



Challenges and Satisfaction of Employees in Medical Textile Company job during the COVID-19 in Tirupur Dt.

Ms. Suchitra S

Assistant Professor & iHub Coordinator, Dr. SNS Rajalakshmi College of Arts and Science, Coimbatore, India.

Email: suchitrasuresh.1985@gmail.com

Abstract

This study delves into the multifaceted experiences of employees working in the medical textile industry during the COVID-19 pandemic in Tiruppur District. It examines the challenges that employees encountered, including health concerns, disruptions in supply chains, increased workloads, and the emotional toll of uncertainty. The study also investigates the sources of satisfaction that employees derived from their roles, particularly their contribution to producing essential medical supplies and the sense of camaraderie that emerged amidst adversity. By analyzing these challenges and sources of satisfaction, this research sheds light on the intricate dynamics of the employee experience in a critical industry during unprecedented times. The findings underscore the resilience demonstrated by both employees and employers in adapting to new norms, prioritizing safety, and fostering a sense of purpose. This study contributes to a deeper understanding of the interplay between challenges and satisfaction within the context of the medical textile sector in Tiruppur District during the COVID-19 pandemic.

Keywords: GPS, GSM, Vibration Sensor, Latitude and Longitude, Notification.

1. Introduction

Medical textiles represent a significant intersection of production technologies, materials, and medical applications, resulting in sophisticated and technically advanced products with a wide range of biomedical uses. These textiles can be broadly categorized into non-implantable items, such as dressings and gauze, and implantable devices like artificial arteries, sutures, and vascular grafts. Additionally, intelligent textiles designed for thermoregulation and shaping, as well as extracorporeal devices like artificial organs, contribute to the diverse landscape of medical textiles. A fundamental aspect of medical textiles is the requirement to use biocompatible fibers that are free from toxicity, allergens, or carcinogenic properties. Depending on their intended functions, these textiles must exhibit specific characteristics like strength, flexibility, absorption capacity, or biodegradability. Striking a balance between these attributes is crucial for the successful development

of functional medical textiles. The chapter focuses on the advancement and application of medical textiles derived from natural resources, underscoring the potential for functional enhancements and the creation of value-added products. The exploration spans various technologies, ranging from biobased medical textiles to the engineering of high-performance medical textiles. By leveraging innovative production techniques, researchers and manufacturers aim to enhance the utility and efficacy of medical textiles in medical and healthcare domains. In summary, this chapter delves into the intricate realm of medical textiles, highlighting their multifaceted nature arising from the convergence of technology and medical needs. The utilization of sustainable resources, the pursuit of enhanced functionalities, and the expanding array of applications serve as the core themes, showcasing the evolution and potential of medical textiles in



contributing to advancements in healthcare and biomedicine.

2. Perspectives and Challenges

The integration of smart fabrics into the medical field holds significant promise across the entire spectrum of medical care, from prevention to acute treatment and rehabilitation. The future trajectory involves seamlessly incorporating smart garments into our everyday lives. The evolution of fibertronics is poised to drive the inclusion of advanced electronic functionalities at the fiber level, ultimately culminating in electronic textiles where intricate electronic capabilities are seamlessly woven into textile threads. This progression is set to revolutionize healthcare by enabling non-invasive monitoring of diverse physiological parameters, eventually facilitating comprehensive medical diagnostics and performance assessments. However, for these innovations to gain traction within the medical community, extensive validation through human trials and a nuanced understanding of the clinical relevance of the gathered information is imperative. Amidst the opportunities, several challenges must be addressed. These challenges encompass not only the intricacies of smart textile production, design, device operation, durability, and real-world implementation but also encompass broader complexities. One such challenge pertains to telemedicine and safeguarding patient data, ensuring that the seamless transmission of sensitive medical information is both secure and compliant with privacy regulations. Another challenge arises from the responsible disposal of smart textiles, a predicament that is presently unregulated due to the absence of classification as either textile waste or electronic waste. However, navigating challenges related to clinical validation, data security, and waste management is vital to fully realizing the benefits of these cutting-edge innovations. Overcoming these challenges will require interdisciplinary collaboration, regulatory frameworks, and ongoing research to ensure that smart textiles truly transform the landscape of healthcare.

3. Literature Review

Priya, Rama, and S. Sudhamathi. (2019) studied the title “Impact of work environment and job satisfaction on employee retention in the textile industry” [1]. Textile is India's largest sole industry and one of the world's largest, accounting for nearly 20% of total industrial production. Employee retention is a way in which employees are confident in remaining with the organization for the longest period or until the project is completed. Job happiness is especially important because most people spend the majority of their time at work. Similarly, job satisfaction has an impact on employees' whole lives, since a satisfied employee is a relaxed and pleasant human being. The purpose of this study was to categorize the impact of work environment and job satisfaction on employee retention in the textile industry [2]. Sumathi, A. (2014) investigated “A survey on job satisfaction of textile showroom employees in Coimbatore city.” Job satisfaction can be influenced by various factors. If an employee is not satisfied, it can lead to absenteeism, turnover, lower productivity, mistakes, and conflicts. Organizations are trying to identify areas for improvement to avoid these issues. A survey was conducted to measure satisfaction levels on different job factors [3]. 150 respondents from textile showrooms in Coimbatore City were selected using random convenient sampling. Data was collected through a questionnaire, observations, interviews, and discussions with the management team. Over 60% of employees are satisfied with wages and bonus schemes. Half of the respondents are dissatisfied with the welfare scheme [4]. Around 85% of employees find the working environment convenient and management participative. Osman, Eman. (2020) examined that titled on “Nano finished medical textiles and their potential impact on health and environment.” Despite the immense potential of nanofinished medical textiles for various applications, their negative effects on living cells have raised serious concerns in the healthcare and consumer sectors [5]. This is because they are extremely small and can easily penetrate cell walls, posing a significant risk to both the environment and the population. Additionally, there is a gap in knowledge between the technological



advancements in nanotechnology and nanosafety, leading some organizations to prioritize research on safety and health in

occupational settings [6]. Morris, H., and R. Murray. (2020) studied “Medical textiles” reveals that the field of medical textiles has experienced significant growth in recent years, thanks in large part to advancements in nanotechnology. Nanoparticles can now be incorporated into fiber-forming polymers, resulting in improved performance and durability of materials, particularly in terms of antimicrobial action [7]. Additionally, electrospinning techniques have allowed for the creation of nanofibers and the incorporation of nano-particulate agents. These developments have led to the production of absorbable polymer implants, durable textile structures for tendon replacement, and pressure garments and wound dressings. This review explores the various domains and materials within the medical textile industry, as well as offers recommendations for future projects. It also addresses the shortcomings of single-use items of personal protective equipment (PPE) and presents potential solutions [8].

4. Research Methodology

In an investigative and qualitative research approach, this study at the medical textile manufacturer Tiruppur employs primary data. An online sample calculator sets the parameters for this study's sample size. The judgment sampling method was employed in this study to obtain more accurate results. We used a variety of secondary sources for our study, including magazines, the internet, print and online academic as well as professional journals, newspapers, and company reports. The respondents were chosen from a medical textile company in Tamil Nadu, India's Tiruppur area. Each department head of the Tiruppur district medical textile firm had 325 samples randomly selected from them. The data collection approach used is an interview schedule. Data from SPSS were collected and analyzed for this investigation. To determine the study's findings, the following test was run. The one sample, simple percentage t-test, and ANOVA test were employed for the analysis [9].

5. Results And Discussion

Table -1 Demographic Profile of Respondents

Demographic Variables	Groups	Frequency	Percent
Gender	Male	180	55.38
	Female	145	44.62
	Total	325	100.00
Age	Upto 25	10	3.08
	26-35	113	34.77
	36-45	134	41.23
	46-55	43	13.23
	56 and Above	25	7.69
	Total	325	100.00
Educational Qualification	Illiterate	11	3.38
	Upto HSC	73	22.46
	Graduates	185	56.92
	Post Graduates	56	17.23
	Total	325	100.00
Employment Status	Face masks	60	18.46
	Improvement of medical textiles toward enhanced anti-viral properties	103	31.69
	Development of new methods to assess the efficiency of antiviral treatments	59	18.15



	Temperature Monitoring	22	6.77
	PPE Disposal	81	24.92
	Total	325	100.00

Gender: The gender is supposed to decide to join medical textile jobs. The general perception is that the female category has more opportunities to join medical textile jobs. The above table(1) explains the majority of the employees are working male with 55.38 percent in medical textile companies and the remaining 44.62 percent female. The frequencies reveal that male respondents' percentage is higher in the sample that has been selected for the study.

Age: Age gives the experience of employees working in a medical textiles company. The experience of employees working in different age groups differs based on the job position. The age is classified into five groups for the study. The majority of the employees are work belong to the age group of 36-45 years where there are 41.23 percent of the respondents, followed by the 26-35 years age group category with 34.77 percent. The least of the responses are received in the age group category of up to 25 years with 3.08 percent.

5.1 Educational Qualification

Educational qualification is decided about their job position. It also helps them to have a better experience in the pandemic period. The educational qualification of the respondents involved in the study reveals that more than half of the respondents are graduates i.e. 56.92 percent, followed by postgraduates to the tune of 17.23 percent. The lowest responses given by the category of the illiterate are 3.38 percent. It can be explained that the respondents involved in the study are mostly educated [10].

5.2 Employment Status

The employment status will help us to know the various scopes for the income of the respondents. The majority of the respondents are employed working in the improvement of medical textiles toward enhanced anti-viral properties i.e. 31.69 percent. 24.92 percent of the respondents are in the category of PPE Disposal, 18.15 percent of them are

doing development of new methods to assess the efficiency of antiviral treatments, 18.46 percent of the respondents are Face masks employees and 6.77 percent of them are temperature monitoring like their employment status.

5.3 One Sample T-Test

H0: There is no significant relationship between different variables of satisfaction of employees towards Medical Textile Company

H1: There is a significant relationship between different variables of satisfaction of employees towards Medical Textile Company.

The p-values of the one-sample t-test revealed that the ten variables that are used to measure the satisfaction of employees towards Medical Textile Company are correlated among themselves and found that there is satisfaction among the employees about the Medical Textile Company. The p-values of health insurance (0.000), free transport (0.000), job training (0.002), job security (0.003), company culture (0.000), salary & benefits (0.000), skill development (0.000), work satisfaction (0.000), promotions/appraisal (0.000) and career growth (0.000) have all been statistically significant at one percent level. Therefore it can be said that the above variables are related to the satisfaction of employees with Medical Textile Company and it reveals that the employees are well satisfied with these entire Medical Textile Company job [11].

Ho: There is no relationship difference between Monthly Income and the challenge of the employee in Medical Textile.

The monthly income of the respondents has a significant influence on the various challenges faced by the employees. The analysis of the relationship between the monthly income of the respondents and the challenges faced by them reveals that the employee has challenges with High Volume of Waste Material (0.016), Overdependence on



Manual Effort (0.002), and Heavy Noise Pollution and Rising Environmental Concerns (0.39). The relationship between different variables of

satisfaction of employees towards Medical Textile Company is shown in Table 2.

Table -2 Relationship between different variables of satisfaction of employees towards Medical Textile Company

Variables	Mean	Std. Deviation	Std. Error Mean	t	df	Sig (2-tailed)
Health Insurance	4.0923	.90135	.05000	21.847	324	<.000**
Free Transport	3.5538	.89977	.04991	11.097	324	<.000**
Job Training	2.8369	.93683	.05197	-3.138	324	<.000**
Job Security	3.1538	.93013	.05159	2.982	324	<.000**
Company Culture	3.8769	.73928	.04101	21.384	324	<.000**
Salary & Benefits	2.5877	.92421	.05127	-8.043	324	<.000**
Skill Development	2.5908	1.00396	.05569	-7.348	324	<.000**
Work Satisfaction	3.2215	.88897	.04931	4.493	324	<.000**
Promotions / Appraisal	3.9046	.75368	.04181	21.638	324	<.000**
Career growth	2.7077	.98950	.05489	-5.326	324	<.000**

Table -3 Challenge of Employee in Medical Textile Job

Variables		Sum of Squares	df	Mean Square	F	Sig.
Work-Life Balance	Between Groups	.386	2	.193	.185	.832
	Within Groups	336.845	322	1.046		
	Total	337.231	324			
High Volume of Waste Material	Between Groups	7.274	2	3.637	4.197	.016
	Within Groups	279.015	322	.867		
	Total	286.289	324			
Paucity of Quality Raw Materials	Between Groups	3.289	2	1.645	1.817	.164
	Within Groups	291.468	322	.905		
	Total	294.757	324			
Overdependence on Manual Effort	Between Groups	10.559	2	5.280	6.488	.002
	Within Groups	262.044	322	.814		
	Total	272.603	324			
Heavy Noise Pollution and Rising Environmental Concerns	Between Groups	4.333	2	2.167	3.271	.039
	Within Groups	213.279	322	.662		
	Total	217.612	324			
Inadequate	Between Groups	1.770	2	.885	.938	.393



Attention Paid to Technology Upgradation	Within Groups	303.818	322	.944		
	Total	305.588	324			
Fragmentation and Skill Shortage	Between Groups	.235	2	.118	.104	.901
	Within Groups	363.968	322	1.130		
	Total	364.203	324			

The p-values of the above variables are significant at a 5 percent level and the null hypothesis of those variables is rejected. The variables of Work-Life Balance (0.832), Paucity of Quality Raw Materials (0.164), Lack of choice in varieties of organic food products (0.164), Fragmentation, and Skill Shortage (0.901) do not have p-values not statistically significant. The null hypothesis of the test is accepted. These variables do not differ significantly therefore the monthly income of the respondents does not have any influence on these variables [12]. The above table (3) explains the Challenge of Employees in Medical Textile Jobs.

Conclusion

In conclusion, the study reveals that the challenges and satisfaction experienced by employees in the medical textile industry during the COVID-19 pandemic in Tiruppur District reflect a complex interplay of adversity and resilience. The unprecedented circumstances brought about by the pandemic tested the mettle of both the employees and the industry as a whole. On one hand, employees faced a multitude of challenges ranging from health concerns, disruptions in supply chains, and increased workloads, to the emotional toll of navigating uncertainty. The nature of their work focused on producing essential medical textiles, meant that their roles were crucial during this crisis, placing additional pressure on their shoulders. Despite these formidable challenges, there were notable instances of satisfaction and fulfillment reported by employees. The sense of purpose derived from contributing to the production of vital medical supplies, such as masks, gowns, and other protective gear, gave employees a sense of pride and accomplishment. Additionally, the adaptability shown by both employees and their employers in implementing safety measures and remote work solutions demonstrated a commitment to ensuring the well-being of the workforce. The COVID-19

pandemic amplified the intricacies of the employee experience within the medical textile industry in Tiruppur District. While challenges were prevalent, they were met with determination and innovative solutions. The industry's ability to pivot, adapt, and prioritize employee safety while maintaining the production of essential medical textiles highlights the resilience and dedication of the workforce. As we navigate the aftermath of the pandemic, companies must continue valuing their employees' well-being and incorporating lessons.

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