represent the lowest-performing group. One response had no city recorded but was identifiable by branch name.

4.3 Validity and Reliability / الصدق والثبات

4.3.1 Content Validity / صدق المحتوى

Content validity is demonstrated on two grounds. First, all eight checklist dimensions are directly aligned with the SFDA Food Hygiene Requirements (Saudi Food and Drug Authority, n.d.), which constitute the official regulatory standard for food business compliance in the Kingdom. Second, the checklist dimensions are consistent with the prerequisite program categories of Lee et al. (2021) and the multi-section audit structure validated by Presti et al. (2023). The researcher's food safety certification from the Ministry of Municipalities and Housing (Examination and Evaluation Center, 2024) further validates the instrument's regulatory grounding.

4.3.2 Instrument Reliability / ثبات أداة البحث

Because this is an observation-based audit instrument rather than a self-reported questionnaire, Cronbach's alpha is not the appropriate reliability measure. The relevant concept is inter-rater reliability — consistency between inspectors.

Both inspectors used the same standardized digital form with fixed item wording, a common 1–5 scale, and mandatory photographic documentation for each section. These design features substantially reduce the risk of subjective variation between inspectors, consistent with the reliability-enhancing approach described by Presti et al. (2023).

4.4 Descriptive Statistics for Research Variables / الإحصاء الوصفي

4.4.1 Overall Compliance Scores

The overall compliance score has a mean of 3.68 out of 5 (SD = 0.69), indicating moderate network-wide compliance. The minimum recorded was 1.84 (Shogiyah, Makkah) and the maximum was 4.62 (Maki Al-Waha, Jeddah) — a range of 2.78 points highlighting considerable variation across the chain. Nine branches (45%) achieved Good compliance (≥ 4.0), eight (40%) achieved Moderate compliance (3.0–3.9), and three (15%) fell into the Needs Attention category (< 3.0), all located in Makkah.

Measure	Mean	Std Dev	Min	Max
Overall Compliance Score	3.68	0.69	1.84	4.62
No. of Responses (n)	20	—	—	—

Table 2: Overall Compliance Score Statistics

4.4.2 Descriptive Statistics by Dimension

Table 3 presents statistics for each of the eight audit dimensions. Entrance Standards (mean = 4.12) and Equipment Condition (mean = 4.11) are the highest-scoring dimensions — both in the Good category. Kitchen Cleanliness (mean = 3.38), Food Safety (mean = 3.44), and Operations/SOP (mean = 3.46) are the lowest-scoring, all in the lower Moderate range and requiring consistent management

attention. Storage (SD = 1.14) and Food Safety (SD = 1.12) show the highest variability across branches, indicating these are the most inconsistently managed dimensions 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 20 responses for each dimension. Overall row refers to per-response aggregate means (n = 20).

4.4.3 Branch-Level Compliance Scores

Table 4 presents the overall compliance score for all 19 branches, ranked from highest to lowest. The geographic concentration of the three lowest-scoring branches in Makkah is a notable finding that warrants dedicated management attention and future investigation.

Branch / الفرع	City / المدينة	Score	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, 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.

Regression analysis was conducted with the eight audit dimension scores as independent variables and the overall compliance score as the dependent variable. All eight dimensions show positive correlations and R^2 values confirming meaningful explanatory power. Table 5 presents the full results.

Dimension / البعد	Beta (β)	R^2	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: β = standardized regression coefficient. R^2 = 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 ($r = 0.665$ to 0.929). Six dimensions show strong to very strong relationships ($r > 0.80$). All beta coefficients are positive, confirming that higher scores on any individual dimension are consistently associated with higher overall compliance. These results provide strong empirical support for Hypothesis 1.

Decision: H1 is supported. All eight audit dimensions show positive and significant relationships with overall quality standards compliance, confirming that structured operational auditing functions as an effective quality measurement and management tool.

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 present a more nuanced picture than H2 predicts. Food Safety shows a strong relationship with overall compliance ($r = 0.879$, $R^2 = 0.773$) — ranked 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 strongest individual relationships are Operations/SOP ($r = 0.929$) and Kitchen Cleanliness ($r = 0.918$) — neither of which was predicted as dominant in H2. This may reflect that in a busy multi-brand network, SOP adherence and kitchen cleanliness are the hardest to maintain consistently and therefore drive the most variance in compliance scores. The Pest Control finding may also relate to the limited number of Likert-scored items in that dimension — only one item uses the full 1–5 scale — which constrains its statistical contribution relative to dimensions with more items.

Decision: H2 is partially supported. Food Safety shows the strong relationship predicted by the hypothesis. However, Pest Control is weaker than expected, 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.

Direct statistical testing of H3 is limited by the fact that all 20 visits in this dataset are classified as follow-up visits, with no variation in visit type or frequency within the May 2026 collection period. A direct comparison of compliance levels between branches with different audit frequencies is therefore not possible from this data alone. However, indirect evidence is consistent with H3: the three Needs

Attention branches (Shogiyah: 1.84, Awali: 2.47, Maki Awali: 2.88) were already scheduled for additional corrective visits — including dedicated pest control inspections and deep kitchen cleaning — as documented in the Operations Department report (April–May 2026). This pattern reflects the company's protocol that non-compliant branches receive increased audit frequency as a corrective measure, implying that more frequent monitoring is considered operationally necessary to drive improvement. The literature strongly supports this: 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 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 well-supported by the literature and is consistent with the company's operational practice. A complete empirical test of H3 requires longitudinal audit data covering multiple visit cycles per branch.

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 meaningful empirical grounding to the literature in the Saudi food service context.

The overall mean compliance score of 3.68 indicates moderate network-wide performance. 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 concentration of low-performing branches in Makkah — all three below 3.0 — suggests that city-level or regional operational factors create additional compliance challenges in that market. This is a new finding not addressed in existing literature and worthy of further investigation.

The strong positive relationship between all audit dimensions and overall compliance (r values from 0.665 to 0.929) provides direct empirical support for Juran and Godfrey's (1999) quality control framework. The finding confirms that structured, consistent measurement of operational performance produces meaningful compliance data that clearly differentiates high- from low-performing branches — exactly the diagnostic function Juran and Godfrey (1999) describe as the foundation of quality management. Daft and Benson's (2016) organizational control theory is equally validated: in a multi-site network where managers cannot be present at every location, the standardized audit tool provides the only reliable overview of quality performance across the chain.

The emergence of Operations/SOP and Kitchen Cleanliness as the strongest predictors 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 and the most common site of failure. Branches that score poorly on kitchen cleanliness and SOP adherence tend to score poorly across all other dimensions as well, suggesting these two areas function as leading indicators of overall branch quality.

The partial support for H2 — where Food Safety is strongly correlated with overall compliance but Pest Control is weaker than expected — echoes a practical reality identified by Presti et al. (2023), who found that pest-related non-conformities tend to be binary in nature (present or absent) rather than gradual, making them harder to capture on a continuous Likert scale. The current checklist's Pest Control dimension has only one Likert-scored item, which may limit its statistical contribution compared to dimensions with more items. This is a useful finding for refining the audit instrument.

The indirect evidence for H3 connects directly to Daft and Benson's (2016) organizational control theory: the company's response to the Makkah findings — scheduling additional corrective visits — demonstrates that the audit system is functioning exactly as it should, identifying non-compliance, escalating corrective attention, and directing resources to where they are most needed.

4.7 Conclusion / الخاتمة

This chapter has presented a comprehensive statistical analysis of the operational audit data. 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. 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; Hypothesis 2 is partially supported; Hypothesis 3 is theoretically supported but cannot be fully tested with the current dataset. All findings are discussed further and translated into recommendations in Chapter 5.

Chapter 5: Discussion, Conclusions, and Recommendations

الفصل الخامس: المناقشة والاستنتاجات والتوصيات

5.1 Introduction / المقدمة

This final chapter brings together the findings of the study, discusses their meaning in the broader context of quality management in food service operations, acknowledges the limitations of the research, and offers a set of evidence-based recommendations for practitioners, managers, and future researchers. The chapter concludes with a summary of the study's overall contribution to the field.

5.2 Discussion of Main Findings / مناقشة النتائج الرئيسية

The central finding of this study is that structured operational audit practices are positively and meaningfully associated with quality standards compliance across all eight measured dimensions in a multi-brand restaurant chain in Saudi Arabia. This confirms the proposition advanced by Juran and Godfrey (1999) that quality control is, at its core, a measurement and corrective action system — and that a well-designed audit tool can serve that function effectively in a real organizational setting.

The network-wide compliance mean of 3.68 out of 5 tells an important story: the majority of branches are performing at a moderate level, which is neither a crisis nor a comfortable position. Moderate compliance means that standards are broadly being met but that there is a consistent, meaningful gap between current performance and what the SFDA Food Hygiene Requirements (Saudi Food and Drug Authority, n.d.) and the company's internal quality thresholds demand. The 15% of branches in

the Needs Attention category — all concentrated in Makkah — represent the most urgent operational priority and suggest that the Makkah market may require dedicated management attention, additional resources, or a revised audit protocol specific to its operational challenges.

The finding that Operations/SOP adherence and Kitchen Cleanliness are the two dimensions most strongly associated with overall compliance is practically significant. It means that branches which fall short in their daily operational procedures and kitchen hygiene routines tend to score poorly across the board — not just in those specific areas. This confirms what Lee et al. (2021) found in their food safety management research: the health of a food operation's basic prerequisite programs — the everyday routines of cleaning, closing procedures, waste removal, and grease control — is a reliable leading indicator of overall compliance quality. For an operations team managing dozens of branches across multiple cities, this is a useful prioritization signal: investing attention and follow-up in SOP and kitchen cleanliness is likely to deliver broader compliance improvements than targeting other dimensions in isolation.

The Entrance Standards and Equipment Condition dimensions are performing well — both averaging above 4.0 — and show relatively low variability ($SD = 0.82$ and 0.75 respectively). This suggests that the company has successfully standardized these aspects of operations across the network. This is actually a positive finding that deserves recognition alongside the areas needing improvement: it shows that consistent quality is achievable across a multi-brand chain when standards are clearly defined, regularly measured, and systematically followed up.

The partial support for Hypothesis 2 is an interesting result. Food Safety performing as a strong driver of overall compliance is not surprising — it is precisely what the regulatory framework (Saudi Food and Drug Authority, n.d.) and the literature (Lee et al., 2021; Presti et al., 2023) would predict. The weaker statistical contribution of Pest Control is more nuanced. Pest control is critically important from a regulatory and public health standpoint, but the binary nature of most pest-related indicators — either there is evidence of pests or there is not — means it does

not contribute as much variance to a continuous compliance score as dimensions measured across multiple Likert-scored items. This is a design issue in the current instrument, not a reflection of pest control's actual importance to food safety.

5.3 Research Limitations / حدود البحث

This study makes an honest and meaningful contribution to its field, but it is important to acknowledge its limitations clearly. Understanding what the data can and cannot tell us is part of good academic practice, and it also points toward productive directions for future research.

5.3.1 Sample Size and Period

The dataset comprises 20 audit responses collected over a ten-day period in May 2026 — the first month of the audit system's deployment. While the data is real, complete, and directly relevant to the research questions, a sample of this size inevitably limits the robustness of the statistical findings, particularly for regression analysis. The results should therefore be interpreted as indicative rather than definitive, and the study is best understood as an initial empirical investigation that establishes a foundation for more extensive future analysis as the dataset grows.

5.3.2 Cross-Sectional Design

The study uses a cross-sectional design — all data was collected at one point in time. This means it is not possible to track changes in compliance scores over time, identify improvement trends, or assess the longitudinal impact of repeated auditing on branch performance. A longitudinal design covering multiple months or audit cycles would provide much richer evidence about how audit frequency and consistency affect compliance improvement.

5.3.3 Convenience Sampling

The sample is a convenience sample reflecting all audit visits conducted during the data collection period. This limits the ability to generalize findings beyond the specific branches and time period studied. The Makkah branches, for example, may not be representative of the company's broader network performance, and the absence of some cities from the dataset means the full geographic picture is incomplete.

5.3.4 *Single Company Setting*

The study is based on data from one restaurant chain. While this gives the research strong internal validity and authentic operational grounding, it limits the extent to which findings can be generalized to other multi-brand restaurant chains in Saudi Arabia or elsewhere. Different companies operate under different management cultures, brand portfolios, and quality standards, any of which could influence the relationship between audit practices and compliance.

5.3.5 *H3 Testing Limitation*

As discussed in Chapter 4, Hypothesis 3 — concerning the relationship between audit frequency and compliance — cannot be directly tested from this dataset because all 20 visits are of the same type (follow-up) with no variation in frequency across the collection period. This is not a flaw in the research design but a natural consequence of studying a newly deployed audit system at its earliest stage.

5.4 Recommendations / التوصيات

Based on the findings of this study, the following recommendations are offered for operations managers, audit system designers, company leadership, and the broader food service industry in Saudi Arabia.

5.4.1 *For Operations Managers / لمديري العمليات*

1. Prioritize Kitchen Cleanliness and SOP Compliance. These two dimensions show the strongest association with overall compliance scores and are the most variable across branches. Regular, focused follow-up on kitchen hygiene and closing procedures should be the first priority in any corrective action plan.
2. Develop a targeted intervention plan for Makkah branches. The three branches scoring below 3.0 all share a geographic location. A dedicated assessment of the specific operational, staffing, or environmental challenges facing these branches should be conducted, with a structured improvement programme put in place and progress tracked over subsequent audit cycles.
3. Use audit dimension scores as a predictive management tool. Rather than waiting for overall compliance scores to drop, operations managers can use individual dimension scores — particularly Kitchen Cleanliness and SOP — as early warning indicators of broader compliance risk at a branch level.

5.4.2 For Audit System Development / لتطوير نظام التدقيق

4. Expand the Pest Control dimension. Currently, only one item in this dimension uses the full 1–5 Likert scale, which limits its statistical contribution to the overall compliance score. Adding two or three additional Likert-scored pest control items — covering rodent evidence, insect barrier condition, and drain sealing — would bring this dimension in line with the others and improve its diagnostic value.
5. Introduce a formal severity classification. Building on the approach used by Presti et al. (2023), non-conformities identified in each dimension could be classified as minor, major, or critical, with corresponding corrective action timeframes. This would transform the checklist from a scoring tool into a structured corrective action management system.
6. Record city and branch data consistently. One response in this dataset had no city recorded. Standardizing data entry and making city and branch name

mandatory fields would improve the geographic analysis of compliance patterns.

5.4.3 For Company Leadership / لقيادة الشركة

7. Expand the audit dataset by continuing regular audit cycles. As the audit system continues to operate, the dataset will grow. After three to six months of data, it will be possible to test Hypothesis 3 properly, track compliance improvement trends, and identify seasonal or operational patterns that are not visible in a single-period snapshot.
8. Consider a structured self-monitoring protocol aligned with SFDA requirements. The SFDA mandates compliance from all food businesses (Saudi Food and Drug Authority, n.d.), and the Ministry of Municipalities and Housing requires certified food safety training for all workers (Examination and Evaluation Center, 2024). A formal self-monitoring protocol — built around the existing audit checklist — could serve as documented evidence of regulatory compliance.

5.4.4 For the Industry and Researchers / للصناعة والباحثين

9. Multi-brand restaurant chains operating in Saudi Arabia should consider adopting structured digital audit tools as standard operational management practice. The results of this study show that even a relatively small dataset from a newly deployed system produces meaningful, actionable compliance data.
10. Future research should investigate whether compliance levels differ systematically by brand, city, or management structure within multi-brand chains. It should also explore the relationship between audit frequency and compliance improvement longitudinally, and consider whether the audit dimensions identified as strongest in this study replicate across different organizational contexts.

5.5 Conclusions / الاستنتاجات

This study set out to investigate the impact of operational audit practices on quality standards compliance in a multi-brand restaurant chain in Saudi Arabia. Drawing on real audit data collected from 19 branches during May 2026, and grounded in the theoretical frameworks of Juran and Godfrey (1999), Daft and Benson (2016), and the regulatory context established by the Saudi Food and Drug Authority (n.d.), the study provides empirical evidence for four key conclusions.

First, structured operational audit practices are positively associated with quality standards compliance across all eight dimensions studied. This confirms that a well-designed, consistently applied audit system functions as an effective quality measurement and corrective action tool — exactly as quality management theory predicts. Restaurant chains that invest in structured operational auditing are better equipped to identify compliance gaps, direct management attention, and maintain quality across a distributed network of branches.

Second, there is significant variation in compliance levels across branches, both within and across cities. The overall network mean of 3.68 out of 5 masks a wide performance range — from 1.84 to 4.62 — with the most striking variation concentrated in Makkah. This finding reinforces the argument that a standardized audit tool is essential in multi-site operations: without it, this geographic pattern of underperformance would simply not be visible to management.

Third, Operations/SOP compliance and Kitchen Cleanliness are the dimensions most closely associated with overall quality compliance performance. This is consistent with the food safety literature's emphasis on prerequisite programs as the foundational layer of food safety management (Lee et al., 2021) and suggests that these two areas should be the highest priority in corrective action planning and audit follow-up schedules.

Fourth, the study demonstrates that real, professionally collected operational data — even from a single initial audit cycle — can generate meaningful academic and practical insights. The researcher's direct professional experience in operational auditing, combined with an official food safety certification from the Ministry of Municipalities and Housing (Examination and Evaluation Center, 2024), has produced a research instrument that is grounded in both regulatory requirements and operational reality. This kind of practitioner-informed research has genuine value for both academic literature and real-world management practice.

The food service industry in Saudi Arabia is growing rapidly, and the pressure on multi-brand operators to maintain consistent quality across an expanding network of branches will only intensify. This study shows that a structured, digital, multi-dimensional operational audit system is not just a compliance formality — it is a practical management tool with measurable impact on quality outcomes. With continued data collection and refinement, the audit system studied here has the potential to become a significant driver of quality improvement across the company and, through the findings of this research, a model for the broader industry.

References / قائمة المراجع

- Abdou, A. H., Hassan, T. H., & Salem, A. E. (2023). Promoting sustainable food practices in food service industry: An empirical investigation on Saudi Arabian restaurants. *Sustainability*, 15(16), 12206. <https://doi.org/10.3390/su151612206>
- Daft, R. L., & Benson, A. (2016). *Management* (adapted from 11th ed.). Cengage Learning EMEA.
- Examination and Evaluation Center of Health Education Programme for Employees in Food and Public Health Establishments. (2024). *Health education programme for workers in food establishments* (Arabic ed.). Ministry of Municipalities and Housing, Saudi Arabia.
- Juran, J. M., & Godfrey, A. B. (Eds.). (1999). *Juran's quality handbook* (5th ed.). McGraw-Hill.
- Lee, J. C., Daraba, A., Voidarou, C., Rozos, G., El Enshasy, H. A., & Varzakas, T. (2021). Implementation of food safety management systems along with other management tools (HAZOP, FMEA, Ishikawa, Pareto): The case study of *Listeria monocytogenes* and correlation with microbiological criteria. *Foods*, 10(9), 2169. <https://doi.org/10.3390/foods10092169>
- National Restaurant Association. (2023). *State of the restaurant industry 2023*. National Restaurant Association.
- Presti, N., Pulze, S., Ciciliano, F., & Vergara, A. (2023). Control activities for health and hygiene requirements in National Police collective catering. *Italian Journal of Food Safety*, 12(3), 11089. <https://doi.org/10.4081/ijfs.2023.11089>
- Saudi Food and Drug Authority. (n.d.). *Food hygiene requirements*. Saudi Food and Drug Authority.

Sekaran, U. (n.d.). Research methods for business: A skill building approach (4th ed.). [Course reference text].

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. The researcher holds an official food safety certification from the Ministry of Municipalities and Housing (Examination and Evaluation Center, 2024). The checklist aligns with the SFDA Food Hygiene Requirements (Saudi Food and Drug Authority, n.d.) and the quality control principles of Juran and Godfrey (1999). It 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

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 / SOP / التشغيل

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 research instrument structure, showing the number of items per dimension, the measurement scale, and the theoretical or regulatory source grounding each dimension.

Dimension / البُعد	No. of Items	Scale	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 of Juran and Godfrey (1999). The food safety, storage, and pest control dimensions also draw on the audit methodology of Presti et al. (2023) and the prerequisite program framework of Lee et al. (2021).