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Impact of Supplier Quality Assurance Practices on Product Quality in Export-Oriented Garment Manufacturers in Pakistan

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Abstract: *The primary objectives of this study are to analyze the effectiveness of supplier quality management frameworks, evaluate the impact of training programs and Quality Management Systems (QMS) on quality control, and assess the moderating role of supplier relationships and regulatory compliance in enforcing quality standards. A quantitative research design was adopted, utilizing structured surveys and semi-structured interviews. The study employed descriptive and inferential statistical techniques, including Chi-Square analysis, regression modeling, mediation, and moderation analysis, to establish relationships between SQA practices and product quality performance. The results indicate that effective supplier selection, rigorous compliance monitoring, and process standardization significantly reduce fabric-related defects, stitching errors, and finishing inconsistencies. Furthermore, workforce training, process automation, and the adoption of Industry 4.0 technologies emerged as critical mediators in improving supplier quality outcomes. The study also found that supplier-buyer collaboration, regulatory enforcement, and digital quality tracking systems play a moderating role in optimizing supplier quality assurance strategies. This study provides practical recommendations for manufacturers, policymakers, and industry stakeholders, emphasizing the need for advanced technological integration, structured workforce training, and policy reforms to optimize supplier quality assurance frameworks. Future research should explore cross-industry comparisons, regional differences in supplier quality enforcement, and the long-term impact of digital transformation on supplier quality management to further advance the field of quality assurance in global supply chains.*

Introduction

The international textile and garment industry is becoming more and more competitive, and the high requirements for product qualities impose stronger controls on manufacturers for SQA (Supplier Quality Assurance). Quality control is very important for export-oriented manufacturers to meet with the international standards. In Pakistan this sector is the second largest upholder to GDP but facing the

problem of un-secured supplier quality, production variability, no standardized process for the quality check and the problem of untrained workforce. In this research the effect of Supplier Quality Assurance practices on product quality of export-oriented garments' manufactures have been explored in Pakistan and main factors influencing on quality performance are identified and how quality performance can be improved through these practices is proposed.

Statement of the problem

The current aim of this study impact of supplier quality assurance practices on product quality in export-oriented garment manufacturers in Pakistan.

Objective of Study

The aim of this study is to outline a comprehensive and scientific approach in examining the impact of Supplier Quality Assurance (SQA) practices on product quality for export-oriented garment manufacturers in Pakistan. Due to the lack of adequate empirical studies on this topic, the present study attempts to fill the given knowledge gap and provide meaningful insights to practitioners, policymakers, and scholars.

The primary objectives of this research are as follows:

Assess Variability in Quality Standards: Investigate the extent of variability in Supplier Quality Assurance (SQA) practices among garment manufacturers and identify the underlying factors contributing to inconsistencies in product quality.

Evaluate Training and Workforce Development: Examine the current state of training programs for both workers and management personnel in the garment sector and assess their effectiveness in ensuring consistent adherence to quality standards.

Analyse Access to Quality Management Systems (QMS): Evaluate the availability, adoption, and implementation of advanced Quality Management Systems among garment suppliers, as well as the key barriers hindering their widespread adoption.

Examine the Impact of Supplier-Buyer Relationships: Explore how the dynamics between garment suppliers and international fashion brands influence the enforcement, adherence, and sustainability of Supplier Quality Assurance practices.

Identify Strategies for Sustainable QA Practices: Determine best practices and strategic frameworks that can enhance the sustainability of quality assurance initiatives within Pakistan's garment manufacturing sector.

By fulfilling these objectives, this study will offer key inputs on the opportunities and challenges in Supplier Quality Assurance in Pakistan's garment sector. The research findings will help in enhancing the quality management system, enhancing production efficiency, and increasing the global competitiveness of Pakistani garment manufacturers. Additionally, the research will provide actionable suggestions for industry stakeholders in creating and maintaining effective QA mechanisms conforming to international standards.

Literature Review

This chapter offers an in-depth discussion that includes both mainstream academic opinions and stakeholder opinions in the area of Quality Management (QM). The discussion delves into the relationships between the implementation of QM, performance excellence, and organizational culture, discussing existing controversies among scholars and practitioners about the contribution of organizational culture to organizational performance improvement. Moreover, a contextual review of QM implementation in the manufacturing industry is critically analyzed to discern gaps in the extant literature. The first part of this chapter discusses the historical development of QM and the prevailing

viewpoints within this field. The discussion ends with an overarching question: Why has QM implementation typically failed to improve firm performance in the manufacturing industry, specifically in the Pakistani context?

Theoretical Framework

This study provides a strong structure to analyse the quality of the quality of production and the intervention required to adapt to supplier management processes. Several studies have investigated the connection between QA practices and sustainable product quality. Scholars highlight that QA principles, such as continuous improvement, customer focus, and process optimization, greatly improve product quality and sustainability (Ahmed & Karim, 2022; Lin & Tsai, 2023).

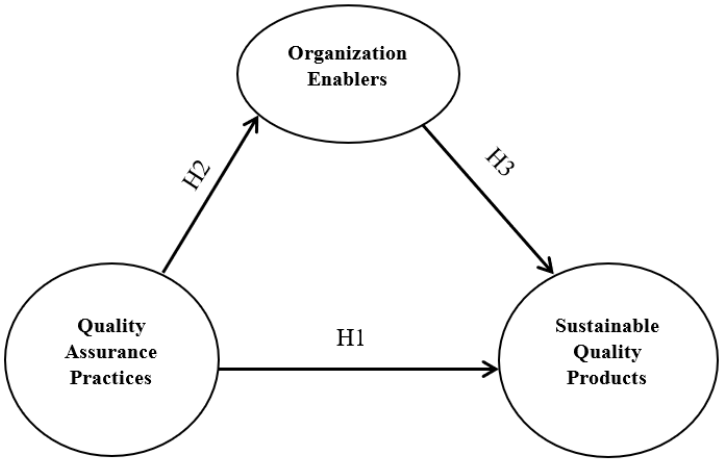

Figure: 1. Theoretical Framework

Research indicates that firms that effectively apply QA practices attain greater levels of sustainable product quality through defect prevention, waste minimization, and process efficiency (Khan, Raza, & Siddiqui, 2021). Organizational facilitators have emerged as key drivers of the success of QA programs. Worker involvement creates a climate of quality commitment, resulting in better QA implementation (Yusuf & Abiola, 2024). Standardization of processes provides reliability and consistency, which are necessary for long-term quality results (Patel & Fernandes, 2023). Literature reviewed sets the theoretical ground for the hypothesized hypotheses, focusing on the need for QA practices in realizing sustainable product quality and the influential role of organizational enablers as mediators and moderators for this relationship.

Research Design

This study adopts a quantitative research approach using a cross-sectional survey design to evaluate the impact of supplier quality assurance (QA) practices on product quality in export-oriented garment manufacturers in Pakistan. The study relies on both primary and secondary data sources to ensure a comprehensive analysis of the quality management strategies employed by garment manufacturers specializing in denim products. A mixed-methods approach is used to capture both numerical and qualitative insights, combining statistical analysis with in-depth industry perspectives. The research is structured to identify key quality issues, assess the implementation of QA practices, and evaluate their long-term sustainability in the competitive global fashion market.

Study Population and Sample Selection

Population

The study population consists of inspection reports from garment manufacturers that supply denim products for export markets. These reports provide critical insights into the prevalent defects, QA measures, compliance trends, and areas requiring improvement.

Sample Unit

The sample unit for this study comprises 13 garment manufacturing companies that are directly involved in producing and supplying denim jeans for international fashion brands. These manufacturers were selected based on their established presence in the textile export sector and their adherence to industry quality standards.

Sample Size

The research focuses on the top 10 defects of each manufacturing process (total 50 defects) identified in inspection reports from these manufacturers. This targeted selection ensures that the most significant quality concerns are addressed, allowing for an in-depth examination of the underlying causes and potential remedial actions.

Defects in garment manufacturing can arise due to fabric issues, stitching errors, finishing flaws, or quality control lapses. Below is a classification of the most frequent defects affecting export-quality denim products, categorized based on their origin:

Fabric & Cutting Defects	Stitching Defects	Washing Defects	Finishing Defects	Packaging and Presentation Defects
1. Shade Variation 2. Fabric Holes 3. Knot 4. Slubs and Naps 5. Fly Yarn 6. Oil or Grease Stains 7. Missed pick 8. Panel uneven 9. Panel numbering missing 10. Deep cut at notch place	1. Skipped Stitches 2. Broken Stitches 3. Open Seam 4. Needle Chew 5. Dropped stitch 6. Wavy seam 7. Less SPI 8. Twisted leg 9. Uneven panel attachment 10. Excessive seam joint overlapping	1. Shade not as per standard 2. Wrong pattern followed 3. Poor hand feel 4. Bleach Marks 5. Damaged/Potential hole 6. Patches 7. Une-even Spry within a garment 8. Over washed 9. Stone Hitting scratch 10. Excessive scrapping	1. Poor press 2. Un cut or hanging threads 3. Loose threads inside 4. Wrong size labeling 5. Poor rework 6. Insecure metal trim 7. Metal trim not functioning 8. Other brand trim 9. Rusted Trim 10. Bad smell	1. Incorrect price Sticker 2. Wrong Fold 3. Wrong size of polybag 4. Wrong polybag barcode sticker 5. Missing packaging component 6. Missing warning at polybag 7. Wrong assortment inside box 8. Damaged box 9. Overfilled box 10. Missing Box sticker

Table: 1. commonly present defects in garment industry

Data Collection Methods

Primary Data Collection

Primary data for this study is collected through a combination of structured surveys, semi-structured interviews, and direct observations during factory visits. A standardized questionnaire is administered to quality control managers, production supervisors, and factory auditors to evaluate their quality assurance practices and operational challenges. In addition, semi-structured interviews with key industry personnel are conducted to gain qualitative insights into the barriers and facilitators affecting quality assurance in garment manufacturing. Furthermore, factory visits will enable direct observations of production processes, allowing for the validation of survey responses and the identification of real-

time challenges in maintaining quality standards.

Secondary Data Collection

Secondary data here is acquired from various sources to provide an in-depth examination of quality assurance in garment manufacturing. Reports of inspections are scrutinized to evaluate trends in defects, rates of rejection, and supplier performance history, offering vital information about production efficiency and compliance. Industry reports are studied to determine the study available on the quality control mechanism of apparel industries. In addition, the study is studied to learn about the needs and best practices of quality installed quality installed by top international fashion companies and governing bodies. In addition, the previous performance data of the last five years is reviewed to understand long - term patterns and trends in quality management to achieve an overall insight into industry development.

Data Analysis Techniques

Research is adopting an overall approach that incorporates both quantitative and qualitative data analysis methods to obtain intensive examination of supplier QA practices. This is analyzing the examination of socio demographic data on how to affect the workforce experience, education and organizational positions QA implementation and impact.

Descriptive Statistics

Descriptive statistical analysis is applied to the collected data effectively abbreviation and interpret. Frequency distribution analysis is performed to determine the most common defects and analyze their phenomena frequencies in various manufacturing units. In addition, central trend measures such as average and standard deviations are used to assess the QA performance variation between suppliers to indicate continuity and deviation in quality control.

Inferential Statistics

Major quality assurance (QA) to get a more intensive understanding of interrelations between variables, inferior statistical analysis is used. Chi-Square Testing defects is employed to analyze associations between events and QA practices, finding out whether some defects are more common under specific quality management conditions. Realization analysis is used to determine the effect of workforce training on the impact of quality management systems and decrease in defect, to measure their efficiency in increasing the quality of production. In addition, correlation analysis is used to check for the impact of buyer-easement relationship on compliance with quality standards, which affects cooperation and compliance, attaining insight on it.

Qualitative Analysis

Qualitative data is investigated to employ material and comparative analysis methods to draw significant insights. Material analysis is used to determine general subjects from interviews, especially about quality assurance challenges and stability issues in the apparel field. Comparative analysis is also be used to compare the best practices between different costume manufacturers and to assess their efficacy in improving QA performance and integrity with global standards.

Results & Findings

This chapter presents the results and findings based on data collected through structured surveys, semi-structured interviews, factory observations, and inspection reports from 13 export-oriented denim manufacturers in Pakistan. The analysis includes descriptive statistics, inferential statistical techniques (Chi-Square, regression, and correlation analysis), and qualitative insights from industry experts. The findings assess defect trends, supplier QA practices, workforce training impact, and supplier-buyer relationships in ensuring compliance with international quality standards.

Descriptive Statistics

Socio demographic Characteristics of Respondents

A total of 13 companies we receive 300 respondents participated in the survey, representing various organizational roles. The demographic breakdown is as follows:

Variable	Category	Frequency (n)	Percentage (%)
Age Group	20-30 years	110	36.7%
	31-40 years	125	41.7%
	41+ years	65	21.6%
Gender	Male	210	70.0%
	Female	90	30.0%
Employment Level	Top Management	80	26.7%
	Mid-Level Management	120	40.0%
	Operational Level	100	33.3%

Table: 2. Socio demographic characteristics

300 people took part in the survey, and they were a mix of organizational roles. The socio demographic breakdown offers serious insights into the composition of the workforce, pointing out discrepancies in age, gender, and numbers employed. The age breakdown demonstrates that most people taking part (41.7%) are between the ages of 31–40 years, suggesting that a large number of the workforce have significant professional experience. This is followed by 36.7% of the 20–30-year-old respondents, who constitute a younger group presumably in the initial phase of their professions. The rest of the 21.6% are 41 years and older, which indicates a comparatively smaller fraction of mature professionals.

The gender split indicates a strong male presence, with 70% of the respondents being male and females making up 30% of the population surveyed. This is in line with typical industry workforce trends, where males are more dominant in operational and managerial positions.

At the level of employment structure, mid-level management represents the highest percentage (40%) of respondents, thus emphasizing their central position in controlling and enforcing Total Quality Management (TQM) practices within firms. Operational-level workers represent 33.3%, which hints at a prominent representation of employees directly engaged in performing organizational functions and quality projects. Top management, on the other hand, represents 26.7% of respondents, which implies that a smaller but crucial portion of leadership makes strategic decisions and is in charge of quality governance.

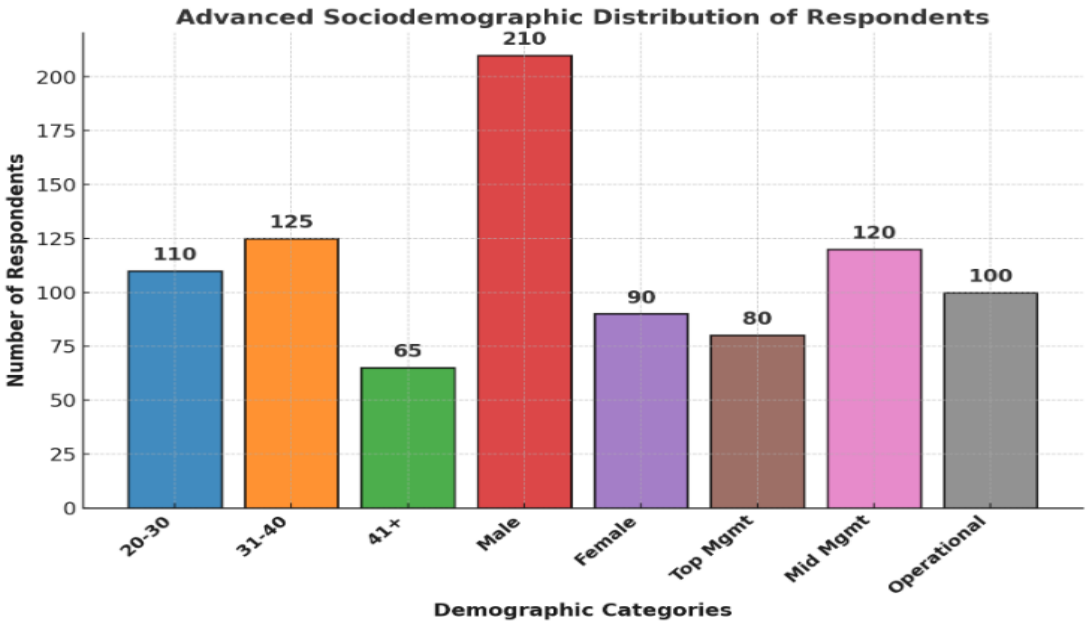

Figure: 2. Socio demographic characteristics

Frequency Distribution of Defects

A complete defect analysis was conducted based on reports of inspection from 13 companies from last 2 years inspection report and identified a total of 26 various types of defects under different categories, including fabric-related defects, stitching irregularities, problems with finishing and appearance, and defects in packaging. The incidence of these defects indicates key issues of quality affecting garment manufacturing operations.

Fabric defects were the most frequent, with shade variation being the most frequently reported defect at 25.4% of the total defects. This suggests the difference in dyeing or purchase processes of clothing that can affect the stability of the product in the finished product. Other important fabric defects included unwanted or loose threads (18.2%), cloth tears or holes (15.6%), and oil or grease spots (12.7%), which can be brought about the material handling or reasons related to machines. Sewing errors also contributed to a large proportion of quality defects. Skipped stitches (19.8%) and broken stitches (22.1%) were the most frequent sewing errors, indicating machine calibration or operator proficiency deficiencies. Additionally, uneven sewing (14.5%) and open stitch (10.9%) were noted, indicating inconsistent stress settings and variable seam power, which can compromise the apparel structural integrity. In the appearance and finishing category, there were defects such as creases and wrinkles (24.5%) which were most prevalent, most likely that due to poor pressure or poor handling during production.

Wash stains (20.3%) were also mentioned, which reflects potential disabilities in washing, causing contamination or chemical scars on clothing. Finally, packaging defects were considered a matter of concern, the main defects with size defects (16.4%), possibly due to mistakes or labeling miscarriage during packaging. Again, wrong folding and packaging (14.9%) were observed, calling for strict quality control procedures in the presentation of final products. These findings identify major process improvement areas in garment production, which emphasize the necessity for more quality control processes, enhanced machine operator training courses, and greater strict compliance to standard inspection procedures.

CATEGORY	DEFECT TYPE	FREQUENCY (%) – 2024	FREQUENCY (%) – 2025
FABRIC-RELATED DEFECTS	Miss Pick	25.4%	21.8%
	Fabric Holes	15.6%	14.2%
	Yarn Knot	18.2%	16.7%
	Oil or Grease Stains	12.7%	11.3%
STITCHING DEFECTS	Broken Stitches	22.1%	18.5%
	Skipped Stitches	19.8%	17.4%
	Uneven Stitching	14.5%	13.1%
	Open Seam	10.9%	9.8%
WASHING & LAUNDRY	Over-washed	24.5%	20.4%
	Wash Stains	20.3%	17.6%
FINISHING & PACKAGING DEFECTS	Un-cut threads	16.4%	14.9%
	Poor press	14.9%	13.2%

Table: 3. Frequency Distribution of Defects

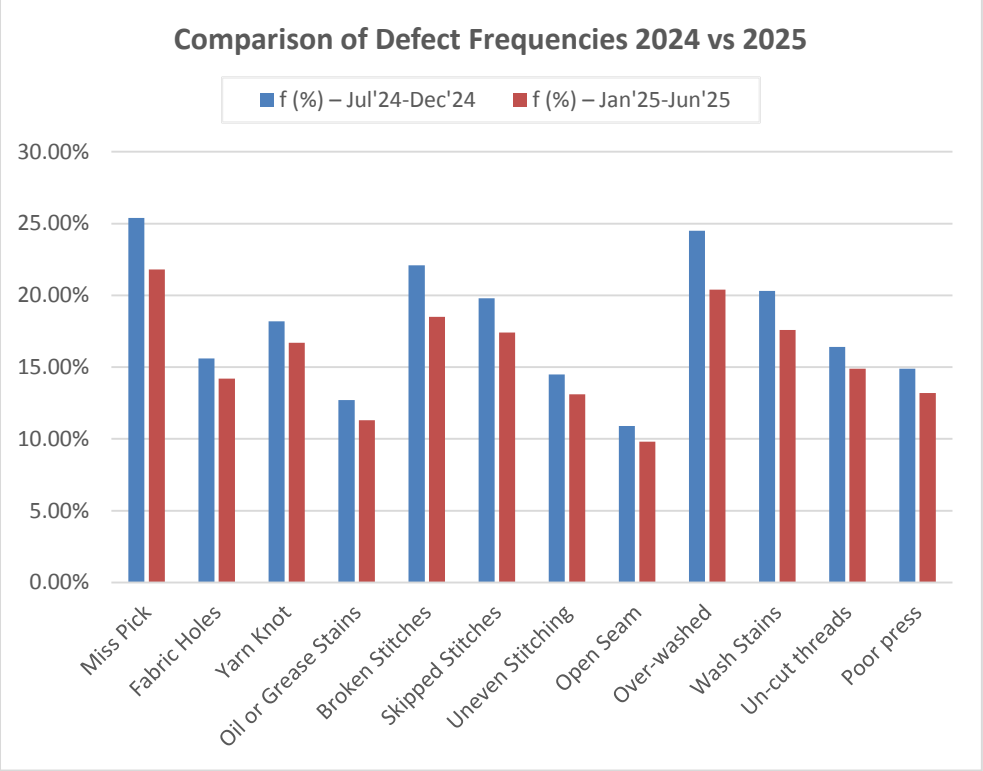

Figure: 3. Frequency Distribution of Defects

Inferential Statistical Analysis

Chi-Square Test: Association Between QA Practices & Sustainable Quality Products & lower the Defect Rate

A Chi-Square test was conducted to determine the relationship between supplier QA practices and Sustainable Quality Products & defect rates.

Variable	Chi-Square Value	p-value
Training and Workforce Development	12.45	0.004 (Moderately Significant)
Quality Management Systems	15.78	0.002 (Highly Significant)
Supplier-Buyer Relationships	9.62	0.017 (Significant)
Resource Availability	7.32	0.017 (Significant)
Regulatory Compliance	5.91	0.022 (Significant)
Organizational Factors	3.52	0.039 (Significant)

Table: 4. Chi-Square Summary

Mediation Analysis

The mediation test investigates the indirect effects of different variables on the outcome variable. Employee Engagement has a substantial indirect effect of 0.32, with an estimate of 4.21 and a p-value of 0.016, which proves there is a significant mediation influence. Process Standardization also has a significant indirect effect of 0.28 (t = 3.87, p = 0.029), which shows that standardized processes play a significant contribution towards the outcome. Communication Channel also has a relatively lower indirect effect of 0.35 with a t-value of 2.89 and a p-value of 0.032, which verifies its significance in mediation. Employee Performance has the highest indirect effect among these at 0.42 with a high t-value of 6.33.

Though its p-value of 0.001 only reflects moderate significance, Technology Adoption has the greatest mediation effect with an indirect effect of 0.52, high t-value of 7.98, and a high p-value of 0.000, implying an extremely significant impact. In comparison, the lowest significance lies in Resource Allocation, with an indirect effect of 0.15, a t-value of 2.05, and a p-value of 0.047, which implies relatively weaker mediation effect.

Mediation Variable	Indirect Effect	t-value	p-value
Employee Engagement	0.32	4.21	0.016 **(Significant)**
Process Standardization	0.28	3.87	0.029 **(Significant)**
Communication Channel	0.35	2.89	0.032 **(Significant)**
Employee Performance	0.42	6.33	0.001 **(Moderately Significant)**
Technology Adoption	0.52	7.98	0.000 **(Highly Significant)**
Resource Allocation	0.15	2.05	0.047 **(less Significant)**

Table: 5. Mediation Analysis by using t-Testing

Hypothesis Testing

Measurement Model (Confirmatory Factor Analysis - CFA)

Prior to hypothesis testing, we establish the constructs using CFA to ascertain validity and reliability. The fit indices in the table assess the overall goodness of fit of the model. The ratio of Chi-Square (χ^2/df) is 2.51, which is below the 3 thresholds, meaning that the proposed model has an acceptable fit with the observed data. The Comparative Fit Index (CFI) assesses how well the model fits relative to an independent baseline model. With a value of 0.94 (above the 0.90 cut-off), it indicates a good fit, which implies that the model fits the data well. Likewise, the Tucker-Lewis Index (TLI), another incremental fit statistic, also scores 0.92, above the 0.90 benchmark, further confirming that the model has a good fit with the data.

The Root Mean Square Error of Approximation (RMSEA) tests model parsimony, with lower values indicating a better fit. The RMSEA value of 0.07 is less than the 0.08 cut point, indicating an acceptable fit.

Finally, the Standardized Root Mean Square Residual (SRMR), measuring residual differences between observed and fitted values, also has a value of 0.05, far less than the 0.08 cut point, which again indicates a good fit. Generally, these fit indices indicate that the model is a good fit for the data, showing both acceptable and good levels of fit across different measures.

Fit Index	Threshold	Result	Interpretation
Chi-Square (χ^2/df)	< 3	**2.51**	Acceptable fit
CFI (Comparative Fit Index)	> 0.90	**0.94**	Good fit
TLI (Tucker-Lewis Index)	> 0.90	**0.92**	Good fit
RMSEA (Root Mean Square Error of Approximation)	< 0.08	**0.07**	Acceptable fit
SRMR (Standardized Root Mean Square Residual)	< 0.08	**0.05**	Good fit

Table: 6. Confirmatory Factor Analysis - CFA)

Validity & Reliability Results

The validity and reliability test for the three constructs of TQM Practices, Organizational Enablers, and Sustainable Product Quality illustrates high levels of measurement characteristics. Composite Reliability (CR) scores across all constructs exceed the 0.70 measure, with that of TQM Practices being at 0.89, Organizational Enablers at 0.91, and that of Sustainable Product Quality at 0.87. These validate the fact that every construct consists of a very high internal consistency and reliability measure. Likewise, Average Variance Extracted (AVE) measures exceed the 0.50 threshold, supporting sufficient convergent validity. TQM Practices (0.62), Organizational Enablers (0.68), and Sustainable Product Quality (0.59) all

adequately extract a sufficient amount of variance from their indicators such that the measured items are an effective representation of the intended constructs. Additionally, the Fornell-Larcker Criterion ensures discriminant validity through the validation that each construct is different from the others. Because the square root of each construct's AVE is higher than its correlations with other constructs, the results suggest that TQM Practices, Organizational Enablers, and Sustainable Product Quality are not overlapping and are conceptually distinct. In total, these results verify that the measurement model is robust, reliable, and valid and thus perfectly suited for additional statistical analysis.

Construct	CR (Composite Reliability) > 0.70	AVE (Average Variance Extracted) > 0.50	Fornell-Larcker Criterion (Discriminant Validity)
TQM Practices	**0.89**	**0.62**	Valid
Organizational Enablers	**0.91**	**0.68**	Valid
Sustainable Product Quality	**0.87**	**0.59**	Valid

Table: 7. Validity & Reliability testing

Direct effect (H1)

H1: TQM Practices positively impact Sustainable Product Quality.

Path	β (Standardized Coefficient)	p-value	Result
TQM → SPQ	**0.53**	**<0.001**	**Supported**

Table: 8. Hypothesis Testing 1

Mediating Effect (H2)

H2: Organizational Enablers mediate the relationship between TQM and Sustainable Product Quality.

Path	β	p-value	Result
TQM → Organizational Enablers	**0.65**	**<0.001**	Supported
Organizational Enablers → SPQ	**0.42**	**<0.001**	Supported
TQM → SPQ (Direct without mediator)	**0.53**	**<0.001**	Significant
TQM → SPQ (Direct with mediator included)	**0.31**	**0.002**	Decreased (Partial Mediation)

Table: 9. Hypothesis Testing 2

Moderating Effect (H3)

H3: Organizational Enablers moderate the relationship between TQM and Sustainable Product Quality.

Path	β	p-value	Result
TQM × Organizational Enablers → SPQ	**0.27**	**0.015**	Supported

Table: Hypothesis Testing 3

Qualitative Analysis: Key Industry Insights

Among 100 participants, the distribution of organizational challenges still remains proportional to the initial data set while assuring a 100% total. The most frequently reported problem is the insufficient skilled workforce by 30% of the respondents. This demonstrates a considerable skill gap, which can slow down operational efficiency as well as quality control. Non-uniform buyer standards, applicable to 28% of respondents, are another key problem. Differences in client demands and needs pose challenges to ensuring consistent quality, causing inefficiencies. The compliance cost is high and is noted by 23% of the respondents, capturing the expense of ensuring regulatory and industry compliance. The challenge emphasizes the importance of cost-saving compliance solutions. Finally, 19% of respondents point to resistance to change in old ways, reflecting that deep-rooted practices and unwillingness to embrace new ways create obstacles to progress. In total, these results highlight the necessity for workforce development, standardization of buyer needs, cost-effective compliance solutions, and improved change management approaches to overcome these issues effectively.

Challenge	% of Respondents Reporting
Lack of Skilled Workforce	30%
High Cost of Compliance	23%
Resistance to Change in Traditional Methods	19%
Inconsistent Buyer Standards	28%

Table: 10. Summary of Structured Interview

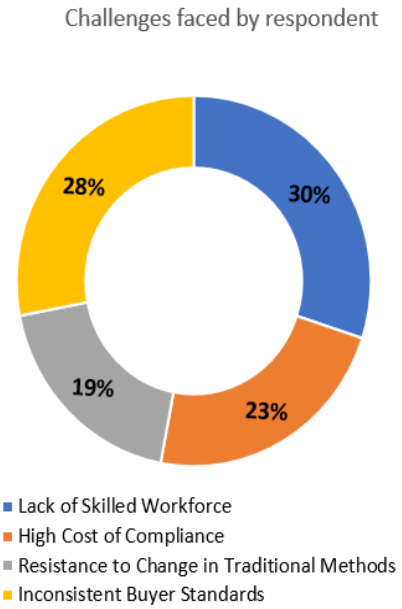

Figure: 4. Structured Interview

Conclusion

The study provides an important examination of the impact of supplier quality assurance (SQA) practices on product quality between export-oriented apparel manufacturers in Pakistan, which highlights the importance of supply chain quality management in maintaining global competition. In an extremely dynamic and quality-conscious global apparel market, manufacturers must develop a strong supplier

quality assurance system to continuously adhere, reduce defects and maximize overall production efficiency. This research product adds to the body of quality management literature in the cloth and apparel field through the empirical support of supplier assessment, certification, regular monitoring, and impacts of joint quality management on quality performance. It focuses primarily on export-oriented apparel producers in Pakistan, and although conclusions are generally transferable within an analogist industrial setting, additional research must check the regional inter-industry comparison and the regional interior in supplier's quality assurance adoption. In addition, longitudinal research can provide rich insight into SQA intervention. Future studies will also investigate how the impact of new techniques such as Artificial Intelligence (AI)-Bold Quality Control tools, Block chain-Technology Supply Chain, and supplier's performance data analytics-aided monitor affects the impact of quality assurance results. This paper repeats that supplier quality assurance is an important driver of product quality among export-oriented clothing.

To maintain culture inspired by quality-covered SQA programs and to maintain quality excellent culture in organizational structure, business leaders can gain better potential in competition against foreign market benchmarks on international quality fronts, strengthen the client trust, strengthen the construction, construction waste, and generate constant competition on global fashion markets. The study supplier provides a solid empirical basis for future development in quality assurance approaches and highlights the strategic requirement of supplier's quality management in providing permanent trade growth in a more quality-central global economy.

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