



## Article

# Buyer–Supplier Role in Improving Ergonomics in Garment Supplier Factories: Empirical Evidence from the Garment Industry of Bangladesh

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**Abstract:** Ergonomics is a key concern of garment suppliers to improve their workers' well-being and efficiency. However, suppliers' isolated initiatives are not sufficient to improve ergonomics conditions. Thus, buyers' cooperation and collaboration with suppliers are necessary to make the ergonomic initiatives successful and sustainable. The purpose of this study is to investigate the impact of buyer-assisted ergonomics intervention on suppliers' performance and the role of buyers' assistance and suppliers' initiatives for improving ergonomics conditions in garment supplier factories. Following a qualitative research approach and multiple embedded case study method, this study intervened in supplier factories and collected qualitative and quantitative data from one Danish buyer and their four key suppliers on ergonomics and the role of buyers and suppliers in improving ergonomics conditions. Collected data were analysed by employing both quantitative and qualitative data analysis techniques. This study demonstrates that buyer-assisted ergonomics intervention on the shop floor can improve ergonomics conditions in garment supplier factories. This study also shows that improving ergonomics in supplier factories need joint efforts of buyers and suppliers. The findings of this study will enrich the literature on ergonomics, sustainability, and buyer–supplier relationships by demonstrating how garment suppliers in developing countries can improve ergonomics to meet the expectations of lead buyers and their workers. This is a unique research attempt to understand ergonomics from a buyer–supplier relationship perspective and its impact on the social sustainability of garment suppliers.

**Keywords:** buyer–supplier relations; occupational health and safety; sustainability; garments/apparel industry; developing country



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## 1. Introduction

Ergonomics is a scientific approach to design work, assess the work and its environment, and change or re-design the work to improve performance [1,2]. It plays a significant role in identifying, formulating, and delivering standard work [3]. Therefore, ergonomics can be a viable strategic option for improving the working environment and worker well-being in garment supplier factories [4]. However, ergonomics initiatives are not optimal in garment supplier factories in Bangladesh [4,5]. Due to poor ergonomic initiatives, different physical risk factors such as repetitive body movement, poor seating position, monotonous, repetitive work, poor workstation design, and different ergonomic risk factors such as fixed seating arrangement, awkward neck and back posture, repetitive elbow and wrist movement prevail in the garment industry of Bangladesh [6]. Thus, most garment suppliers in Bangladesh need to improve ergonomics conditions to comply with lead buyers' expected ergonomics standards. However, the garment industry of Bangladesh is a buyer-driven industry where buyers dictate suppliers to fulfil their expectations and suppliers respond accordingly to secure more orders to continue business relations [7]. Unfortunately, buyers

only prescribe suppliers without directly involving and providing necessary support [5]. Therefore, buyers have the potential to contribute substantially to suppliers' ergonomics initiatives. However, most Bangladeshi garment suppliers are unaware of ergonomic development, its impact on worker welfare and social sustainability, and buyers' role in ergonomic initiatives in garment supplier factories.

An extensive literature on ergonomics practices in the garment industry of developing countries has shown a relationship between ergonomics and the working environment [4,6,8,9]. Poor ergonomics practices such as lack of adjustable chairs, poor workstation design, and piecework system are responsible for poor working conditions with a high possibility of muscle pain for sewing machine operators [10]. The leading ergonomic issues that create problems for workers are less movement due to congested work areas, non-adjustable chairs, tables, and workstations [11]. Moreover, unscientific work postures, repetitive actions, and strong visual needs negatively affect workers' physical and mental health, increase compensation costs, decrease efficiency and overall productivity [12]. Furthermore, musculoskeletal disorders occur in sewing lines due to repetitive movements and sitting postures [13]. Studies reported poor ergonomics and occupational health and safety (OHS) conditions in the garment industry of Bangladesh also [4–6,14]. Bangladesh's garment workers have been working under high ergonomics and musculoskeletal health risks [12]. Habib addressed physical risk factors of garment sewing machine workers in Bangladesh such as awkward neck and back posture, frequent hand and arm movement, un-ergonomic workstation design, long working hours, and short breaks, which are the causes of musculoskeletal disorders [6]. However, research on buyer–supplier role in improving ergonomics conditions in garment supplier factories in developing countries is still scarce. The current study is an attempt to fill this research gap.

Researchers suggested ergonomics intervention in the garment industry to improve ergonomics conditions [6,12,15]. Parimalam et al. suggested interventions in garment factories to improve the working environment [15]. Aligned with these suggestions, this study aims to investigate the impact of buyer-assisted ergonomics intervention on garment suppliers' ergonomics performance and buyer–supplier role in improving ergonomics. As implementing any new initiative is not very straightforward and simple in the garment industry, buyer–supplier cooperation and collaboration are necessary [5,16]. Thus, the current study designs a buyer-assisted ergonomic intervention for garment supplier factories. Receiving support from a Danish buyer to access and intervene in garment supplier factories, this study intervenes at the garment shop floor and collected quantitative and qualitative data from the specific sewing line in the four supplier factories. The study findings illustrate that taking the right ergonomics initiatives can effectively improve the working environment and workers' efficiency in Bangladesh's garment industry. The findings of this study contribute to ergonomics, social sustainability, and buyer–supplier relationships literature by demonstrating how the right decision and collaborative initiatives between buyers and suppliers can enhance the ergonomics performance of suppliers meeting buyers' and suppliers' demands. Furthermore, the study findings might help garment suppliers and buyers to make the right decisions to improve ergonomics conditions in their factories.

The remainder of the paper has been structured into five sections. The second section describes the detailed methodology of the study. The third section presents the results of the study. The fourth section discusses the study findings, and the final section concludes the study.

## 2. Materials and Methods

Following a qualitative research approach, an embedded multiple case study method was employed for this study [17–19]. Qualitative approach is suitable for this study due to the aim, research question, and data collection scope [17–19]. As a part of the four years-long research project titled "Productivity and Occupational Health and Safety (POHS) in the Garment Industry" funded by the Danish International Development Agency (DANIDA), this study followed the same intervention design used for the project.

### 2.1. Intervention Design

The intervention in supplier factories is divided into three phases: (a) baseline study to map the prior implementation situation, (b) implementation at the shop floor, and (c) follow up the implemented initiatives. One Danish buyer sourced from Bangladesh for a long-time and their four key suppliers from the garment industry of Bangladesh were selected as case companies for shop floor intervention (see Table 1). The buyer supported in selecting the suppliers by assessing suppliers' absorptive capacity, commitment, and willingness to improve ergonomics condition and giving access to the researchers. To keep the anonymity of the buyer and suppliers, the buyer is denoted as "GB" and the four suppliers as GS1, GS2, GS3, and GS4.

**Table 1.** Characteristics of Supplier Firms.

Suppliers	Year of Establishment	Ownership	Size	Workforce	Product Type	Monthly Capacity
GS1	2006	Private Ltd.	Large	3145	Woven	600,000 pcs
GS2	2005	Private Ltd.	Large	2286	Woven	750,000 pcs
GS3	1999	Private Ltd.	Large	8424	Knit	3,640,000 pcs
GS4	2013	Private Ltd.	Large	1500	Woven and Knit	320,000 pcs

Under the baseline study, researchers introduced an intervention plan, objectives, and processes and asked the factory management to select a single pilot sewing line for intervention in each factory and seek necessary support from the factory management during the intervention (Table 2). Researchers mapped the current ergonomics situation in each supplier factory through observing the selected sewing line and interviewing line supervisor/s, operators, and helpers. Two teams were formed in each factory to ensure smooth intervention implementation: a core team consists of 5/6 human resources from top and mid-management of factories, and an operational team include 5/7 human resources comprise all management levels. The operational team received necessary training on ergonomics from the researchers, and the team subsequently disseminated their understanding with operators, helpers, and the supervisor of the selected line. The researchers also frequently visited the supplier factories to assist the operational team in ergonomics implementation.

**Table 2.** Summary of Selected Lines.

Suppliers	Number of Sewing Lines	Selected Sewing Line	Product Type	No. of Workstation	No. of Workers in Line	No. of Operators in Line	No. of Supervisors/Line Chief
GS1	24	23	Woven	57	40	17	2
GS2	18	F	Woven	53	33	20	2
GS3	110	B5	Knit	28	20	8	1
GS4	14	10	Knit	49	33	16	2

At the implementation phase, researchers took ergonomics improvement initiatives—corrected the position of the head, arm, back, and leg as per ILO guidelines [20]; and ensured easy material reach in the sewing lines at the shop floor level of factories. At the follow-up stage, researchers mainly focused on the sustainability of ergonomics initiatives and the extension to other lines on the shop floor.

## 2.2. Data Collection

Three researchers actively participated in the data collection process. Data were collected in two rounds—from the two suppliers (GS1 and GS2) in the first round and two other suppliers (GS3 and GS4) in the second round. Both quantitative and qualitative data were collected from multiple sources: first-hand shop floor level data, documents, in-depth interviews, and direct observation on the shop floor [17,18]. Quantitative data on ergonomics were collected from a specific pilot line on the shop floor of the four supplier factories using a specific assessment form [21]. In addition to quantitative data on ergonomics in specific forms, qualitative data were collected through face-to-face in-depth interviews in multiple settings from the operators, helpers, and supervisors on the shop floor; directors and senior managers in the four supplier factories and the senior managers at GB's local office at Dhaka (see Table A1 in Appendix A). An interview guide was used for collecting qualitative data. All interviews were conducted between 2016 and 2019. Interviews at the buyer's office were conducted in English, and the interviews at supplier factories were conducted partly in Bengali and partly in English as managers were comfortable in both Bengali and English. Data triangulation was ensured by collecting the same data from various managers and verifying the collected data through different documents such as meeting minutes, policy papers, audit reports, and compliance reports. Each in-depth interview at GB's and suppliers' offices lasted 30 min to 80 min. Most of the interviews were recorded in an audio-recording device with the permission of the interviewees, and some of the interviews were recorded in a notebook, as interviewees were not comfortable with recording. Data were transcribed from the notebook and recording device.

## 2.3. Data Analysis

Both quantitative and qualitative data analysis techniques were used for data analysis. Simple descriptive statistics were used to compare before and after intervention ergonomics condition, and qualitative data were used to understand buyer–supplier cooperation and collaboration for improving ergonomics conditions. Baseline findings (referred to as “Before”) were compared with after implementation findings (referred to as “After”) to understand the impact of the intervention on ergonomics conditions in supplier factories. This study compared standard use of the head, arm, back, and leg position and easy material reach. Quantitative findings were presented in tabular form. The quantitative findings were corroborated through in-depth interviews, observation, and documentation in buyer and supplier firms [17,19]. Narratives were developed based on the collected qualitative data and shared the narratives with the key informants to enhance the validity of the given information. By digging deeper, this study explored what can be the role of the buyer and what support they can provide their suppliers to make ergonomics implementation initiatives successful and sustainable. This study concludes with specific findings based on quantitative and qualitative data analysis.

## 3. Results

### 3.1. Head, Arm, Back, and Leg Positions

Under the baseline study, this study found that line supervisors, operators, and helpers have a limited understanding of ergonomics and its impact on physical and mental health. Even most operators and helpers have no idea why their correct head, arm, back, and leg positions are essential to ensure physical fitness and efficiency. Even the management of suppliers is not concerned about ILO prescribed standards of the head, arm, back, and leg positions. Although the industrial engineering department in GS1 and GS2 and the operational planning department in GS3 have limited initiatives to improve ergonomics conditions, GS4 has no industrial engineering or planning department. After implementing ergonomics initiatives, the assessment shows that all suppliers experienced positive changes except arm position (−3.75) for GS3. Although some of the changes were relatively small, GS1 improved head, arm, back, and leg positions of their operators and helpers; GS2

substantially improved head position; and GS4 considerably improved head, back, and leg positions (see Table 3).

**Table 3.** Ergonomics Condition in Supplier Factories before and after Implementation.

Outcome and Change	Suppliers			
	GS1	GS2	GS3	GS4
Head Position				
Before (%)	67.00	75.00	82.00	72.00
After (%)	89.00	94.00	83.00	79.00
Improvement (%)	32.84	25.33	1.22	9.73
Arm Position				
Before (%)	83.00	95.00	80.00	85.00
After (%)	92.00	97.00	77.00	87.00
Improvement (%)	10.84	2.11	(3.75)	2.35
Back Position				
Before (%)	67.00	90.00	82.00	72
After (%)	79.00	91.00	83.00	81
Improvement (%)	17.91	1.11	1.22	12.50
Leg Position				
Before (%)	50.00	90.00	68.00	66.00
After (%)	92.00	94.00	72.00	77.00
Improvement (%)	84.00	4.44	5.88	16.67

### 3.2. Easy Reach of Materials

This study found that the four suppliers improved their material reach position. GS4 improved reach within 90 degrees most significantly (100%), and GS1 and GS2 improved the same material reach position. However, GS3 reduced (1%) its position. This study did not find any worker and material reach position within 180 degrees with body rotation and 180 degrees with stretch. Although GS3 and GS4 had 5% and 24% workers within 150-degree reach before implementation, they became nil after implementation (see Table 4).

**Table 4.** Easy reach of materials in supplier factories before and after implementation.

Suppliers	Condition	180 Degree with Body Rotation	180 Degree with Stretch	Within 150 Degree	Within 120 Degree	Within 90 Degree
		1	2	3	4	5
GS1	Before (%)	0	0	24	16	60
	After (%)	0	0	17	13	70
	Improvement (%)	-	-	(29)	(19)	17
GS2	Before (%)	0	0	0	42	58
	After (%)	0	0	0	38	62
	Improvement (%)	-	-	-	(10)	7

Table 4. Cont.

Suppliers	Condition	180 Degree with Body Rotation	180 Degree with Stretch	Within 150 Degree	Within 120 Degree	Within 90 Degree
		1	2	3	4	5
GS3	Before (%)	0	0	5	16	79
	After (%)	0	0	0	22	78
	Improvement (%)	-	-	(100)	38	(1)
GS4	Before (%)	0	0	24	32	44
	After (%)	0	0	0	12	88
	Improvement (%)	-	-	(100)	(63)	100

### 3.3. Enough Space between Workstations

As enough space has a positive impact on the ergonomics conditions of workers, more space is always better. This study found mixed results after implementation for enough space between workstations. No workstation has more than 68'' distance from another workstation, and only GS1 has 68'' distance between workstations before and after implementation. The three suppliers (GS2, GS3, & GS4) have reduced the 44'' distance between workstations and GS1 has become more congested. This sitting arrangement indicates a limited space in garment supplier factories (see Table 5).

Table 5. Easy reach of materials in supplier factories before and after implementation.

Suppliers	Condition	More than 68'' Distance between Workstations	68'' Distance between Workstations	62'' Distance between Workstations	56'' Distance between Workstations	44'' Distance between Workstations
		1	2	3	4	5
GS1	Before (%)	0	5	10	5	80
	After (%)	0	3	9	6	82
	Improvement (%)	-	(40)	(10)	20	2.5
GS2	Before (%)	0	0	6	7	87
	After (%)	0	0	9	8	83
	Improvement (%)	-	-	50	14	(5)
GS3	Before (%)	0	0	0	37	63
	After (%)	0	0	0	39	61
	Improvement (%)	-	-	-	5	(3)
GS4	Before (%)	0	0	0	32	68
	After (%)	0	0	14	43	43
	Improvement (%)	-	-	-	34	(37)

### 3.4. Buyer–Supplier Current and Future Role for Ergonomics Improvement

This study explores that buyers' support is minimal in improving ergonomics conditions in supplier factories, and they do not provide any direct support to their suppliers. Furthermore, suppliers are not very proactive and serious in improving their ergonomics situation to ensure worker well-being. Instead, suppliers only comply with the level that buyers expect from them. The following Table 6 shows the buyer–supplier current role in improving workers' ergonomics.

**Table 6.** Buyer–supplier current role for ergonomics improvement.

Role	Indicators	Representatives Quotes
Buyer	Prescribe	<ul style="list-style-type: none"> <li>• “We suggest suppliers comply with the ILO conventions on ergonomics” (GB2)</li> <li>• “Buyers always suggest us to do this and that to improve factory condition” (GS12)</li> <li>• “[GB] tells us to follow their Code of Conduct (CoC) strictly to continue business with them” (GS23)</li> </ul>
	Audit	<ul style="list-style-type: none"> <li>• “Our team frequently visit supplier factories to check and ensure ergonomics and other social sustainability issues” (GB4)</li> <li>• “Sometimes we audit supplier factories and sometimes we take support from professional audit firms” (GB2)</li> <li>• “Our corporate sustainability team visits supplier factories with announcing or without announce” (GB3)</li> </ul>
	Training	<ul style="list-style-type: none"> <li>• “Sometimes we invite factory people in our office for training and sometimes our team visit supplier factories” (GB5)</li> <li>• “[GB] has minimal training initiatives than other buyers like H&amp;M” (GS24)</li> <li>• “Although [GB] has some training arrangement for different issues, we do not get any training from them on ergonomics related issues” (GS44)</li> </ul>
	Development project	<ul style="list-style-type: none"> <li>• “Sometimes [GB] finance some development projects and suggest us to participate to the projects” (GS23)</li> <li>• “We have an agreement with different organisations who run different development projects in supplier factories” (GB3)</li> </ul>
	Cooperation	<ul style="list-style-type: none"> <li>• “Suppliers do not receive any financial support from [GB] for ergonomics improvement” (GS16)</li> <li>• “We provide necessary technical support to our suppliers if they seek from us” (GB2)</li> <li>• “We believe that suppliers should ensure the wellbeing of workers by themselves if they want to continue business with us”(GB1)</li> </ul>



Table 6. Cont.

Role	Indicators	Representatives Quotes
Suppliers	Collaboration	<ul style="list-style-type: none"> <li>“Although we have collaborative relationships with few key suppliers, we do not have strong collaboration yet with all suppliers” (GB3)</li> <li>“Although [GB] has limited collaboration for product quality and design development, they do not have any collaborative effort with us for improving ergonomics conditions” (GS31)</li> </ul>
	Comply	<ul style="list-style-type: none"> <li>“We are always concerned about suppliers requirements and expectations” (GS21)</li> <li>“Suppliers have to comply with buyers’ requirements if they want to keep a business relationship with them” (GS32)</li> <li>“Bangladeshi garment suppliers are more reactive than proactive to take any development initiatives” (GS44)</li> </ul>
	Training	<ul style="list-style-type: none"> <li>“Our industrial engineering department is trying to improve ergonomics condition in our factory” (GS16)</li> <li>“Although we have different training arrangement as per [GB’s] suggestions, we do not have any training program on ergonomics” (GS27)</li> <li>“Although our planning department arrange some training for line supervisors, workers do not receive any direct training yet” (GS36)</li> </ul>
	Capabilities	<ul style="list-style-type: none"> <li>“We are more concerned about getting orders than gradual capability development” (GS47)</li> <li>“Suppliers do not take necessary initiatives to improve their absorptive capacity” (GB4)</li> <li>“We have limited capabilities to meet ergonomics requirements set by ILO” (GS31)</li> </ul>
	Policies	<ul style="list-style-type: none"> <li>“Bangladeshi garment suppliers do not have vision-based policies to improve social sustainability” (GB3)</li> <li>“We focus on short-term gain than long-term achievement” (GS23)</li> <li>“We do not have any set benchmark to follow to improve ergonomics situation” (GS42)</li> </ul>

As buyer–supplier current initiatives are not optimal to improve ergonomics conditions in supplier factories, they can take initiatives to improve the situation. Buyers can increase their efforts with necessary cooperation and collaboration, and suppliers can be more proactive to change the current situation (see Table 7).



**Table 7.** Buyer–supplier possible future role for ergonomics improvement.

Role	Possible Future Initiatives to Improve Ergonomics
Buyer	<ul style="list-style-type: none"> <li>• Provide necessary support to suppliers</li> <li>• Cooperate suppliers as per requirements</li> <li>• Co-work with suppliers in different ergonomic areas</li> <li>• Offer financial support to suppliers</li> <li>• Ensure necessary training for workers in supplier factories</li> <li>• Appoint representative in supplier factories</li> </ul>
Supplier	<ul style="list-style-type: none"> <li>• Suppliers need to be proactive</li> <li>• Ensure necessary training to workers on ergonomics</li> <li>• Take correct policies and plan for gradual improvement</li> <li>• Nurture continuous improvement culture</li> <li>• Motivate workers to accept any change related to ergonomics</li> <li>• Higher experts with necessary skills and experiences</li> </ul>

#### 4. Discussion

The findings of this study are partially aligned with the previous studies of [4,6,11,12,22–25]. However, no previous scientific research investigated the buyers' and suppliers' roles in ergonomics, particularly in cross-border buyer and supplier contexts. Therefore, this insufficient research motivates to investigate the impact of a buyer-assisted intervention on ergonomics conditions in garment supplier factories in Bangladesh and buyers' and suppliers' role in improving the conditions. To the best of our knowledge, for the first time, this study takes buyer's support to intervene in supplier factories and to understand the impact of the controlled intervention on ergonomics.

The garment industry has become a prime export earnings (more than 80%) source of Bangladesh due to its ability to produce at a lower cost. Lead buyers' prime concern is garment price, and suppliers can keep it at buyers' expectation level, as they need to pay less to their workers. Thus, workers are the key to keeping garment suppliers' survival and competitive position in the garment export market. However, if garment suppliers do not focus on workers' ergonomics issues, they cannot expect service from workers for a long time. Therefore, garment suppliers need to care for their workers' health-related issues. If workers feel pain and discomfort due to un-ergonomics set up in factories, they will be more absent and migrate to other factories. If garment suppliers re-design workstations by adjusting sewing machines, tables, and chairs, make workers aware through the necessary training, and improve overall infrastructure in factories, garment workers' efficiency and productivity will increase.

Whereas Bangladeshi garment suppliers are more focused on productivity, production cost, product quality, lead-time, and production flexibility due to buyers' demand [5], they are less concerned about workers' ergonomics. One reason may be that buyers are not very serious and create immense pressures on suppliers regarding ergonomics problems. Although buyers suggest their suppliers comply with ergonomics-related requirements, implementation of their suggested requirements and its follow-up is not well controlled in supplier factories. Thus, buyers can be more active, cooperative, and collaborative with their suppliers to implement ergonomics. Suppliers also can seek support from their buyers to improve ergonomics conditions in their factories.

As ergonomics is related to occupational health and safety (OHS) and the social sustainability of garment suppliers, they need to consider ergonomics related issues seriously to ensure the safety of workers. Moreover, suppliers need to be more proactive and innovative to improve the situation than reactive to buyers and other stakeholders' demands. Thus, suppliers need to rethink ergonomics implementation policies and plan to improve gradual ergonomics conditions in garment supplier factories. Workers also need to be more concerned about their physical and mental health, and they need to inform suppliers'

management about any ergonomics problems. Furthermore, workers need to bargain with their suppliers for minimum working hours, minimum wages, necessary sick leave, and holidays as per ILO conventions.

Garment suppliers need to form a cross-functional team to work on ergonomics related issues for improving ergonomics conditions in garment supplier factories. They also can keep buyers' representative/s in the team. The primary responsibility of the cross-functional team would be identifying the ergonomics problems, providing necessary training to workers, and consulting with supplier's management for necessary initiatives. Furthermore, the team needs to motivate workers to be concerned about their problems and share them with the team. Moreover, garment suppliers can bring experts in their factories for a better understanding of ergonomics, its implementation, and sustaining. Many Bangladeshi garment supplier factories have already started to hire industrial experts to re-design workstations, ensure the proper method, technique, and motion, of workers, set proper distance between workstations, adjust tables and chairs, and improve workers' posture. The findings of this study contribute to ergonomics, occupational health and safety, social sustainability, and buyer–supplier relationships literature by showing how buyer supported ergonomics initiatives improve occupational health and safety and social sustainability in supplier factories. Moreover, this study enhances our understanding of how buyers can be a part of suppliers' social sustainability initiatives to ensure mutual benefits for both buyer and supplier firms. Furthermore, the management of buyer and supplier firms would realise the importance of ergonomics improvement in supplier factories, and the necessity of buyer–supplier cooperation and collaboration for a better output.

Although the garment industry of Bangladesh comprises more than four thousand suppliers, this study used only a buyer and a single pilot sewing line in four supplier factories of the buyer. Thus, future studies need to consider more buyers and suppliers and more sewing lines for a better understanding. Moreover, findings based on short intervention duration may be questioned. Thus, future studies need to design a long intervention to see the long-term impact and sustainability of implemented initiatives. Furthermore, this study only highlighted the sewing section in garment factories, whereas garment production comprises many sections such as dyeing, washing, cutting, sewing, packaging, and finishing. Therefore, future studies need to consider workers' ergonomics conditions in other sections for a complete understanding of ergonomics, OHS, and social sustainability situations in supplier factories.

## 5. Conclusions

Ergonomics is a key concern in the garment industry to ensure worker well-being, social sustainability, and productivity performance, particularly in developing countries. However, as a developing country, ergonomics condition is not optimal in the garment industry of Bangladesh. Considering this situation, the current study attempts to investigate the impact of a buyer-assisted intervention on the ergonomics performance of garment suppliers and the role of buyers and suppliers to improve ergonomics conditions in the garment industry of Bangladesh. Following a qualitative research approach and multiple embedded case study methods, this study demonstrates that ergonomics intervention positively affects suppliers' performance on the selected areas—head, arm, back, and leg positions, easy reach of materials, and enough space. However, buyers' and suppliers' roles to improve the ergonomics situation are minimal in the garment industry. This study also shows that suppliers' isolated effort is insufficient to improve the ergonomics situation in garment supplier factories. Thus, buyers' active role, i.e., necessary support, cooperation, and collaboration, is essential to improve ergonomics performance in supplier factories. Suppliers also need to be proactive and improve their capabilities to tackle challenges related to ergonomics.

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**Conflicts of Interest:** The authors declare no conflict of interest.

## Appendix A

**Table A1.** Interviewee Details.

Buyer and Suppliers	Informants	Code
GB	Country Representative	GB1
	Strategic Sourcing Manager	GB2
	Corporate Sustainability Manager	GB3
	Sustainability Manager	GB4
	Quality Assurance Manager	GB5
	Quality Assurance Coordinator	GB6
GS1	Production Manager	GS11
	HR, Admin and Compliance Manager	GS12
	Quality Assurance Manager	GS13
	Maintenance Manager	GS14
	Line Supervisor	GS15
	Planning and Industrial Engineering Manager	GS16
	Quality In-charge	GS17
	Operators of GS1	OGS2

Table A1. Cont.

Buyer and Suppliers	Informants	Code
GS2	Executive Director	GS21
	Quality Assurance Manager	GS22
	HR, Admin and Compliance Manager	GS23
	Production Manager	GS24
	Assistant Maintenance Manager	GS25
	Quality Floor Chief	GS26
	Line Supervisor	GS27
	Inspector, Quality	GS28
	Operators of GS2	OGS2
GS3	Operation and Planning Manager	GS31
	Quality Assurance Manager	GS32
	Production Manager	GS3
	Admin, HR and Compliance Manager	GS34
	Maintenance Manager	GS35
	Industrial Engineering and Planning Manager	GS36
	Quality Inspector	GS37
	Line Supervisor	GS38
	Operators of GS3	OGS3
GS4	Planning and Industrial Engineering Manager	GS41
	Quality Assurance General Manager	GS42
	Quality Assurance Senior Manager	GS43
	Admin, HR and Compliance Head	GS44
	Maintenance Manager	GS45
	Production General Manager	GS46
	Marketing and Merchandising Manager	GS47
	Line Supervisor	GS48
	Quality in-charge	GS49
	Operators of GS4	OGS4

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