South Asian Journal of Operations and Logistics
Vol. 3, No. 1, pp. 25-38
DOI: 10.57044/SAJOL.2024.3.1.2423
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Impact of green supply chain management on the sustainability: A study on textile industry

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Article History

Received: 20 May 2023
Revised: 02 January 2024

JEL Classification
J20
L67
P47

ABSTRACT

This research examines how green supply chain management affects business sustainability. Green purchasing, green manufacturing, green distribution, and green packaging. It falls in the explanatory form of research, which focuses on knowing the impact of green supply chain management on firm performance. the research focuses on examining theories or phenomena which were available previously from Pakistan's textiles. We use primary and secondary data from our research, which is quantitative. A survey approach is adopted in this research; hence, questionnaires are used to collect data. Data was collected stepwise through a questionnaire using a Likert scale filled by the employers of the supply chain department of the organization from the textile sector in Pakistan. Six textile industries in Karachi were selected. The total sample size was 50; we use random sampling as its most basic method, where every population unit has an equal opportunity to be included in the random sampling. The findings of this study show that all four dimensions of green supply chain management, i.e. green manufacturing, green purchasing, green packaging and green distribution, have a positive impact on the sustainability and performance of the textile industry and are positively related to economic performance by reducing energy savings, reduction of waste, less packaging help firm develop environmental performances as they closely related to economic performance are rapidly adoptable by the firms.

Keywords: *Textile, Manufacturing, Supply chain management, Sustainability, Environmental performance*

Citation of this article:

Hassan, M. (2024). Impact of green supply chain management on the sustainability: A study on textile industry. *South Asian Journal of Operations and Logistics, 3*(1), 25-38. https://doi.org/10.57044/SAJOL.2024.3.1.2423

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1. Introduction

The term green supply chain is a mixture of multifaceted matters that combines essentially from building social and environment-friendly management practices Related to supply chain (Eltayeb et al., 2011). GSCM directs to decrease or banish leavings, including dangerous chemicals, emissions, solid waste and energy along the supply chain. It plays a significant role in promoting the environment in any way that involves supply chain operations, hence aiding in achieving sustainability goals. Logistics, procurement, packaging, distribution, and production are seven business operations that require coordination and integration (Green, 2012; Rashid et al., 2023). According to Srivastava (2007), the organization was founded to incorporate an environmental viewpoint into supply chain management. Material selection and sourcing, product design, manufacturing process, and product distribution to the conclusion of the product lifetime are all stages that ideas cover. The partnership is now tremendously worried about the impact of their movement on the environment, which is astounding. Green Supply Chain Fostering has become an important concept; material makers' priorities are enhancing their SC capacity, affordability, and investment.

Due to increased demand from consumers, environmentalists, and government restrictions, the manufacturing industry strongly emphasizes green products. Supply chain management is a value chain that spans all aspects of a business, from product and service development to customer assistance after purchase. Organizations must collaborate closely with upstream and downstream suppliers to correctly manage their supply chain environment during greening. it's a collection of product lifecycles (Handfield, 2002). Sustainable Design refers to using natural, organic, and recyclable materials in design to produce zero waste. In other words, it generates the previous output from the new input. Green manufacturing is a corporate approach that tries to save resources, reduce the consumption of new raw materials, and restrict the use of harmful chemicals in purchasing and manufacturing decisions to prevent adverse environmental impacts.

We will look at how the textile business operates now in this article. Then, based on worldwide environmental trends, we look at the critical features of a successful environmental information system, focusing on supply chain management, and ultimately, we establish a suitable operating mode for Taiwan's textile sector. Hoyu Textile Co., Ltd. is one of the few significant companies worldwide with fully integrated upstream and downstream supply chains. HoYu recently committed to environmentally friendly design and converting recycled PET bottles into PET and PET fabrics. Hoyu is also dedicated to ensuring its products comply with applicable laws and regulations by decreasing hazardous ingredient concentrations, conserving natural resources, and providing a safe working environment. Hasan (2013) also mentioned that businesses increasingly adopt SCM methods to reduce environmental effects. GSC growth has a strong reputation in the textile industry, and SC is a company that is more focused on enhancing efficiency, visibility, and cost savings. Now that the company has developed enough, it employs strategies to reduce manufacturing costs by eliminating waste, as this is the most straightforward approach to compete in the market. It is the primary motivator for businesses to adopt GSCM methods to improve their performance (Jabbour B, 2014). The goal of GSCM is to lessen the environmental effects of our products and the environmental damage they cause. Pakistan's textile sector is critical to the country's economic recovery. Much research has been done in Pakistan's cement, industrial, and automotive industries, but it has received.

Pakistan's textile industry is the country's most important industrial sector. Pakistan is Asia's sixth-largest exporter of textiles. There are several textile businesses in Pakistan, and the textile sector employs more than 30% of the country's workers. After China, India, and Bangladesh, Pakistan is the world's fourth-largest cotton producer. Textile industries play an important role in emerging countries' economies. The acceleration of industrialization, the world's ever-increasing population, the resulting

decline in clean water supplies, and the quick rise in energy costs and environmental issues. The textile industry uses a lot of chemicals and water, and it has been labelled as one of the world's most significant pollutants. Textile chemicals evaporate into the air, dissolve in wastewater discharged into the environment, and are absorbed by human skin via fabric adhesion. Fresh water is a limited resource that is rapidly diminishing. Textile treatments need much energy to heat, dry, and run the machines, which increases greenhouse gas emissions and carbon footprints. Textile manufacturing generates waste in various forms, including liquid, solid, and gaseous waste. Air pollution is any chemical, particle, or biological substance that damages or disrupts human or other creature entrance into the atmosphere.

Green supply chains may reduce pollution and manufacturing costs while boosting economic growth, giving businesses a competitive advantage in terms of increased customer satisfaction, a positive image and reputation, and more export potential. Green marketing is designed to demonstrate how a company's goal is to decrease the negative implications of its products. Green sourcing is the purchase of items and components that are environmentally friendly; green manufacturing approaches decrease adverse effects while simultaneously enhancing company profitability. Businesses may improve their image while cutting costs using green transportation and reverse logistics methods. Undoubtedly, energy and fossil fuels are the main contributors to climate change, global warming and pollution due to increasing carbon and greenhouse gas emissions. Firms may improve their operational performance by implementing GSCM methods to increase the quality of the product and the speed with which it is delivered. Green supply chain management strategies also help firms reduce carbon emissions, eliminate waste from the end-to-end supply chain, and promote reuse, recycling, and remanufacturing concepts through practical and robust engagement with suppliers. The topic of this study is to discuss the influence of the GSCM on Pakistan's textile industry's export and environmental performance. It is a type of quantitative research. It is conducted to determine the effect and importance of GSCM (green manufacturing, green purchasing, green packaging and distribution) on sustainability. This research aims to determine how Green Supply Chain Management (GSCM) affects business sustainability. Green purchasing, green manufacturing, green distribution, and green packaging are all examined in this study.

1. To what extent is the period required for textiles to be in practice with green manufacturing in the next three years?
2. How does green procurement affect organizational performance?
3. Should green packaging create a more sustainable environment?
4. Does green distribution improve the health of citizens due to less CO_2 emission?
5. An increase in Sustainability may create a positive impact on the growth of a country.

The research will redound from the perspective of the textile industry to determine the GSCM effect on organizational performance. The research's findings will support the existing literature on executives and accepting GSCM variables. In addition, the data produced from this study will be beneficial in evaluating green supply chain operations in the textile industry and the effect of factors studied in the research on organizational performance. Furthermore, relevant ideas can be taken by the firms, students and stakeholders to make strategies for those factors affecting organizational performance. Thus, the outcome of this study will be helpful for the textile industry to assess their GSCM practices.

2. Literature Review

GSCM is a concept that aims to include environmental considerations in supply chain management (SCM). GSCM strives to eliminate emissions, energy, hazardous chemicals, and solid waste throughout the supply chain, including product design, material sourcing and selection, manufacturing process, and distribution. Logistics, purchasing, marketing, and manufacturing must be coordinated and linked (Green, 2012).In this study, we determine if green supply chain management strategies (green purchasing, eco-design and packaging, distribution and warehousing, and green manufacturing) impact corporate performance in the textile industry (Carter, 2000). Ensuring these

factors are addressed is critical in Green supply chain management (GSCM). The organizational ecology theory looks at how structured population changes and develop over time as they go through the stages of formation, growth, transformation, decline, and death. The idea illustrates the potential of the political and economic system to expand organizational variety, establish new ones, and diminish organizational diversity, for example, by replacing specific types of organizations with competition. The theory also addresses the dynamics of an organization (Hannan, 2009).

Five concerns are addressed by organizational ecology theory:

a. The reasons for organizational diversity,
b. The distribution of different organizational forms in different environments,
c. The influence of the environment on the distribution of organizational forms,
d. The rate of change in organizational forms (Reydon & Scholz, 2009),
e. How short-term processes combine to create long-term organizational characteristics (Hannan, 2009).

The study of organizational variety is the subject of organizational ecology. The study of how social factors impact (a) the formation of new forms of organization and organization, (b) the disappearance of forms. Organization and organization, and (c) the pace of change in the organization of forms is its major interest. The evolutionary dynamics of factors that impact organizational diversity are highlighted. Moreover, organizational ecology investigates the function of selection processes rather than adaptation, which is prevalent in organizational study. The essential concepts of organizational ecology can be stated briefly in their classical form. After organizational synthesis, changes in the organizational population are mostly basal (birth) and organizational breakdown under high inertial pressure. (death). Most organizational ecology investigations focused on putting the selection or demographic process principles of tissue populations to the test.

Businesses are being pushed to reexamine their environmental practices as the number of environmental problems produced by-products has increased in recent years. Manner; enforcing reformed environmental policies just within the confines of specific businesses was insufficient to lessen the environmental damage caused by their products. As a result, the notion of GSCM has been shaped by the need to extend organization's environmental performance throughout the supply chain (GSCM). It is a broad idea developed by creating environmental management techniques throughout the supply chain (Eltayeb, 2011). Supply chain management has been expanded to include environmental issues, allowing every step from material handling and transportation operations to end users, to be planned with environmental awareness in mind (Power & Simpson, 2005). As a result, GSCM's activities might be said to have a broad scope. The fact that GSCM is a new and colossal field that is constantly growing poses several difficulties. In this regard, one of the most significant responsibilities is to establish a uniform framework for GSCM measurement and implementation. As a result, it is vital to describe the dimension of green supply chain management in order to grasp it better. To that goal, numerous GSCM parameters are studied in this work. This section is the primary emphasis of our article. We provide nine ideas that have been utilized to study various GSCM-related difficulties. We concentrated on hypotheses that were discussed or linked to at least two published studies. The majority of the references and articles for GSCM originate from peer-reviewed archival journal papers. The book refers to the majority of generic organizational ideas. The nine theories are as follows, in alphabetical order: complexity; ecological modernization; information; institutions; resource-based perspective; reliance on resources; social network; shareholder; and transaction cost economics theories. Companies find it more difficult to plan and predict organizational operations, such as GSCM implementation, as complexity grows. When it comes to system adaptation, businesses must be responsive to an interconnected and developing environment (Crozier, 1976).

2.3 Ecological Modernization (EMT)

EMT is a comprehensive theory of eco-innovation that aims to accomplish industrial growth and environmental conservation through innovation and technical advancement or "modernity." At least two components of EMT, new pollution legislation and technology developments, have the potential to affect GSCM research and practice (Jänicke, 2008; Murphy & Gouldson, 2009)

2.4 Green Purchasing

Compared to competing products or services that fulfil the same function, green purchasing refers to the procurement of items and services that have a smaller or reduced impact on human health and the environment. This type of shopping is an example of using environmentally friendly or sustainable items that are ‘recyclable and 'helpful' to the environment and avoiding things that hurt the environment and society (Mostafa, 2006; Rashid et al., 2019). Green purchasing methods assist your employees and the community around your business by providing cleaner air and water. As a result, you may minimize worker health and safety expenditures and decrease environmental risk costs. According to the study, knowledgeable buyers who consider environmentally desirable variables in the procurement cycle can reduce or even eliminate pollution and energy concerns while simultaneously cutting prices. Indeed, examples worldwide show how incorporating environmentally desirable factors early in the procurement process enhances an organization’s environmental effectiveness while addressing ethical, social, and economic issues.

Given the environmental performance, purchasing via green has a huge impact; based on what was said, the most critical factors in successfully implementing a green supply chain are as follows.

- Criteria that must be met in order to reduce raw material consumption
- The application of innovative technology to improve energy efficiency
- Educating and delivering suitable energy consumption models
- Regulating the conditions that must be met in order to minimize energy usage
- Adherence to technical and environmental norms while purchasing machinery, equipment, and tools.
- Choice of suppliers by environmental criteria
- Cooperation with suppliers for environmental objectives
- Constantly analyzing the state of equipment and determining its fatigue level to ensure no pollution and excessive energy consumption.
- Analytical examination of all production process phases from the resource conservation standpoint.
- Cutting-edge technology for transporting resources, finished goods, and rubbish to reduce waste.
- Waste recycling within the firm.
- Waste contamination of water, soil, and air.
- Water, soil, and air contamination throughout the reprocessing process.
- At the conclusion of a product's useful life, it should be recycled.
- Providing environmental education and advice to individuals.
- Creating an atmosphere in which environmental concerns may be studied and recommendations made.
- Waste recycling outside the firm.
- Encouraging a green culture in the workplace.
- Establishing control and monitoring mechanisms to ensure compliance with environmental regulations.
- Creating a mechanism for educating staff.
- Senior and intermediate managers supporting the green supply chain.

- TQM in the environment (Total Quality Management Environment)

2.5 Green Manufacturing

Green manufacturing is strongly intertwined with understanding sustainable development's importance. Green manufacturing aims to create more secure and ecologically friendly goods while reducing waste of raw materials and energy, decreasing environmental responsibility, and better cost-effectiveness while adhering to environmental regulations to be known as a good firm. Many specialists have been performing studies to determine the company's benefits from adopting green manufacturing. Green manufacturing has a significant and positive influence on environmental and social performance and favorable impact on business success. Green manufacturing may help organizations save money on raw materials, minimize environmental expenses, and enhance their image. Environmental knowledge has an impact on consumer purchasing decisions. Consumers are becoming more aware of the importance of green products. The notion of green manufacturing has an impact on supply chain management as well. Green practices have a favorable influence on increasing the performance of the organization. The organizations have several ways to implement the concept of green manufacturing:

- Manufacturing items that will be recyclable.
- Making use of recyclable raw materials
- Ensure use of a non-hazardous material.
- Using reusable packaging.
- Use of more energy-efficient devices.
- Reducing the raw materials usage.

The green practices on manufacturing or operations functions in the business of covering:

- Use environmentally friendly operational practices to focus on profitability.
- To prevent ecological harm, plant indigenous trees and foliage and reuse rainfall or cycled grey water.
- Redesign processes and use alternate materials.
- Produce long-lasting products from conception to disposal while avoiding environmental harm to enable long-term development.
- Find green alternatives to hazardous items that are at least as good as or better than the
- Original at a cheaper cost.
- Consider the costs of regulations, energy usage, storage, and disposal as input costs.
- Save money by reducing raw materials, energy usage, and hazardous waste.
- Use environmentally friendly materials, techniques, and processes, and make sure you're getting the most out of your basic resources.
- Increase operational revenue by recycling waste items (such as plastic, paper, and glass) and consider expanding manufacturing capacity.
- Reduce waste with effective asset management.
- To maintain effective asset operation, choose wisely between new and pricey advances and less expensive equipment alternatives.
- Use non-renewable energy sources and reduce emissions, effluents, and accidents.
- Incorporate green goals into profitable outputs via lean manufacturing.
- Production methods, tools, and procedures must meet environmental and commercial criteria.
- Research and development should look at new sustainable techniques of obtaining raw materials and new ways to reduce energy consumption and waste

in manufacturing processes.

2.6 Green Packaging

Green packaging is associated with demonstrating responsibility for upkeep, environmental activities of businesses, and green product qualities in the marketplace (Kumar & Ghodeswar, 2014). Green packaging refers to promoting and using packaging that improves the manageability of commodities (Kumar, 2017). Green packaging refers to containers that do not hurt future generations, do not waste and reduce the use of underground resources, provide fair wages, and provide safe working conditions (Quoquab, 2017). Green packaging is essential not only because it is linked to other stages of the value chain, but also because it directly impacts the environment (Sarkis, 2003). Packaging, biodegradability, minimizing packaging, and employing paper wrappings are all simple green packaging solutions. The use of polystyrene is reduced, disassembly is straightforward, and packing is more accessible. Due to growing awareness of environmental implications, many scholars have recently been drawn to studying and investigating green supply chain management (GSCM) in numerous fields and industries. Packing has long been considered a major green logistics project since it significantly impacts the environment and operating excellence. The sustainability design concept's essential task in agricultural perishables is to balance the function of sustainability and the critical. In general, a simple new packaging could improve the performance of a Small and Medium-sized Enterprise (SME). This viewpoint is also based on the works of (Chukwuma et al., 2018). We conclude that the marketing strategy used in bakery businesses, in the form of product packaging, impacts the quality of small and medium-sized bakery firms in south-eastern Nigeria and increases sales efficiency.

2.7 Green Distribution

According to Rashid et al. (2023), distribution through green channels is a vital activity that impacts a green supply's performance. All activities aimed at reducing/eliminating environmental damage and waste during shipment are called green distribution. Firms that follow GSCM approaches must ensure that both the business and its people fulfil both entire company goals and individual employee goals, such as cost-cutting, cycle-time reduction, improved quality of the environment, and overall increased consumer values by choosing modern energy vehicles that run on pure electricity, natural gas, ethanol, or gasoline hybrid technology, or fuel freight trucks that comply with higher pollution laws. The organization's structure must be improved in the second step. Innovative distribution methods such as collaborative and centralized distribution can be utilized to promote the integration of distribution resources and avoid invalid transportation. Third, in terms of information technology, raise the bar. By building an information service platform, for example, the efficiency of distribution's supply and demand relationship could be improved, and the number of empty trains might be reduced. All of them have substantially impacted the conservation of the environment in cities. Sustainable distribution techniques reduce carbon dioxide emissions, are cost-effective, and improve the quality of life for the world's future population. Green distribution strategies include everything from changing how distribution centers and trucks are powered to requiring more transparency about the environment and distribution operations. Every other important aspect of green distribution is the storage facility. The garage should be able to store only specific types of substances. Green distribution (GD) entails (1) eco-friendly product labelling and (2) package development that is environmentally friendly. (3) Use an alternative mode of transportation that is more environmentally beneficial.

2.8 Sustainability Performance

This complex issue has no simple solution, especially given that sustainability is a goal that everyone strives for and is constantly striving to achieve. Researchers have advocated for the proposed version of green distribution and green packaging, as well as overall performance sustainability, which includes (1) financial performance, (2) environmental performance, (3) operational performance, and (4) social performance as vital performance indicators. GSCM and

economic performance. Economic performance is related to the manufacturing plant's ability to reduce costs associated with purchased materials, energy consumption, waste treatment, waste discharge and fines for environmental accidents (Zhu et al., 2008). This study also included elements such as profitability and sales. One of the most controversial issues related to GSCM is whether green operation has a cost to business (Hart, 1996). There are different opinions on this subject. The first opinion states that GSCM will bring some costs. For instance, Bowen et al. (2009) stated that environment-related practices do not affect short-term profitability and sales performance, while Min and Galle (2001) pointed out that green purchasing increases the costs of a business, which in turn affects the business's financial performance negatively. The global movements and changes that have taken place in recent years have led enterprises worldwide to work on social responsibility, and the community has been required to approve the activities businesses carry out. Therefore, the importance of social sustainability in maintaining corporate sustainability has emerged, and businesses are inevitably sensitive to stakeholder relations.

3. Research Methodology

Explanatory study, according to Cohen et al. (2000) and Rashid et al. (2016), aids in determining the cause of occurrence for a particular phenomenon. This study frequently discusses a problem or an issue in casual relationships and is closely related to the quantitative method. Using this procedure, a new intuition can be used to develop, expand, build, or examine a theory. Explanatory research aims to discover concerns and critical variables in a given topic. As per Creswell (2014), the qualitative method extensively materializes about a specific topic. This approach involves one person reflecting the community of an individual's feelings and reflection, which the quantitative method ignores (Khan et al., 2023a, b; Khan et al., 2023; Rashid et al., 2019).

It falls in the explanatory form of research, which focuses on knowing the impact of green supply chain management on firm performance. Explanatory research helps determine the cause of a phenomenon's existence (Cohen, 1989; Rashid et al., 2023; Hashmi et al., 2021a, b). This type of research design is quite relevant to the quantitative method and usually identifies issues and problems in casual relationships. A new insight can be used to expand, develop, build, or test a theory by adopting this method. However, the research examines theories or phenomena previously available from Pakistan's textile sector through quantitative data collection. The research strategy outlines the data collection approach and analyzed with a set of targets. According to (Easterby-Smith, 2018; Rashid & Rasheed, 2023), the research strategy resembles responding to just research questions. Yin (1994) stated that there are five main strategies of research, i.e. archival analysis, case study, surveys, history and experiments. A survey approach is adopted in this research; hence, questionnaires are used to collect data and fill them out by the respondents from the textile sector in Pakistan. The survey research strategy collects the data using structured surveys, questionnaires or interviews (Creswell, 2014; Rashid et al., 2021; Rasheed & Rashid, 2023).

3.1 Target Population

A population might be defined as anything or persons a researcher is curious about. Simultaneously, sampling selects a subset of a population for research to assess people's attitudes, opinions, and attributes (Hair, 2003). Two types of sampling procedures generally exist: probability sampling and non-probability sampling (Hashmi et al., 2020; Rashid et al., 2021). The following describes the main sampling techniques and methods for business or commercial studies. Our research is based on probability sampling. It is a technique for collecting data from a large number. Probability sampling is a method whereby each unit is chosen with the same probability. Simple random sampling, stratified random sampling, systematic random sampling, and multi-stage cluster sampling are all forms of probabilistic sampling (Hashmi et al., 2020a, b). The sample size of our research is around 50 correspondents; we use random sampling at its most basic. Sampling method where every population unit has an equal opportunity to be included in the random sampling (Rashid, 2016; Hashmi & Mohd, 2020; Rashid & Amirah, 2017). This approach uses computer software to create a random number from a list of numbers provided by the respondent.

We use primary and secondary data from our research, which is quantitative. Data was collected stepwise through a questionnaire using a Likert scale filled out by the employers of the supply chain department of the organization. Six textile industries in Karachi were selected. The total sample size is 50. The technique of going for a subset of the population for investigation in order to assess the attitudes of people, views, and attributes is known as sampling (Hair, 2003). A pre-designed questionnaire is used in a sampling survey to examine people's opinions and attitudes. When it comes to choosing a sampling method, it is determined by the type of the data. The research could have both practical and theoretical ramifications. Data was collected stepwise through a questionnaire using a Likert scale filled out by the employers of the supply chain department of the organization. Six textile industries in Karachi were selected. The total sample size is 50. The questionnaire is filled as a data collection tool.

3.2 Research Instrument

The quantitative technique is used if the researcher follows a positivist ideology. A survey questionnaire can be an efficient way to measure respondents' responses for data collection. According to Churchill (1979), items can be generated in two stages: defining the domain and developing the item. Second, the establishment of an item scale (item scale) to confirm the content validity of the concept taken from a review of the literature) also made three essential points. Using a survey questionnaire, you can achieve your research goals. The first is that research data is quantitative; the second is that research data is qualitative. The instruments that will be utilized are pre-determined. Finally, research is required to examine the outcome of a study with a representative sampling of the total population. It is a single instrumental case study in which the textile industry is selected. It is a time, space, and place-bound program which covers issues in a given context.

4. Results and Findings

A detailed analysis and arguments related to how the green supply chain in the textile industry has an impact on demand and the environment. Recommendations, conclusions and limitations are also discussed in the last chapter. The descriptive profile of the analysis is formed based on the responses collected from the employees of various organizations. The data was gathered using questionnaire. These questionnaires were distributed among employees of various and multiple organizations in order to collect data which can highlight the impact of the green supply chain and its functions. This research's validity and reliability rely on the gathered data's trustworthiness. This means that we can validate the information that has been collected through a questionnaire (Garver, 1999). The questionnaire was given to evaluate and analyze the responses which were filled by the employees. The method of member check was adopted to confirm the trustworthiness and help in the validation process (Hashmi, 2022; 2023).

Accuracy tests for statistical measurement show different measurements for evaluating the reliability and validity of the study construct. Cronbach's alpha (or coefficient alpha) was established in 1951 to quantify and used to determine reliability or internal consistency. These tests are used to determine the reliability of multiple-question Likert scale surveys. These questions assess latent factors or hidden or unobservable qualities, such as a person's conscientiousness, neuroticism, or openness. In actual life, these are extremely difficult to quantify. It determines how closely a group of test items are related. The closer the coefficient is to 1, the stronger the internal consistency of the scale item. The alpha coefficient for all the items is 0.537, indicating an acceptable level of reliability. Regression is a statistical word that refers to using a statistical technique to discover relationships within a set of data. It is a metric for determining how changes in an independent variable affect the dependent variable.

5. Discussions, Conclusion and Recommendations

5.1 Discussions

This research contributes to the development of GSCM, to study the practices of GSCM theory in textile sector and to check the relationship between GSCM and firm's sustainability performance. Textile sustainability, or sustainable textiles, must be environmentally friendly and meet rational standards to respect social and environmental quality by preventing pollution or installing pollution control systems. Certification, on the other hand, is a choice. Any entity conducting business in which a standard exists may request certification of its output or services. However, the literature said that investments made practicing GSCM increase the cost burden and affect economic performance negatively (Khan et al., 2021; Haque et al., 2021). The findings of this study show that all four dimensions of GSCM, i.e. green manufacturing, green purchasing, green packaging and green distribution, have a positive impact on the sustainability and performance of the textile industry and are positively related to the economic performance by reducing energy savings, reduction of waste, less packaging help firm develop environmental performances as they closely related to economic performance are rapidly adoptable by the firms (Baloch & Rashid, 2022). One of the most significant industrial pollutants of freshwater is the textile industry. It is considered the second and most significant polluting industry as the average life span of a garment is hardly three years, resulting in a considerable amount of waste product, and it is impossible to avoid wastage during production. Occasionally, wastewaters with significant chemical loading, extreme pH values, and temperatures are released (primarily untreated) into groundwater. Excessive usage of toxic chemicals in dying washing and bleaching of each garment, massive waste production, transporting heavy loads, high energy consumption related to air emission, packing materials in excess, and excessive water usage (Das et al., 2021).

5.2 Conclusion

This research aims to study the impact of the green supply chain in the textile industry in Pakistan. This is because many environmental issues are rising day by day. Rather than using materials harmful to nature and creatures, it is better to use fewer chemical-made products. Proper awareness should be given to industries by officials to make it considerable in every firm as this creates more value to their products, this could be a cost-cutting, and nature-friendly product which helps increase their demand in market as people nowadays seeking for this thing to make it public through social media and almost everyone in city is facing difficulties from this in form of less greenery or more diseases or climatic change due to pollution made by industries specially we are talking about textile as Pakistan is a significant exporter of textile products. Moreover, green manufacturing and sustainability, green packaging and sustainability, green distribution and sustainability, and green purchasing and sustainability are covered, keeping in mind every need of the industry to apply a green supply chain.

Therefore, this research helps explain why the textile industry should prefer to implement GSCM and how it can impact their organization's performance. To find this, data was collected from respondents to find the impact of GSCM. After gathering the data, Cronbach Alpha, KMO and Bartlett's Test, Regression, Correlation and ANOVA tests were run on the SPSS to study or examine the results of the Independent Variables (green manufacturing and sustainability, green packaging and sustainability, green distribution and sustainability, green purchasing and sustainability), on Dependent Variable (sustainability).

5.3 Implications

This research provides implications for the textile industry—the relevance of a green supply chain management strategy. Our findings suggest that firms may gain financially from green manufacturing and distribution packaging strategies. Pakistani industries seem to have overlooked green purchasing techniques. Green purchasing is a critical element that will decrease the company's environmental effects. Textile businesses must have stronger environmental partnerships and support their suppliers' environmental practices. It is critical to the implementation of green practices. On environmental problems, this technique allows for more effective collaboration with consumers, suppliers, and distribution channel partners. As a result, textile companies should put more money

into GSCM. It is a set of operations that assist in preserving natural resources, saving energy, and preventing environmental impact by disposing of things that have reached the end of their useful life, in addition to the economic benefits it brings to businesses. Recycling activities in the textile industry should be supported more by GSCM.

5.4 Limitations

However, the study has few limitations and could be more appropriate by reducing those limitations in future studies. The research depends only on the textile sector; the study could have been more valid if other sectors had been covered. The data is gathered only within the geographical area of one city (Karachi). We only looked at four independent factors, but future researchers could expand on our study by including other variables. Another limitation is that the study only depends on the respondents' thoughts and perspectives, which may change. These considerations have hampered this research.

5.5 Recommendations

Future scholars may benefit from exploratory qualitative approaches as well, and these explorations may yield fascinating knowledge that may inevitably lead to superior comprehension of explicit mediators and moderators. The number of studies conducted on environmental issues has increased nowadays. In future studies, moderator effects may be used to explore and better understand the effects of GSCM in the textile sector. Future studies may also test the model in other economies by testing the influence of IGSCP, GHRM and SCEC on other performance measures, such as environmental and social performance. Further research may investigate different environmental aspects ranging from pollution emission and resource consumption to more proactive like recycling or new business model development. Researchers also shed light on various issues by comparing the low and high impact of green supply chain management practices among the companies in the textile sector.

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