

Midocean University

Faculty of Management

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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
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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). 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 is not simply about serving good food. It 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 operating in the Kingdom, including the implementation of HACCP-based food safety systems, proper equipment maintenance, and regular pest management (Saudi Food and Drug Authority, n.d.). In the academic literature, 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. This is essentially what an operational audit does. Daft and Benson (2016) take a similar view from a management perspective, arguing that control systems need to be built into day-to-day operations — not just applied when something goes wrong. More specifically

in food service settings, Presti et al. (2023) found that using a structured audit checklist across different areas of a catering operation is an effective way to identify problems, apply corrective action, and improve compliance over time. Lee et al. (2021) also showed that poor implementation of food safety management systems has direct consequences for public health, reinforcing how critical it is to have a reliable monitoring tool in place.

Despite this, there is surprisingly little research on how operational audit systems work in practice within multi-brand restaurant chains in Saudi Arabia. Most existing studies either focus on a single type of establishment or look at food safety in isolation. None of them address the situation common in the Saudi restaurant sector, where one company manages several different brands under one operations team — each branch needing to be audited regularly across multiple quality dimensions at the same time. As Juran and Godfrey (1999) point out, you cannot manage what you cannot measure consistently, and this is precisely the challenge that motivates the current study.

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 aim is to understand how this kind of systematic audit tool contributes to quality outcomes, and what lessons can be drawn for restaurant operators and operations managers in the region.

This project is organized into five chapters. Chapter One presents the general framework of the study. Chapter Two reviews the existing literature on the key variables. Chapter Three describes the research methodology in detail. Chapter Four presents the statistical analysis and findings. Chapter Five discusses the results and provides 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. 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. It requires regular monitoring, clear scoring, and follow-up action.

The core question this study is trying to answer is whether a structured, multi-dimensional operational audit system can actually 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

On the theoretical side, the quality management literature provides solid foundations — Juran and Godfrey's (1999) quality control process and Daft and Benson's (2016) framework for organizational control are both directly relevant here. However, these frameworks have rarely been applied specifically to multi-brand restaurant chains where a single audit system must cover several distinct brands operating under one management structure. Lee et al. (2021) identified that food safety management systems do not always perform as expected across different organizational contexts, which suggests that generic frameworks may not be enough. There is a need for a model that treats multi-dimensional operational auditing as a single, unified construct studied in relation to quality compliance outcomes.

1.2.2 Practical Gaps / الفجوات على المستوى التطبيقي

On the practical side, many restaurant businesses in Saudi Arabia still rely on informal or irregular inspection routines that do not produce consistent, comparable data across locations. Abdou et al. (2023) noted that the Saudi food service sector includes a broad range of business types with varying levels of operational discipline. Presti et al. (2023) found a similar issue in institutional catering — no standard framework exists for regular mandatory inspections. Without a tool that scores each branch consistently and tracks changes over time, managers are essentially making quality decisions without reliable data. This study directly addresses that problem by examining a real operational audit system already in use across a Saudi restaurant chain.

All of this points to one central research question: 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

From a theoretical standpoint, this study fills a gap in the existing literature by applying established quality control and organizational management frameworks to a context that has received very little academic attention — multi-brand restaurant chains in Saudi Arabia. It builds on the work of Juran and Godfrey (1999) and Daft and Benson (2016) by testing their ideas in a real operational environment, and adds to the Saudi-specific food service research of Abdou et al. (2023) by introducing an operational audit dimension that previous studies have not examined. It also responds to the concerns raised by Lee et al. (2021) about the uneven performance of food safety management systems by proposing and testing a context-appropriate audit model.

1.3.2 *At the Practical Level / على المستوى التطبيقي*

In practice, the findings of this study should be useful to anyone responsible for managing quality across multiple restaurant locations. By showing which audit dimensions have the most impact on overall compliance, the study can help operations teams prioritize their efforts and use their time more efficiently. It also demonstrates the value of digital, standardized audit tools as everyday management instruments. Importantly, food worker health certification in Saudi Arabia is a mandated requirement under the Ministry of Municipalities and Housing (Examination and Evaluation Center, 2024), which underlines that food safety compliance is not optional — it is a regulated obligation that internal audit systems must actively support. Given that the Saudi food service sector is set to keep growing (Abdou et al., 2023) and that SFDA regulations require all food businesses to maintain high hygiene and safety standards (Saudi Food and Drug Authority, n.d.), there is a real and practical need for this kind of 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 achieve the following:

1. To examine the overall impact of structured operational audit practices on quality standards compliance in a multi-brand restaurant chain in Saudi Arabia.
2. To measure current compliance levels across eight audit dimensions — entrance standards, dining area cleanliness, kitchen cleanliness, equipment condition, food safety, storage, pest control, and operations/SOP compliance.
3. To identify which audit dimensions have the strongest individual effect on overall quality compliance scores.
4. To explore the relationship between audit visit frequency and branch compliance levels.
5. To provide practical recommendations for improving operational audit frameworks in multi-brand restaurant chains in the Kingdom.

1.6 Research Hypotheses / فرضيات الدراسة

Based on the research questions, objectives, and theoretical framework, 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.

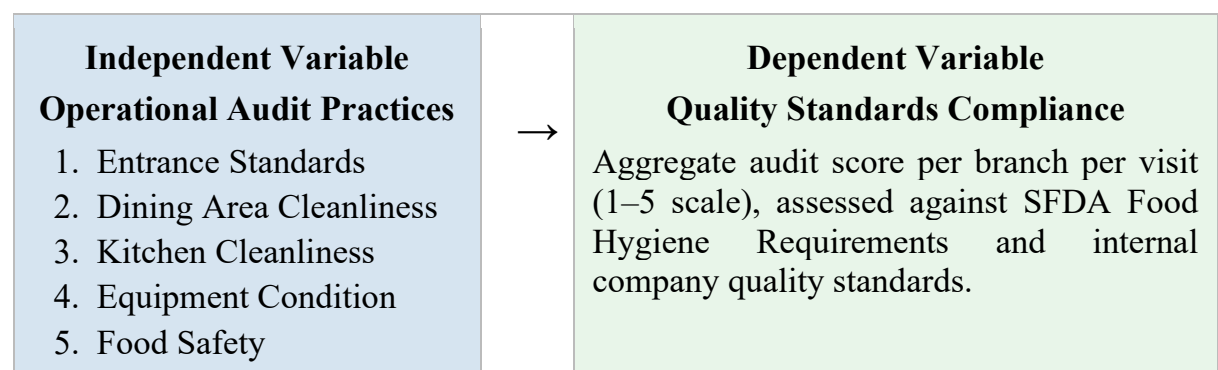
H2: The food safety and pest control audit dimensions have a stronger positive impact on overall quality compliance than other audit dimensions.

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 two main variables. The independent variable is Operational Audit Practices, measured across eight dimensions derived from the structured audit checklist. The dependent variable is Quality Standards Compliance, measured as the aggregate audit score per branch per visit on a 1–5 scale. Each of the eight dimensions feeds into the compliance outcome, and the model tests both combined and individual dimension effects.

This model is grounded in Juran and Godfrey's (1999) quality control process — measurement, comparison, and corrective action — and in Daft and Benson's (2016) organizational control framework. The SFDA Food Hygiene Requirements (Saudi Food and Drug Authority, n.d.) serve as the external regulatory benchmark against which compliance is assessed.



6. Storage Standards 7. Pest Control 8. Operations / SOP Compliance		
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Figure 1: Proposed Research Model

1.8 Research Methodology / منهجية الدراسة

This study uses a quantitative, descriptive-analytical approach. According to Sekaran (n.d.), quantitative research is appropriate when the goal is to measure relationships between variables using numerical data, and when the researcher wants findings that can be compared and generalized. Primary data comes from the operational audit checklist deployed across the restaurant chain's branches. The checklist records scores on a 1–5 scale across eight operational areas, alongside branch name, city, date, inspector name, and visit type. The sample consists of 20 audit responses collected across 19 branches during May 2026. Descriptive statistics and regression analysis are used to test the three hypotheses.

1.9 Scope of The Study / الدراسة الميدانية

The study is conducted within a leading multi-brand restaurant chain operating across Saudi Arabia, managing more than 40 branches. The primary dataset comprises 20 audit responses from 19 branches collected during May 2026 — the first month of the audit system's deployment — spanning Jeddah, Makkah, Taif, and surrounding areas. Two inspectors conducted all visits, which were 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:

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6. Chapter 2: Literature Review
7. Chapter 3: Research Methodology
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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). The review draws on peer-reviewed journal articles, established management and quality handbooks, official regulatory documents, and industry reports. The chapter is organized into three substantive sections — the independent variable, the dependent variable, and the relationship between them — followed by a conclusion that positions the current study within the existing body of knowledge.

The 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.), and the National Restaurant Association (2023). Together, these provide a solid theoretical and contextual foundation for the empirical study that follows in Chapters 3 and 4.

2.2 Operational Audit Practices (Independent Variable) / المتغير المستقل

Operational auditing is the systematic process of evaluating whether an organization's activities are being carried out efficiently, effectively, and in accordance with established standards. In the quality management literature, this concept is closely connected to organizational control. 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. They argue that this kind of control needs to be embedded into the daily rhythm of an organization — especially in multi-site operations where consistency across locations cannot be taken for granted.

Juran and Godfrey (1999) offer a more detailed framework through what they call the quality control process, which consists of three steps: evaluating actual performance, comparing it against quality goals, and acting on the difference. This framework is particularly useful for understanding operational auditing because it makes explicit the link between measurement and action — the audit is not just a data collection exercise, it is the mechanism through which deviations from standards are identified and corrected. Juran and Godfrey (1999) also stress that this process must be applied consistently across all organizational units for it to be effective; an audit that produces non-comparable data across branches cannot support meaningful quality management decisions.

In the food service context, the specific dimensions that an operational audit should cover are largely shaped by food safety and hygiene regulations. The Saudi Food and Drug Authority (n.d.) sets comprehensive requirements for all food business operators in the Kingdom. These include maintaining clean and structurally sound premises that allow for effective pest control; ensuring food is stored at proper temperatures; keeping equipment in good working order and accessible for cleaning; maintaining high standards of personal hygiene among all food-handling staff; and implementing HACCP-based systems that identify hazards, establish critical control points, and define corrective actions when limits are breached. Each of these requirements maps directly onto one or more dimensions of a structured operational audit checklist.

Presti et al. (2023) provide one of the most directly relevant examples in the literature of what a structured audit looks like in practice. In their study of collective catering operations within the Italian National Police, they developed a 20-section audit checklist covering the entire food production line. The checklist was designed

to verify food safety regulations, assess the overall effectiveness of the control system, and support the implementation of corrective measures when non-conformities were found. Their study also highlighted that no standardized guidelines currently exist for mandatory periodic inspections of collective catering operations, underscoring the value of developing context-specific audit tools.

Lee et al. (2021) approach the same subject from a food safety management system perspective. They argue that the foundation of any effective food safety system is the Prerequisite Programs (PRPs) — the basic hygiene conditions and operational practices that must be in place before HACCP can function properly. Lee et al. (2021) note 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. This finding has direct implications for operational auditing: routine audit checks on hygiene, cleanliness, and SOP compliance are core drivers of food safety outcomes, not peripheral concerns.

Taken together, the literature presents operational auditing as a multi-dimensional, structured, and recurring management activity spanning physical cleanliness, food safety, equipment maintenance, pest prevention, storage conditions, and procedural compliance. When implemented consistently and scored transparently, such a system functions as both a diagnostic tool and a corrective action mechanism — exactly as described in Juran and Godfrey's (1999) quality control process.

2.3 Quality Standards Compliance (Dependent Variable) / المتغير التابع

Quality standards compliance in a restaurant context refers to the degree to which a branch consistently meets the operational, hygiene, food safety, and service standards expected of it. These standards come from two sources: external

regulatory requirements imposed by bodies like the SFDA, and internal standards set by the organization. In practice, compliance is a continuum, and the role of an audit system is to measure where on that continuum a given branch sits.

The Saudi food service industry is one of the most dynamic and rapidly growing in the world, with a market size of USD 27.8 billion in 2023 and projected annual growth of 11.57% through to 2029 (Abdou et al., 2023). Abdou et al. (2023) found that Saudi restaurants operate across a wide range of formats and business models, with varying levels of operational discipline and quality orientation.

From a regulatory standpoint, the Saudi Food and Drug Authority (n.d.) sets out a detailed framework that all food businesses in the Kingdom must comply with, covering premises condition, equipment standards, personal hygiene, storage, and HACCP implementation. The Ministry of Municipalities and Housing further reinforces this regulatory environment through a mandated health education and certification programme for all food establishment workers (Examination and Evaluation Center, 2024) — a requirement that highlights the importance of trained, compliant staff as a foundation for quality standards adherence.

In the academic literature, the consequences of failing to meet food safety and quality standards are well documented. Lee et al. (2021) demonstrate that failures in basic prerequisite programs — including inadequate sanitation, poor personal hygiene, and ineffective pest prevention — can lead to serious public health consequences. Presti et al. (2023) offer a direct measure of what non-compliance looks like: in their study, identified non-conformities included structural gaps, absent insect barriers, documentation problems, and the presence of pests in food storage areas. Significantly, all of these issues were identified and addressed through the systematic use of a structured checklist.

What emerges from the literature is that quality standards compliance in food service is a multi-layered concept covering physical cleanliness, food storage and temperature control, pest prevention, equipment condition, staff hygiene, and

procedural adherence. It is best measured through a structured, multi-dimensional tool that captures performance across all relevant areas simultaneously.

2.4 The Relationship Between Operational Audit Practices and Quality Standards Compliance / العلاقة بين المتغيرين

The theoretical connection between operational audit practices and quality standards compliance is straightforward: auditing is the mechanism through which compliance is monitored, and compliance is the outcome that auditing is designed to improve. This relationship is implicit in Juran and Godfrey's (1999) quality control process — without a structured evaluation of actual performance, there is no basis for comparison against standards and therefore no basis for corrective action.

Daft and Benson (2016) reinforce this from an organizational management perspective. They argue that formal control systems are essential in multi-site organizations precisely because managers cannot be present everywhere at once. In a company with dozens of branches, a standardized audit tool is the only practical way to maintain an overview of quality performance across the network. Without it, branch-level deviations from standards may go undetected until they escalate into serious problems.

The evidence from Presti et al. (2023) supports this view in a food service setting. Their study showed that the introduction of a structured audit checklist in collective catering made non-conformities visible and manageable, enabling a risk-based approach to corrective action. Lee et al. (2021) add that food safety management systems are only effective when genuinely implemented rather than simply documented — suggesting that the frequency and seriousness of audits matters as much as the existence of the tool itself. This is directly relevant to Hypothesis 3, which proposes that higher audit visit frequency is positively associated with better compliance outcomes.

Abdou et al. (2023) found that management engagement is a critical driver of quality outcomes in Saudi restaurants. A structured, regularly implemented audit system — backed by genuine managerial follow-through — should therefore produce measurable improvements in compliance. The SFDA regulatory framework (Saudi Food and Drug Authority, n.d.) and the Ministry's mandatory training requirements (Examination and Evaluation Center, 2024) further support this: where standards are clearly defined and operators are required to demonstrate compliance, an effective internal audit system becomes an essential operational tool.

In summary, the literature consistently supports the proposition that structured operational audit practices are positively associated with quality standards compliance in food service settings. The current study builds on this foundation by examining the relationship empirically in a specific and under-researched context — a multi-brand restaurant chain conducting regular digital audits across more than 40 branches in Saudi Arabia.

2.5 Conclusion / الخاتمة

This chapter has reviewed the key literature relevant to the two main variables of this study. Operational auditing is presented as a structured, multi-dimensional management practice grounded in the quality control frameworks of Juran and Godfrey (1999) and the organizational control theory of Daft and Benson (2016). Quality standards compliance is shaped by Saudi regulatory mandates from both the SFDA (Saudi Food and Drug Authority, n.d.) and the Ministry of Municipalities and Housing (Examination and Evaluation Center, 2024), as well as by internal organizational standards and everyday operational practices. The relationship between the two variables is well-supported in the literature, and the current study contributes to this body of knowledge by examining it empirically in the context of a multi-brand restaurant chain 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. It explains the research design and philosophy that guide the approach, defines the key research variables operationally, describes the study population and sampling method, outlines how the data was collected and what types of data were used, and sets out the statistical analysis procedures that will be applied to test the three research hypotheses. The methodology has been chosen to suit the specific nature of this study — which draws on real audit data collected through an operational checklist deployed across restaurant branches in Saudi Arabia — and is grounded in the research methods framework described by Sekaran (n.d.).

3.2 Operational Definitions / التعريفات الإجرائية

Operational definitions specify exactly how each variable is measured in this study. This is important because it makes the study transparent and replicable — anyone reading this research should be able to understand precisely what was measured and how.

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 the set of scores recorded per branch per visit across eight checklist dimensions: (1) Entrance Standards, (2) Dining Area Cleanliness, (3) Kitchen Cleanliness, (4) Equipment Condition, (5) Food Safety, (6) Storage Standards, (7) Pest Control, and (8) Operations/SOP Compliance. Each dimension is scored by a trained inspector on a 1–5 Likert scale (1 = Poor, 5 = Excellent) or as a binary Yes/No response, depending on the nature of the item. The audit is conducted digitally via Google Forms after each branch visit and produces a structured, time-stamped record for every inspection.

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

Quality Standards Compliance refers to the degree to which a restaurant branch meets the operational, hygiene, food safety, and procedural standards expected of it. In this study, it is operationalized as the aggregate score per branch per visit — calculated as the mean of all scored items across the eight audit dimensions on the 1–5 scale. A higher score indicates stronger compliance. The benchmark against which scores are interpreted is the Saudi Food and Drug Authority's Food Hygiene Requirements (Saudi Food and Drug Authority, n.d.), which set the regulatory standards for food businesses in the Kingdom. Internal company quality standards also inform the checklist design and expected thresholds.

3.3 Research Design / تصميم البحث

3.3.1 *Research Philosophy* / الفلسفة البحثية

This study adopts a positivist research philosophy. Positivism holds that knowledge is grounded in observable, measurable facts, and that relationships between variables can be identified and quantified objectively. This fits the nature of the current research well — audit scores are objective numerical measurements, the relationship between audit practices and compliance outcomes is quantifiable,

and the findings are intended to be generalizable across similar restaurant operations. As Sekaran (n.d.) notes, the positivist approach is appropriate when the researcher seeks to test specific hypotheses using empirical data under controlled conditions.

3.3.2 Research Approach / المنهج البحثي

The study uses a deductive research approach. Deductive reasoning starts with a theory or hypothesis and then tests it against data collected from the real world. In this case, the three hypotheses — proposing that operational audit practices positively impact quality compliance, that food safety and pest control dimensions have the strongest effect, and that audit frequency is positively associated with compliance — are derived from the theoretical frameworks of Juran and Godfrey (1999) and Daft and Benson (2016), and then tested using real audit data collected from restaurant branches. This is the standard approach for quantitative hypothesis-testing research.

3.3.3 Research Strategy / استراتيجية البحث

The research strategy is a field study based on primary data collected through a structured observation instrument — the operational audit checklist. Unlike a survey where respondents answer questions about their own behaviour, this checklist captures objective inspector assessments of each branch's physical and operational condition at the time of the visit. This gives the data a level of objectivity that self-reported survey data typically cannot achieve. The field study approach is appropriate here because the research is embedded in a real organizational setting and the data reflects actual operational conditions rather than opinions or perceptions.

3.3.4 Research Design / تصميم الدراسة

The overall research design is descriptive-analytical and quantitative. The descriptive element involves summarizing and presenting the compliance scores

across branches and dimensions to answer the first research question — what the current level of compliance looks like. The analytical element involves using statistical tests to examine relationships between variables and test the three hypotheses. A cross-sectional design is used, meaning the data was collected at one point in time — specifically during May 2026, the first month of the audit system's deployment. While this limits the ability to track compliance changes over time, it provides a solid baseline picture of compliance levels across the network at the point of measurement.

3.4 Research Population and Sampling / مجتمع البحث والعينة

3.4.1 Research Population / مجتمع البحث

The study population consists of all restaurant branches of a leading multi-brand restaurant chain operating across Saudi Arabia. The company manages more than 40 branches spread across multiple cities, including Jeddah (the primary market), Makkah, Taif, and surrounding areas. Each branch operates under one of several restaurant brand identities managed by the same operations team, and all branches are subject to the same internal quality standards and audit protocol.

3.4.2 Sampling Method and Sample / طريقة أخذ العينات والعينة

Given that the audit data is collected as a routine operational activity rather than as a specially designed research sample, the sampling approach is best described as a convenience sample — the data used in this study reflects all audit visits that were conducted and recorded during the data collection period. The final sample consists of 20 audit responses covering 19 distinct branches, collected between 11 May and 21 May 2026. The visits were conducted by two trained inspectors and all classified as follow-up visits. The branches audited are located across Jeddah (the majority), Makkah, Taif, Shati, and Slama. While a convenience

sample has limitations for statistical generalization, it is appropriate for this study because the data represents real operational measurements rather than responses to a constructed survey, and the sample covers a meaningful proportion of the company's active branch network.

3.5 Data Collection Method / طريقة جمع البيانات

Data was collected through the company's operational audit checklist, which was designed and developed by the researcher based on direct professional experience in operational auditing within a multi-brand restaurant chain in Saudi Arabia. The checklist is structured as a digital form administered via Google Forms, which allows for immediate data capture, automatic time-stamping, and centralized storage of responses in a spreadsheet format.

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 that informed the checklist's content and structure. The dimensions covered by the checklist — entrance, dining area, kitchen cleanliness, equipment condition, food safety, storage, pest control, maintenance, and operations/SOP — align directly with the food hygiene requirements mandated by the Saudi Food and Drug Authority (Saudi Food and Drug Authority, n.d.) and the quality control principles described by Juran and Godfrey (1999).

Each audit visit produces one completed form per branch. The inspector records scores for each item, adds comments where relevant, and uploads before-and-after photographs for each section. The photographs provide visual documentation that supports and validates the numerical scores. Upon each visit, the data is automatically appended to a shared Google Sheets file, creating a growing dataset of branch-level compliance records over time.

3.6 Types of Data / أنواع البيانات

3.6.1 *Primary Data* / البيانات الأولية

The primary data for this study consists of the 20 audit responses collected during May 2026 across 19 branches. This data is primary because it was collected directly by the researcher through the operational audit process, rather than obtained from existing published sources. Each response includes branch identity information (city, branch name, date, inspector, visit type) and scored responses across 37 checklist items covering the eight audit dimensions. The data is quantitative in nature — numerical scores on a 1–5 Likert scale for the majority of items, and binary Yes/No responses for structural and procedural items such as pest control evidence, sealed openings, and closing procedure compliance.

3.6.2 *Secondary Data* / البيانات الثانوية

Secondary data in this study includes the academic journal articles, management textbooks, regulatory documents, and industry reports reviewed in Chapter 2. These sources provide the theoretical framework and contextual background for interpreting the primary data findings. Key secondary sources include Abdou et al. (2023), Daft and Benson (2016), Juran and Godfrey (1999), Lee et al. (2021), Presti et al. (2023), the Saudi Food and Drug Authority (n.d.), the National Restaurant Association (2023), and the Examination and Evaluation Center (2024). The internal inspection report produced by the company's Operations Department (April–May 2026) also serves as secondary data, providing contextual evidence of quality trends during the same period as the primary dataset.

3.7 Statistical Analysis Procedures / إجراءات التحليل الإحصائي

The data analysis is carried out in three stages, corresponding to the three research questions and three hypotheses.

3.7.1 *Descriptive Statistics* / الإحصاء الوصفي

The first stage involves descriptive statistical analysis to answer Research Question 1 — what is the current level of quality standards compliance across the eight audit dimensions? For each dimension and for the overall compliance score, the following measures are calculated: mean (average score), standard deviation (spread of scores around the mean), minimum score, and maximum score. These are presented in tabular form and interpreted against the 1–5 scale, where scores of 4.0 and above indicate good compliance, 3.0–3.9 indicate moderate compliance, and below 3.0 indicate areas requiring significant attention. Compliance levels are also broken down by branch to identify the highest and lowest performing locations.

3.7.2 *Correlation Analysis* / تحليل الارتباط

The second stage uses Pearson correlation analysis to examine Research Question 2 — to what extent does each audit dimension individually contribute to overall quality compliance scores? Pearson correlation coefficients (r) are calculated between each of the eight dimension scores and the overall compliance score. A coefficient closer to +1 indicates a strong positive relationship, meaning that branches scoring well on that particular dimension also tend to score well overall. This analysis identifies which dimensions are most closely associated with overall compliance performance and provides the basis for testing Hypothesis 2, which proposes that food safety and pest control dimensions have the strongest individual relationship with overall compliance.

3.7.3 *Regression Analysis* / تحليل الانحدار

The third stage applies multiple regression analysis to test Hypothesis 1 — whether operational audit practices as a whole have a statistically significant positive impact on quality standards compliance. In this analysis, the eight dimension scores serve as the independent variables and the overall compliance score serves as the dependent variable. The regression model produces an R-squared value indicating the proportion of variance in compliance scores explained by the audit dimensions, and beta coefficients indicating the relative contribution of each dimension. Statistical significance is assessed at the $p < 0.05$ level.

3.7.4 Frequency Analysis / تحليل التكرار

To address Research Question 3 and test Hypothesis 3 — whether audit visit frequency is associated with compliance levels — a frequency analysis of visit patterns is conducted. Given that the current dataset reflects a single round of follow-up visits per branch during May 2026, the analysis examines compliance score variation across branches and discusses the expected relationship between visit frequency and compliance improvement based on the literature (Juran & Godfrey, 1999; Presti et al., 2023). A more complete test of Hypothesis 3 will be possible as the audit dataset grows over time. All statistical procedures are carried out using Microsoft Excel for descriptive statistics and standard statistical functions for correlation and regression calculations, given the manageable size of the dataset.

3.8 Conclusion / الخاتمة

This chapter has set out the complete methodological framework for the study. A positivist philosophy and deductive approach are used to test three hypotheses using real quantitative data collected through a structured operational audit checklist. The sample consists of 20 audit responses from 19 branches across Saudi Arabia, collected in May 2026. The data collection instrument was designed by the researcher based on direct professional experience and aligned with the SFDA

regulatory framework and the Ministry of Municipalities and Housing's food safety certification requirements. Descriptive statistics, Pearson correlation, and regression analysis are used to address the research questions and test the hypotheses. The findings are presented in Chapter 4.

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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), which informed the regulatory grounding of the instrument's dimensions. 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 used, 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 1: 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).