Exploring the Working Conditions in Apparel Export Industries of Jaipur

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Abstract: *There are many ways i.e. Quality Control, Total Quality Management, standard time, workplace conditions, to solve the problems regarding productivity. Working conditions are one way to enhance the productivity and also increases the satisfaction level of the workers. The apparel industries in the Rajasthan are mainly concentrated in Jaipur. There are approximately 250 apparel manufacturing units in Jaipur. The present study aims to analyze the working conditions of the low, medium and high productivity units. Data was collected from 12 apparel export industries, four from low productivity, four from medium productivity and four from high productivity using a interview schedule. The results revealed that in high productivity units, working conditions were better as compared to medium and low productivity units. Significant difference was found in factors between low, medium and high productivity units.*

Keywords: Working conditions, apparel industry, productivity

1. Introduction

Working conditions deals with the arrangement of work areas and equipments to produce the products economically and give good working environment for the workers. Good working conditions should provide ease of working, less health hazards, greater safety, reduced material handling, less congestion of materials, machines and men (Wiyaratn and Watanapa, 2010). Working conditions provide the facilitates such as welfare facilities, efficient workstations, minimizes material handling, effective utilization of manpower, safety, comfort at work, maximum exposure to natural light and ventilation. It is also essential because it affects the labour efficiency. Working conditions provides the environment for the better production and affected the productivity of the employees and maintain an environment that maximizes productivity. Efforts must be taken to industries and workers, work together to improve productivity and working conditions. Poor working conditions can lead to a number of productivity problems, such as worker injuries, production errors, poor quality products, absenteeism, lack of machine maintenance, haphazard inventory systems.

Hiba (1998) viewed that a workstation is a place occupied by a worker when performing a job. The place may be one occupied all the time or may be one of several places where work is done. The design of workstations should be based upon anthropometric data, behavioral patterns of employees and specific requirements of the work being done. Adjustable work tables allow operators to determine a comfortable working height. Workstation arrangements should consider workers comfort, physical constraints and performance requirements. Environmental factors must be considered for working conditions. Lighting, noise, pressure, temperature and vibration are some of the main considerations. Working conditions should be designed to eliminate or at least minimize negative effects of the environment upon work performance and increase the productivity. A good working condition reduces accidents and promotes health and safety for the workers. A poor working conditions increases material handling and manufacturing costs, creates bottlenecks and delays, and contributes to damaged goods.

Welfare facilities are the part of good working conditions. Welfare facilities provided in an organization affect the attitudes of employees towards work. Labour welfare facilities satisfy the needs of the employees, which can improve their working life, family life and overall welfare. Welfare facilities would make a great contribution to improve the efficiency of the organization. This can only be achieved through satisfaction of the employee as the worker feels an active participant in the production process, and he does at most for increasing the production and its productivity (Venugopal, Bhaskar and Usha, 2011).

A well organized workplace minimizes material handling, improves efficiency and reduces worker fatigue and improves productivity. Therefore the objective of the study is to analyze the working conditions of the low, medium and high productivity units.

2. Methodology

The local of the study was apparel export units of Jaipur. In order to draw a comparison between low, medium and high productivity units, 12 units were selected in all. Four units per productivity were selected through purposive sampling. With a view to better insight of apparel industries, regarding working conditions of units 120 workers were interviewed from all 12 units i.e. 40 workers from low, medium and high productivity units.

The data were collected with the help of interview schedule and through observation.

Interview schedule included the following section:
- Workstation design − Workstation design included the questions regarding smooth work surface and stable tables, material and equipment within easy reach of workers, adequate storage space, workstations located at comfortable distance, comfortable seats for operators etc.

- Material handling and storage – Material handling and storage included the questions regarding use of material handling equipment, use of ramps, storage space for boxes and material, obstacles in flow etc.
- Working environment and cleanliness – Working environment and cleanliness included the questions regarding provision for scrape removal, regular cleaning, well maintained equipment and machineries, proper lighting and proper ventilation etc.
- Welfare facilities – welfare facilities included that canteen, transport, medical, security benefits, and availability of lockers, sanitation facility and hygienic place for meal.

Data analysis
- **Numerical and Graphical analysis** - Collected data were analyzed in to simple and meaning full figure to describe the characteristics of low, medium and high productivity units. Frequency and percentage were computed.
- **Chi Square**- Chi Square was applied to identify the difference of factors which included workstation design, material handling and storage, working environment and cleanliness and welfare facilities in low, medium and high productivity units.

3. Results and Discussion

Table 1: Workstation Design in Low, Medium and High Productivity Units, (n = 120)

S. No.	Workstation Design	Low Productivity Units (n = 40) Yes		Medium Productivity Units (n =40) Yes		High Productivity Units (n =40) Yes		χ^2	Sig.
		f	%	f	%	f	%		
1	Tables with stable and smooth work surface	27	68	37	93	38	95	16.99	0.01
2	Material and equipment within easy reach of workers	25	63	30	75	31	78	2.54	.280
3	Stools and tables of appropriate height	31	78	29	73	31	78	.093	.954
4	Adequate storage space	15	38	13	33	18	45	1.34	.512
5	Availability of waste garbage bags	14	35	22	55	21	53	6.41	.170
6	Workstations at comfortable distances	18	45	25	63	28	70	6.27	.043
7	Easy supervision	17	43	26	65	35	88	17.80	0.01
8	Comfortable seats for operators	8	20	21	53	29	73	22.49	0.01

To find out the significant difference in low, medium and high productivity units χ^2 was calculated. In table 1, results shows that χ^2 value of tables with stable and smooth work surface is $\chi^2 = 16.99$, p<0.05, which is significant. χ^2 value of workstations at comfortable distance is $\chi^2 = 6.27$, p<0.05, which is significant. χ^2 value of easy supervision is $\chi^2 = 17.80$, p<0.05, which is significant, similarly χ^2 value of comfortable seats for operator $\chi^2 = 12.49$, p<0.05, which is significant. This significant indicates that these all factors have a significant difference in low, medium and high productivity units. There is no significant difference found other factors such as material and equipment within easy reach of workers, stools and tables of appropriate height, adequate storage space and availability of waste garbage bags.

Difference of workstation design between low, medium and high productivity units

It was found that in **low productivity units** some of the workers did not use the suitable tables with stable and smooth work surface for inspection of the garments in finishing section. Workers worked with broken tables which affected the efficiency of workers. Workers could not do their work due to unsuitable work surface. It was seen that layout of machines and equipment were not proper and suitable distance was not maintained which blocked the flow in stitching section. The problem also affected the supervision of operators as supervisors could not evaluate the performance of all operators due to cluttered layout of machineries and equipments. Majority of units were not using waste garbage bags at workstations. Hence workstations were very untidy and fabric scraps led down on

floor. Proper stools and tables with correct height were provided in cutting and finishing section but the comfortable seats were not provided for the operators in stitching section. This affected the efficiency of workers and increased the fatigue level which decreased the productivity.

In **medium productivity units,** maximum workers used smooth tables and stools but some of the unit operators used comfortable seats in stitching section. Material and equipments were situated within easy reach. It was found that there was no adequate storage for the garments and material was not organized at workstations so cut parts of fabric laid down on the floor, hampered the movement of workers. It was found that in some of the units rubbish bags were provided for workers to their workstations. In **high productivity units,** appropriate stools were provided to the workers in cutting and finishing section. They performed their task efficiently as they had more space and according to their requirement they could sit and stand as per to their convenience. It helped in decreasing their fatigue and improved their work efficiency. It was observed that majority of units did not provide comfortable seats for the stitching operators who worked for long duration of time which affected the performance of the workers. Workstations were located at comfortable distance and arrangement of machines were proper so the supervision was easy and convenient.

Similar study conducted by Kashyap and Rawat (2010) revealed that a well-designed workstation is important for productive work. Most of the workers repeated the same or similar tasks throughout each shift, which, if performed efficiently and quickly, resulted in greater productivity. Further, it was suggested that each workstation should be

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designed to suit the needs of the individual worker depending on the height, size, etc. and the type of machine being used. Similar study conducted by Haider et.al, (2007) found that the uncomfortable workstations caused pain, numbness or tingling in the shoulders, neck, back and hands, eventually affected the productivity of sewing machine operators. Berry, McNealy, Beauregard, Dickens and Geddie (2009) viewed that a workstation should be designed to accommodate the person who actually works on a given job. Workstations should not force workers into awkward body positions and workstation should be adjustable. The workspace should be large enough to allow for the full range of required movements. Muhundhan, (2013) indicated that, a well organized work station minimizes material handling, improves efficiency and reduces workers fatigue. By making

workstations comfortable, productivity and efficiency of the worker can be improved in terms of quality and quantity. Consistent manufacturing in high quality goods leads to repeat orders thus enhances growth of the industry. Anand and Kamra (2010) conducted a comparative study on existing and designed workstations. They found that only 25% workstations and work methods require investigation, 45% require investigation and change and 30% immediate change. Workstation used in garment industry needs to be more flexibility in height and angle adjustment. Designed and flexible workstations provide better and safer working environment and reduce the absenteeism and increase the performance.

Table 2: Material Handling and Storage in Low, Medium and High Productivity Units, (n = 120)

S. No.	Material handling and Storage	Low Productivity Units (n = 40) Yes		Medium Productivity Units (n = 40) Yes		High Productivity Units (n = 40) Yes		χ^2	Sig.
		f	%	f	%	f	%		
1	Clear working tables	21	53	30	75	38	95	18.76	0.01
2	Easy movement of material	19	48	27	68	32	80	9.45	.009
3	Use of material handling equipments	24	60	29	73	38	95	13.73	0.01
4	Use of ramps	26	65	25	63	29	73	.975	.614
5	Storage of trims in boxes	25	63	26	65	32	80	7.46	.024
6	Obstacles in material flow	37	93	31	78	25	63	10.32	.006
7	Removal of unnecessary items from aisles	27	68	29	73	28	70	.752	.686

Results shows in table 2 that χ^2 value of clear working tables is $\chi^2 = 18.76$, $p<0.05$, which is significant. χ^2 value of easy movement of material is $\chi^2 = 9.45$, $p<0.05$, which is significant. χ^2 value of use of material handling equipment is $\chi^2 = 13.73$, $p<0.05$, which is significant, similarly χ^2 value of storage of trims in boxes $\chi^2 = 7.46$, $p<0.05$, which is significant, χ^2 value of obstacles in material flow $\chi^2 = 10.32$, $p<0.05$, which is significant. This significant indicates that these all factors have a significant difference in low, medium and high productivity units. There is no significant difference found other factors such as use of ramps and removal of unnecessary items from aisles.

Difference of material handling and storage between low, medium high productivity units

It was found in **low productivity units** working tables were not cleared from time to time so garments were piled up on the tables and it created difficulty in terms of visibility of garments and resulted is mixing of garments lots. Some of the units used material handling equipments such as racks and containers to keep the material in organized way. It was seen that in fabric store room, fabric rolls were not stored properly and were laid on the floor and got soiled. Lots of pieces were laid down on the floor in the stitching and finishing section. In stitching section, boxes were not kept on the workstations for keeping the stitched garments. The garments were piled up at the workstation and it made the handling difficult and increased the material handling. It also affected the efficiency of operators. In finishing section, boxes were not used to keep the finished and unfinished garment. Garments were piled up on the finishing tables which were the cause of mixing of finished and unfinished garment. It was also observed that there was no adequate

storage at the workstations. It was seen in stitching section, that machine placement was improper so the passage of sewing operators obstructed the workers and material. Some of the low productivity units used the ramps for easy movements of material handling equipments from one floor to another floor. It was found that material flow was not proper and clean; obstacles such as packing cartons, garments, fabric rolls and baskets were found in cutting, stitching and finishing section. Excessive long movement was observed from one section to another section as relative sections such as cutting and stitching were situated on different floors influencing the smooth and easy movement of material. Some of the units provided the labeled boxes of hooks, threads and other materials to the workers for easy and organized storage.

It was found that in **medium productivity units,** majority of units used material handling equipment and multi storage racks. Some of the units used ramps for easy movement of material handling from one floor to another floor. Obstacles were found in every unit which was the major problem that affected the movement of material and workers as it reduced the efficiency of workers. Tables were cleared regularly for efficient work and visibility of material. Majority of units removed the unnecessary items from aisles. In **high productivity units,** finished and unfinished garment were kept in separate boxes. Rejected garments and defective garments were also kept in separate boxes; it reduced the movements and improved the work efficiency of the workers. The layout of departments was adequate with different sections located near to each other hence excessively long movements were not found. Obstacles such as packing cartons were also found which were unsystematically laid on the floor of the finishing section and cut bundles of pieces on the floor of cutting section. These obstacles affected the movements and decreased the

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smooth work flow of the layout and reduced the efficiency of workers. Majority of workers used ramps for easy material handling.

Similarly Hiba (1998) viewed that the storage and handling of raw materials, components and products is an integral part of production processes. It can ensure the smooth work flow and helps to avoid delays and bottlenecks. Extra stock is a waste which again requires storage, record keeping and handling. It ends up as unused capital and some costly materials can become spoiled or obsolete. Leaving dead stock and work in process around or in the production area, reduces the space available for production operations and impedes the movement of workers. The more cluttered the shop-floor, the more likely materials and work-in-progress will be mixed up or lost. Workers spend valuable productive time looking for things.

Mishra (2010) designed and planed material handling equipments and workstations. Identified the material handling system at existing factory and designed the new material handling system and the layout for the new factory. Layout was designed for manufacturing 11,500 shirts/day. Result shows that systematic integration of efficient material flow and effective facility layouts for industrial establishments are essential for organized applicability of procedures on the production floor. It is a pre requisite to efficient production planning and higher productivity. Similarly Singh and Fatehpuria (2011) studied industry workflow, material flow workstations and analyzed the area and the building for the new industry and determined the capacity. Thus, an efficient workplace layout was made and it was suggested that material handling equipments should be used for minimizing the material handling.

Table 3: Working Environment and Cleanliness in Low, Medium and High Productivity Units, **(n = 120)**

S. No.	Working environment and cleanliness	Low Productivity Units (n =40) Yes		Medium Productivity Units (n =40) Yes		High Productivity Units (n = 40) Yes		χ^2	Sig.
		f	%	f	%	f	%		
1	Provision for scrape removal	8	20	6	15	27	68	27.30	0.01
2	Regular cleaning from floor and tables	9	23	17	43	21	53	10.94	.004
3	Well maintained equipment and machineries	22	55	22	55	32	80	7.17	.028
4	Proper ventilation	37	93	37	93	39	98	8.90	.012
5	Proper lighting	37	93	36	90	37	93	1.21	.545

Table 3 revealed that χ^2 value of provision for scrape removal is $\chi^2 = 27.30$, $p<0.05$, which is significant. χ^2 value of regular cleaning from floor and tables is $\chi^2 = 10.94$, $p<0.05$, which is significant. χ^2 value of well maintained equipment and machineries is $\chi^2 = 13.73$, $p<0.05$, which is significant, similarly χ^2 value of storage of trims in boxes $\chi^2 = 7.17$, $p<0.05$, which is significant. χ^2 value of proper ventilation is $\chi^2 = 8.90$, $p<0.05$, which is significant. This significant indicates that these all factors have a significant difference in low, medium and high productivity units. There is no significant difference found in proper lighting.

Difference of working environment and cleanliness between low, medium and high productivity units in term

In **low productivity units,** fabric stores were not properly cleaned. Dust and scraps were lying all over the floor; sweepers were not regular in cleaned leading to accumulation of cut fabrics and scraps. In cutting section, unidentified material, fabrics, tools were laid under the tables along with cutting wastage. Garments were laid down on floor in unsystematic manner. Some of the unit workers reported that machineries and equipments were not well maintained, no regular cleaning and maintenance was done of the machineries. Lighting was proper in each section.

In **medium and high productivity units,** overall cleanliness was also poor. Garments and cut parts of fabric were laid down on the floor and under the cutting tables. No regular cleaning was done to remove the dust from floor, tables and equipments. All this reduced the efficiency and productivity of the workers. Though, machine maintenance was done regularly. In high productivity units there was the provision of scrape removal. The left over cut fabrics in cutting department was stitched to make a patch fabric which was in turn utilized for constructing different type of skirts and tops. Machine maintenance was better two mechanics were always presented in the units for repairing the breakdown and regular maintenance of machinery. Working environment is a major factor. This encourages not only the job to be done but dignifies the human working in the environment and improves working efficiency. Lighting and ventilation was proper in all the sections. The lighting, ventilation and cleanliness levels in the organization affected comfort, working efficiency and improved the productivity. Kelegama and Epaarachchi, (2001) found that one of the most important factors that affected the productivity of labor is poor working conditions. In many of the factories, especially those belonging to the small and medium category, hazardous factory layout with cramped workspace for the workers are not conducive to improve output. Similarly Aloysius (n.d.) found that most of the garment industries haven't maintained proper ventilation and circulation of air.

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Table 4: Welfare facilities in Low, Medium and High Productivity Units, (n = 120)

S. No.	Availability of welfare facilities	Low Productivity Units (n =40) Yes		Medium Productivity Units (n =40) Yes		High Productivity Units (n = 40) Yes		χ^2	Sig.
		f	%	f	%	f	%		
1	Canteen facilities	-	-	10	25	30	75	53.73	0.01
2	Transport facilities	10	25	25	63	28	70	17.28	0.01
3	Security benefit (EPF)	-	-	10	25	19	48	24.64	0.01
4	Medical facilities	15	38	23	58	32	80	14.88	0.01
5	Sanitation facilities	25	63	30	75	37	93	10.15	.006
6	Availability of lockers	-	-	10	25	16	40	19.24	0.01
7	Hygienic place for meals	15	38	23	58	28	70	8.68	.013

Table 4 indicates that χ^2 value of canteen facility is χ^2 = 53.73, p<0.05, which is significant. χ^2 value of transport facility is χ^2 = 17.28, p<0.05, which is significant. χ^2 value of security benefit is χ^2 = 24.64, p<0.05, which is significant, similarly χ^2 value of medical facility χ^2 = 14.88, p<0.05, which is significant. χ^2 value of sanitation facility is χ^2 = 10.15, p<0.05, which is significant. χ^2 value of availability of lockers is χ^2 = 19.24, p<0.05, which is significant. χ^2 value of hygienic place for meal is χ^2 = 8.68, p<0.05, which is significant. This significant indicates that all factors of welfare facilities have a significant difference in low, medium and high productivity units.

Difference of availability of welfare facilities in low, medium and high productivity units

It was found **in low productivity units** the welfare facilities were very poor. None of the units provided the canteen facility, EPF, education facility, child care facility, locker facility and recreation facility. Very few units were provided with transport facility and medical facility. With regard to medical facility, only first aid treatment was provided. Majority of units provided sanitation facilities like drinking water, clean urinals etc. Some units provided hygienic sitting place for meals.

In medium productivity units, none of the units provided educational, child care and recreational facility. Though in some of the units canteen facility and transport facility was provided. Canteen facility included only tea, coffee but no food was served. Units which provided transport facility deducted the amount from the salary of workers. Some of the units deducted the EPF of their permanent employees. First aid, drinking water, clean urinals and proper sitting area for meal were provided in most of the units. **In high productivity units** educational, child care and recreational facilities were not provided. Majority of units were provided with canteen, transport, medical, sanitation facilities and hygienic sitting place for having meal. Transport facility was free for permanent employees whereas newly recruited employees paid for transport. For medical facility, first aid and sick room was also available in the units. Clean urinals, safe drinking water, and proper area for meal were provided in the units. Some of the units deducted the PF for their fixed employees and some of the units provided the lockers for their permanent employees to keep their things. Workers were satisfied with regard to the provident fund and the functioning of the provident fund trust committee. None of

the units provided the life and medical insurance benefits. It was found that labor welfare facilities affected the outlook of employees towards work. The employees were satisfied with the labor welfare facilities which get them better working life, family life and overall welfare.

Arai (n.d) found in his study that, Payment of the Employer's Provident Fund (EPF), break time, free tea, recreation, transport, infirmary, regular visit of doctors, etc. were provided by factories. More than 80% of workers found adequate facilities in factories. He found that job satisfaction and the different dimensions of welfare facilities were significantly related. Welfare facilities should be well implemented and so should labor welfare measures so that the level of job satisfaction increases among employees, which in turn might help in increasing productivity of workers. Aloysius (n.d.) reported that, services were provided to the workers yielding productivity in garment sector. None of the workers enjoyed the financial legal services, recreational programmes and educational services. First aid services and other medical services were considerably provided to the workers. A positive indication was observed from the data was that all the workers had the benefits of sanitation facilities in the garment industry. Kumar (2006) deduced that garment industry workers were concerned with long working hours or double consecutive shifts, personally unsafe work environment, poor working conditions, though most of them worked late. There were no safety measures for them and no residential facilities or transportation facilities. Ahmad (n.d.) viewed that many industries provided workers certain tangible benefits over and above the basic pay. Some benefits helped fulfill the social and recreational needs of workers such as a festival bonus, a target bonus or a production bonus. They may provide extra income and a better work environment in future. Such benefits enhance employees loyalty and build a positive attitude towards the company.

4. Conclusion

Working conditions were analyzed to evaluate the workstation designs, material handling and storage, working environment, cleanliness and welfare facilities. After the comparison of low, medium and high productivity units, it was concluded that in high productivity units, working conditions were better as compared to medium and low productivity units.

The management is unaware of many issues related to working conditions. The apparel industry should evaluate the working conditions and welfare facilities and should take

corrective measures accordingly. Good working conditions are essential for productive work. Most workers in industries producing garments repeat the same or similar operations for the whole production lot which, if performed efficiently and quickly, can result in better productivity. Each workstation should be designed to suit the needs of a worker, the machine and the task to be performed.

5. Recommendations

- Workplace should be organized to eliminate the obstacles and there should be smooth material flow. Placement of machines should be in such a way that it does not interfere with movement of workers.
- Cleaning of inspection tables and machines should be done daily and especially before starting the work.
- Workstations should be situated close to each other with basket kept in between for keeping the garment pieces. Finished pieces should be kept in separate baskets for easy handling.
- Tables and racks should be used to store the fabric rolls and should be covered to avoid it getting dirty.
- Cut pieces should be kept in an order and in specified area so that cleanliness is maintained in the units. Regular cleaning should be done from time to time.
- Trolleys should be used for transferring the pieces of garments from cutting to stitching and finishing section. Boxes should be used for reducing the unnecessary handling.
- Stools and tables should be of proper height so that there is not interference of height with the work.
- Various facilities like canteen, medical, crèche lockers should be provided to the workers. Rest room and sick room should be made available in the industries in case of emergency.
- Celebrations, recreational programme and motivational lectures should be there for the workers. It will help in developing their potential to the fullest.

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