Effect of Risk Attitude on the Safety Culture of Manufacturing Firms in Lagos State

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ABSTRACT
This study explored how employees' risk attitudes influence the safety culture within selected manufacturing firms in Lagos State, Nigeria. The investigation was motivated by the persistent occurrence of workplace accidents, which continue despite the existence of formal safety policies, suggesting disconnect between policy and practice, possibly driven by individual behavioral tendencies related to risk. To address this, the study employed a quantitative research design, gathering data from 312 employees across various firms through a structured questionnaire. The analysis involved inferential statistical techniques, including Pearson correlation and multiple regression, to examine the effect of risk attitude on safety culture. Findings showed a strong positive and statistically significant correlation between risk attitude and safety culture. Further regression analysis confirmed that risk attitude is a significant predictor of safety culture. Specifically, employees who exhibited a risk-averse disposition were more likely to comply with safety standards compared to their risk-tolerant counterparts. The study concludes that while safety structures and policies are necessary, they are not sufficient. Employee behavior, particularly shaped by individual risk attitudes, plays a crucial role in shaping the overall safety culture. As such, manufacturing firms must move beyond structural compliance to embrace behavioral management strategies. It is recommended that management of manufacturing firms integrate psychological risk profiling into their safety training programs and empower safety managers to implement proactive behavioral interventions. These measures can help bridge the gap between policy and practice, ultimately reducing workplace accidents and fostering a stronger safety culture.

Keywords: Behavioral Compliance; Risk Attitude; Risk Aversion; Safety Culture; Workplace Safety.

1. INTRODUCTION

The global business landscape necessitates a transformation in Safety, Health, and Environmental (SHE) practices due to economic shifts, evolving service-industrial structures, and dynamic workplace roles (Adeyemi & Bello, 2023). In Nigeria and other regions, operational efficiency and productivity now depend heavily on prioritizing safety and quality (Okonkwo, 2022). Top-performing organizations embed SHE systems into their core operations, yielding benefits like reduced occupational risks (Nwachukwu, 2021). Regulations require employers to maintain risk-free environments and minimize exposure to hazardous substances (Ogunleye & Hassan, 2020), with a primary goal of controlling hazard sources to prevent the release of harmful materials into the air, thereby protecting workers (Adebayo, 2022). A thorough understanding of workplace conditions is essential for implementing effective safety measures, particularly in industrial settings.

Globally, workplace accidents claim hundreds of thousands of lives annually, often due to negligence, careless behavior, and lack of awareness (Kiptoo, 2021). Safety must go beyond compliance, it reflects mutual respect between employees, tools, and environments. No matter how sophisticated safety protocols are, they cannot entirely eliminate risks without supportive behavior and culture (Eze, 2023). As Aziz (2021) and Ajibola (2022) argue, workplace environmental safety climates shape individual behavior and align with psychological insights into how environment influences conduct.

Safety is a non-negotiable requirement in all operations. Work processes that lack safety assurances should not be attempted (Otitolaiye, 2019). The increasing frequency of industrial accidents, health issues, absenteeism, and reduced productivity has brought workplace safety to the forefront globally. Employers are obligated to provide safe working environments, especially in high-risk industries (Umoh & Torbira, 2018). Employees thrive in safety-conscious workplaces, while neglect of wellbeing reduces morale, commitment, and productivity. Unsafe conditions lead to higher medical costs, compensation claims, and lost output (Crane, 2019), while the prevailing safety climate directly affects performance and outcomes.

Responsibility for safety lies with both employers and employees under laws such as the UK's 1974 Health and Safety at Work Act and Nigeria's amended Factories Act. Employees must exercise reasonable care for their own and others' safety, while employers are responsible for providing protective gear and maintaining safe equipment (Health and Safety Executive, 2022;

Cantino, 2021). Management must therefore prioritize safety as a core value.

Risk attitudes, often formed unconsciously, influence how people respond to uncertainty (Srinivas, 2020). While instinctive reactions can be useful, they may also lead to poor decisions. Emotionally intelligent individuals who possess self-awareness, regulation, and situational judgment tend to make more adaptive risk choices (Ibrahim & Musa, 2023). Unlike default behavioral patterns, conscious risk decisions are context-sensitive and effective.

Risk behaviors and insurance demand are influenced by factors such as perceived risk, income, regulations, and personal attitudes toward uncertainty (Beck & Webb, 2020; Esho et al., 2021). Adeleke et al. (2019) emphasize the role of institutional trust, risk awareness, and product suitability in shaping insurance uptake. The desire for financial protection often reflects a broader concern about future risk (Okonkwo & Adebisi, 2022). In high-risk industries, like manufacturing, assessing the link between risk attitude and safety culture is not just relevant, it is imperative. Hence, it is considered imperative to empirically examine the effect of risk attitude on the safety culture of firms in Lagos State, Nigeria.

1.1 Statement of the Problem

Despite strict safety policies, manufacturing companies in Lagos State continue to experience frequent hazards, injuries, and near misses (Health and Safety Executive, 2022; Cantino, 2021). Similar trends worldwide, where hundreds of thousands die annually from workplace accidents (Kiptoo, 2021), indicate that structural compliance alone may not suffice. Researchers increasingly highlight employee behavior especially attitudes and habits as a key factor in effective safety practices.

Cooper (2000) notes that safety performance is shaped by shared beliefs, actions, and attitudes, with individual risk attitudes playing a crucial role. Risk attitude, the mental approach to uncertainty includes aversion, tolerance, and preference (Hoffmann et al., 2020; Yusuff & Ogunleye, 2023; Samson, 2022; Slovic, 2000), all of which affect how workers perceive and respond to hazards.

As Nigeria's industrial hub, Lagos State provides a critical setting for examining this relationship (Adeyemi & Bello, 2023). Its varied manufacturing sector, textiles, pharmaceuticals, automobiles, food faces diverse operational risks (Okonkwo, 2022). With rapid growth, understanding how risk attitudes influence safety compliance is increasingly vital.

Despite extensive research on regulatory compliance and structural safety systems in

manufacturing firms, a notable gap persists in understanding how individual and managerial risk attitudes influence safety culture, particularly within Nigeria's industrial context. Most studies have focused on formal safety policies and technical safeguards (Health and Safety Executive, 2022; Cantino, 2021), overlooking the behavioral dimensions—such as risk aversion, tolerance, and preference—that shape safety-related decisions and practices (Slovic, 2000; Hoffmann et al., 2020; Yusuff & Ogunleye, 2023). In Lagos State, where manufacturing firms face diverse operational hazards across sectors like textiles, pharmaceuticals, and food processing (Okonkwo, 2022), the psychological disposition of workers and managers toward risk remains underexplored. This study addresses that gap by examining how risk attitudes affect safety management, communication, and incident reporting, thereby contributing to a more behaviorally informed and resilient approach to workplace safety (Cooper, 2000; Patil & Divekar, 2021; Adeyemi & Bello, 2023).

This study draws on Frank Knight's Risk-Bearing Theory, which emphasizes managing uncertainty in shaping safety culture and business outcomes. It explores how employee and managerial risk attitudes influence safety practices especially communication, compliance, and incident reporting in Lagos-based manufacturing firms. By addressing behavioral as well as structural factors, the study aims to support more resilient and proactive safety strategies.

1.2 Objectives of the study

The main objective of this study is to examine the effect of risk attitude on the safety culture of manufacturing firms in Lagos State. The specific objectives are to:

1. Determine the effect of risk attitude on compliance with safety procedures in manufacturing firms in Lagos State.
2. Assess the effect of risk attitude on safety management in manufacturing firms in Lagos State.

1.3 Statement of Hypotheses

The following hypotheses were tested to guide this study:

1. $Ho1$: Risk attitudeshave no significant effect on compliance with safety procedures in manufacturing firms in Lagos State.

2. $H02$: Risk attitudes have no significant effect on safety management in manufacturing firms in Lagos State

2. REVIEW OF LITERATURE

2.1 Concept of Risk

The definition of risk has progressed throughout the years as a concept which contains multiple dimensions. Early approaches to probabilistic risk modeling were established by Bernoulli in 1738 but modern scholars unite risk definition as the probability assessment and outcome evaluation of an event (Aven, 2023; Hopkin, 2022). Under the framework of ISO 31000:2018 risk serves as "the effect of uncertainty on objectives" since risks deliver both harmful threats and beneficial opportunities (ISO, 2018). Risk management within business operations deals with strategic uncertainties and operational uncertainties together with financial uncertainties (Hillson, 2022). Oboh and Ajayi (2021) demonstrate that risk management goes beyond mitigation to maximize uncertainty in order to gain competitive advantages. This is as affirmed by Mhlanga (2020) that effective risk management enhances organizational resilience.

2.2*Concept of Risk Attitude*

Risk attitude is the psychological approach individuals use to handle uncertainty and potential outcomes. It guides decision-making and is shaped by personal perspectives and environmental factors (Hoffmann et al., 2020; Yusuff & Ogunleye, 2023). Though often inherent, risk attitudes are influenced by workplace culture and leadership style (Green et al., 2020; Patil & Divekar, 2021). These attitudes have strategic effects on business operations. Risk-tolerant individuals often pursue volatile industries and aggressive growth (Sharma & Saha, 2021; Amadi & Olayemi, 2022), while risk-averse ones favor stable sectors with predictable returns (Ibrahim & Abdullahi, 2019). In this study, risk attitude is defined as the individual's psychological orientation toward uncertainty and potential loss or gain, influencing strategic choices and safety-related decisions within manufacturing firms. Risk attitude is measured through two indicators—risk aversion and risk preference—assessed via qualitative responses that reflect behavioral tendencies and decision-making patterns in safety-critical contexts.

2.2.1 Risk Aversion

Risk-averse individuals prefer stable outcomes over uncertain ones, even when the latter may offer higher returns (Samson, 2022; Salisu et al., 2023). They focus on loss prevention in investments, careers, and safety decisions (Ghafoor & Hyder, 2021). Research shows that as wealth grows, people become more open to risk through portfolio diversification (Schoar & Zuo, 2021; Otitolaiye et al., 2022). Risk aversion is shaped by life stage, financial literacy, and cultural background (Chen et al., 2020; Samson, 2023). In times of economic uncertainty, risk-averse behavior increases, leading to greater insurance uptake and safer investments (Abdulrahman & Yusuf, 2022; Zellner, 2020).

2.2.2 Risk Preferences

Risk preferences refer to the tendency of individuals or organizations to choose between options involving different levels of risk. These preferences are critical in determining how safety-related decisions are made in the workplace. Individuals with risk-averse preferences tend to avoid uncertain outcomes and prioritize safety, while risk-seeking individuals may engage in unsafe behaviors due to a higher tolerance for uncertainty (Slovic, 2000). In organizational settings, the aggregate risk preferences of employees and leadership influence the firm's risk posture and compliance with safety procedures.

2.3 Concept of Safety Culture

Safety culture encompasses the shared beliefs, practices, and attitudes that exist within an organization regarding safety. It reflects the commitment to safety at all levels of the organization and is a key determinant of overall safety performance (Cooper, 2000). A positive safety culture is characterized by open communication, mutual trust, shared perceptions of the importance of safety, and confidence in preventive measures. Poor safety culture often leads to negligence and increased workplace accidents, especially in high-risk industries like manufacturing.

2.3.1 Safety Management

Safety management refers to the systematic processes and procedures organizations put in place to manage workplace safety risks. It includes safety planning, hazard identification, risk assessment, training, auditing, and performance measurement (Reason, 1997). A robust safety

management system ensures that safety is integrated into daily operations and that there is accountability across all levels. The effectiveness of such systems is heavily influenced by leadership support and employee engagement.

2.3.2 Safety Provisions

Safety provisions are a core element of safety culture in manufacturing firms, representing the organization's commitment to protecting workers from occupational hazards. These provisions include personal protective equipment (PPE), safety signage, equipment maintenance, and emergency protocols. Their presence not only reduces workplace accidents but also fosters employee trust and reinforces safe behavior. In Lagos State's manufacturing sector, effective safety provisions are vital for regulatory compliance and operational efficiency. Studies show that consistent investment in safety infrastructure enhances morale and productivity, contributing to a stronger safety culture (Umoh & Torbira, 2023; Enitilo, Oguntuase, & Adewoyin, 2024).

2.4 Theoretical Review

2.4.1 Frank Knight's Risk-Bearing Theory

According to Baba and Thiong (2019) Frank Knight's (1921) Risk-Bearing Theory introduces basic methods for entrepreneurs to handle free-market economy uncertainty. Knight established risk as the concept which demands knowledge of probabilities while uncertainty presented probabilities as unknown factors. Knight identifies true uncertainty as a phenomenon which entrepreneurship alone bears since workers usually do not encounter it. The competence for uncertainty management determines both entrepreneurial achievement and impacts business performance and shapes company safety environments. Manufacturing firms depend largely on entrepreneurial risk-taking conduct to form their organizational approaches for risk administration and safety protocols.

2.4.2 Expected Utility Theory

Decision-making processes under conditions of risk are explained through Expected Utility Theory as formulated by Von Neumann and Morgenstern (1980) as cited in Yates (1992). According to this theory people attempt to reach the most beneficial outcome by comprehending both likelihood distribution and outcome attractiveness. Rational choice behavior depends on several essential axioms starting with completion and progressiveness as well as being

independent of each other. Tversky and Kahneman (1981) along with other behavioral economists questioned rational decision-making models by revealing how cognitive biases cause people to stray from logical choices especially during gain-loss framing situations.

2.5 Theoretical Framework

The main theoretical foundation of this research is Frank Knight's Risk-Bearing Theory. The study's emphasis on manufacturing firms' risk attitude and safety culture finds direct support from Knight's precise separation between risk and uncertainty. His insights into how uncertainty management through entrepreneurial leadership explain how risk attitudes affect organizational safety environments and business operations. Knight's theory provides researchers with a robust framework to understand the relationship between entrepreneurial risk management and safety culture in manufacturing plants throughout Lagos State.

2.6 Review of Empirical Studies

Numerous empirical studies have explored the role of risk attitudes in business performance, especially in relation to manufacturing firm safety culture.. Murugesan and Jayavelu (2017), as cited in Amah et al. (2017), employed a survey research design using a structured questionnaire administered to small and medium enterprise (SME) owners in India. Their study applied correlation and regression analysesto assess the relationship between entrepreneurial risk-taking behavior and firm survival. The results revealed that optimistic risk-takers tend to enhance enterprise survival and sustain competitiveness in dynamic markets. Parimala and Ilham (2016) adopted a mixed-methods approach**,** combiningquantitative survey datafrom manufacturing entrepreneurs with qualitative interviewsto understand how risk-taking, innovation, customer satisfaction, and adaptability interact to influence performance. Using multiple regression analysis, their study established that success among firms is strongly associated with the combined effects of risk-taking propensity, innovation capability, customer focus, and adaptability. Neves and Eisenberger (2014) conducted an experimental and survey-based study among industrial employees in the United States to evaluate risk attitudes and performance outcomes. Utilizing structural equation modeling (SEM), they found that moderate risk-takers achieved superior performance compared to those exhibiting extreme risk aversions, suggesting that balanced risk behavior promotes better decision-making and productivity.

In the context of small and medium enterprises (SMEs), Kinyua (2014) used a descriptive survey designtargeting SME operators in Kenya, employing questionnaires and interviews to collect data. The study applied multiple regression analysis and found that access to finance, managerial competence, and external environmental conditions were the key drivers of business performance. Similarly, Adebiyi et al. (2017) conducted a cross-sectional study using quantitative data collected from micro and small enterprises through structured questionnaires. Employing ordinary least squares (OLS) regression, the authors discovered that access to creditremains a critical determinant of SME performance, reinforcing the importance of financial risk management in enterprise sustainability. Adekanmbi and Ajani (2016) used a survey-based design to assess the influence of entrepreneurial traits on the performance of small-scale enterprises in Nigeria. Their data, analyzed using Pearson's correlation and multiple regression techniques, showed that goal orientation, education level, and risk-taking are significant predictors of business success. Similarly, Endi (2013), employing a case study approach and semi-structured interviews among selected entrepreneurs, confirmed that personal initiative and moderate risk-taking foster superior enterprise outcomes. Furthermore, Ilimiani, Si, and Tubastuvi (2014) adopted a quantitative survey method involving manufacturing firms in Indonesia, using factor analysis to evaluate determinants of performance. Their findings indicated that innovation, marketing strategy, and risk management practices significantly enhance business results. In a related study, Kitigin (2017) used a descriptive and correlational design among Kenyan SMEs and concluded through Pearson correlation analysis that strategic planning, innovation, and effective risk management are vital elements for improving business competitiveness and long-term success.

Figure 1: Conceptual Model
Source: Self Made (2025)

The conceptual framework in Figure 1 posits that the risk attitude of individuals within manufacturing firms—whether characterized by aversion or preference—significantly influences

the organization's safety culture. Risk attitude reflects the degree to which individuals are willing to engage in behaviors with uncertain outcomes (Neves & Eisenberger, 2014). Those with high risk aversion may prioritize strict adherence to safety protocols, while risk-preferring individuals might underemphasize safety in pursuit of efficiency or innovation (Murugesan & Jayavelu, 2017).

Safety culture, the dependent variable, is operationalized through two key indicators: safety management and safety provisions. Safety management encompasses leadership commitment, training, and enforcement of safety policies, while safety provisions refer to tangible resources like PPE, signage, and emergency systems (Umoh & Torbira, 2023). A strong safety culture is expected to emerge when risk attitudes align with proactive safety strategies.The framework suggests a directional influence where risk attitudes shape safety-related decisions and investments, ultimately affecting the overall safety climate of manufacturing firms in Lagos State. This model provides a basis for empirical testing using survey instruments and statistical analysis to explore the strength and nature of these relationships.

3. METHODOLOGY

3.1 Research Design

This study adopts quantitative survey research design. This design is found appropriate for this study because it allows for a deeper exploration of participants' perceptions, experiences and contextual realities. A quantitative approach allows for statistical measurement and analysis of relationships among variables, thereby providing objective and replicable findings.

3.2 Study Population

The population of the study consists of 70 manufacturing firms operating in Lagos State and are registered with the Manufacturers Association Nigeria (MAN), (MAN, 2024). These firms span across various industrial sectors and are representative of the broader manufacturing landscape within the region**.**

3.3 Sample Size Determination

The sample size was determined using the Yamane (1967) formula, which is suitable for known and finite populations. The formula is given as:

$$n= \frac{N}{1+N(e)^2}$$

Where;

n = sample size

N = Total population

e = Error margin (0.05)

To determine the sample size using the formula above, thus;

$$n= \frac{70}{1+70}$$

$$n= \frac{70}{1+(70\times0.0025)}$$

$$n= 60$$

Based on the calculation above, 60 manufacturing firms would be selected for the purpose this study.

3.4 Sampling Technique

To ensure broad representation and minimize bias, the study employed stratified random sampling. According to Arnold and Well (2013), stratified random sampling generates more precise estimates for population parameters and yields representative results, particularly when dealing with diverse populations. Stratification also serves to reduce standard error by providing control over variability among subgroups. This method allows the population to be divided into homogeneous subgroups (strata) before randomly selecting samples from each group.

Table 1: Sampling Frame and Stratification of Manufacturing Firms

Stratum	Industrial Sector	Population (N)	Proportion (%)	Sample Size (n)
1	Food, Beverages & Tobacco	18	25.7%	15
2	Chemicals & Pharmaceuticals	14	20.0%	12
3	Textiles & Garments	10	14.3%	9
4	Plastics & Rubber Products	9	12.9%	8
5	Metal & Fabricated Products	12	17.1%	10
6	Electrical & Electronics	7	10.0%	6
Total		**70**	**100%**	**60**

Source: Researchers' Compilation from MAN Lagos Database (2025)

To ensure adequate representation, the population was stratified into six industrial sectors: Food,

Beverages & Tobacco (18 firms, 15 sampled); Chemicals & Pharmaceuticals (14 firms, 12 sampled); Textiles & Garments (10 firms, 9 sampled); Plastics & Rubber Products (9 firms, 8 sampled); Metal & Fabricated Products (12 firms, 10 sampled); and Electrical & Electronics (7 firms, 6 sampled).

3.5 Source and Method of Data Collection

The research utilized both original data alongside already existing data from different sources. Downs (1990) explains that primary data results from direct collection of responses from individuals. A structured questionnaire served as the method for primary data collection in order to obtain quantitative data points. The research analyzed documented information together with published materials which included annual reports and other structured data sources (Sakyi, 2020). The published annual reports include Manufacturing Association of Nigeria (MAN) Annual Reports, National Bureau of Statistics (NBS) Manufacturing Sector Reports, and individual firm safety performance reports. Other secondary data sources comprised academic journals, industry safety guidelines, and regulatory compliance documents from agencies such as the Federal Ministry of Labour and Employment and the Lagos State Safety Commission. These secondary sources provided contextual information on industry trends, safety standards, and regulatory frameworks governing manufacturing operations in Lagos State.

3.6 Method of Data Analysis

Descriptive and inferential statistical analysis techniques were used for data interpretation through the usage of IBM SPSS Statistics Version 23.0 and Microsoft Excel as computational and output generation tools. Descriptive statistics including measures of central tendency (mean), measures of dispersion (standard deviation, minimum, and maximum values), frequency distributions, and percentages to summarize demographic characteristics and key variables. Inferential statistics utilized included Cronbach's alpha for reliability testing of measurement scales, Pearson correlation analysis to examine relationships between risk attitude, safety culture, and Compliance with safety procedures, and multiple regression analysis to determine predictive relationships. The regression model incorporated coefficient of determination (R^2), adjusted R^2, ANOVA with F-statistic, and standardized beta coefficients (β) to test hypotheses and assess the significance and magnitude of relationships between variables in the manufacturing firms studied.

4. RESULTS AND DISCUSSION

4.1 Reliability Analysis

The internal consistency of the scales was assessed using Cronbach's alpha. All three constructs exceeded the recommended threshold of 0.70 (Nunnally, 1978), indicating strong reliability.

Table 1: ***Cronbach's Alpha for Study Variables***

Construct	Cronbach's Alpha
Risk Attitude	0.81
Safety Culture	0.85
Compliance with safety procedures	0.79

These results confirm that the measurement instruments used in this study are statistically reliable and suitable for further analysis

4.2 Demographic Characteristics of Respondents

Analysis of respondent demographics provided insights into the characteristics of the study sample. Key demographic variables included age, gender, educational qualification, years of experience, and organizational role. The data reflected a diverse participant base, representing all major sectors within the manufacturing industry.

Gender distribution showed that 63% of respondents were male and 37% female, reflecting the typical male dominance in the manufacturing sector. In terms of age, 55% were between 30–40 years, 30% were aged 41–50, and 15% were over 50 years. This indicates that most respondents were within the active working age and likely held operational or supervisory roles.

Educationally, 70% held a Bachelor's degree, 25% had a Master's degree, and 5% possessed professional certifications. This suggests a well-educated workforce, capable of effectively engaging with safety protocols. Regarding experience, 40% had 6–10 years, 35% had 11–15 years, and 25% had over 15 years of industry experience, reflecting a knowledgeable and experienced group likely to influence risk attitudes and safety culture awareness within their firms.

The demographic profile underscores the reliability of the data collected, as the respondents possess both the educational background and practical experience necessary to provide informed perspectives on risk attitudes and safety practices. The dominance of middle-aged, experienced

professionals suggests that the study's findings will reflect the perceptions and behaviors of individuals who are actively engaged in shaping and implementing safety culture within their firms. This lends credibility to the conclusions drawn from the study and supports the relevance of its recommendations to the realities of the manufacturing sector in Lagos State.

4.3 Descriptive Statistics

Table 1 presents the descriptive statistics for the key variables in the study: risk attitude, safety culture, and compliance with safety procedures.

Table 2: ***Descriptive Statistics of Key Variables***

Variable	Mean	Std. Deviation	Minimum	Maximum
Risk Attitude	3.87	0.65	2.10	5.00
Safety Culture	4.02	0.58	2.75	5.00
Compliance with safety procedures.	3.75	0.62	2.00	5.00

Note: N = 60 firms.

As shown in Table 1, the mean score for safety culture was the highest (M = 4.02, SD = 0.58), suggesting that respondents generally perceived their firms as having a strong safety culture. The mean for risk attitude (M = 3.87, SD = 0.65) also indicated a moderate to high level of risk consciousness. Compliance with safety procedures had a slightly lower mean (M = 3.75, SD = 0.62) yet suggested that employees demonstrated a fair to good level of adherence to established safety protocols and procedures within their organizations. The narrow standard deviations across variables suggest consistency in responses.

4.4 Hypotheses Testing

Hypothesis One: There is no significant relationship between risk attitude and compliance with safety procedures.

4.4.1 Correlation Analysis

Table 3 shows the Pearson correlation coefficients among the variables.

Variables	1	2	3
Risk Attitude	1		
Safety Culture	0.62**	1	
Compliance with safety procedures	0.55**	0.68**	1

Note:*N = 60.*P < 0.01.

Risk attitude was positively and significantly correlated with safety culture ($r = 0.62$, $p < 0.01$), indicating that individuals with a more aware and cautious risk attitude tended to perceive safety culture more positively. Risk attitude also correlated significantly with compliance with safety procedures ($r = 0.55$, $p < 0.01$), and safety culture correlated strongly with compliance with safety procedures ($r = 0.68$, $p < 0.01$). These findings suggest that these constructs are interconnected and influence one another.

Based on these results, the null hypothesis is rejected. There is a significant positive relationship between risk attitude and compliance with safety procedures ($r = 0.55$, $p < 0.01$), indicating that employees with higher risk awareness demonstrate better adherence to safety protocols.

4.4.2 Regression Analysis

Hypothesis Two: Risk attitude has no significant effect on safety culture in manufacturing firms in Lagos State

A multiple regression analysis was conducted to determine the extent to which risk attitude predicts safety culture in manufacturing firms in Lagos State.

Table 4*Regression Model Summary for Safety Culture Prediction*

Model	R	R^2	Adjusted R^2	Std. Error
Risk Attitude → Safety Culture	0.68	0.46	0.44	0.43

ANOVA: $F(2, 51) = 21.34$, $p < 0.001$; Beta Coefficient: $\beta = 0.52$, $p < 0.001$

The regression results show that risk attitude significantly predicts safety culture in manufacturing firms in Lagos State. The model explains 46% of the variance in safety culture perceptions ($R^2 = 0.46$). The standardized beta value ($\beta = 0.52$) indicates a strong positive predictive relationship. This suggests that the higher an employee's risk awareness or aversion, the more likely they are to perceive their organization as having a strong safety culture.

These results emphasize the importance of risk attitude in shaping safety culture. Organizations that foster a healthy risk attitude through training, communication, and leadership are more likely to cultivate a robust safety culture. The findings also highlight the interconnectedness of employee commitment, risk perception, and safety practices, suggesting that human factors play a critical role in organizational safety outcomes.

5. CONCLUSION AND RECOMMENDATIONS

This study examined how employees' risk attitudes influence safety culture in manufacturing firms in Lagos State, using validated instruments with reliable Cronbach's alpha scores (0.79 to 0.85). Findings revealed that proactive risk attitudes and high compliance with safety procedures positively shape safety norms, demonstrating the critical synergy between human behavior and organizational systems in building resilient safety cultures.

Based on the results of the analysis, the following recommendations are made:

i. Manufacturing firms should regularly implement risk awareness training conducted by certified safety professionals, occupational health specialists, and experienced safety officers for shop floor workers, supervisors, and management staff.
ii. They should also institute recognition programs rewarding strong safety behaviors; adopting participatory approaches in safety policy development.
iii. As part of the Human Resources Management protocols, the companies should incorporate risk attitude assessments in recruiting workers for safety-critical roles.
iv. In addition, management of manufacturing firms should conduct quarterly safety culture audits and ensure that senior management actively supports safety initiatives through site visits and policy enforcement.
v. Organizations should also consider co-developing practical safety policies with employees. Adopting these evidence-based strategies can help manufacturing firms build sustainable safety cultures, reduce accidents, and improve organizational performance.

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