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ENHANCING WORKFORCE STABILITY AND WORKER SATISFACTION IN KNITWEAR MANUFACTURING THROUGH INTEGRATED LABOR TURNOVER AND GRIEVANCE MANAGEMENT PMS TOOLS

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ABSTRACT

This article presents a combined study conducted during a one-month internship at a knit garment manufacturing unit in Tirupur, Tamil Nadu, focusing on reducing labor turnover and effectively managing worker grievances through industrial engineering techniques. Both issues significantly impact operational continuity, cost efficiency, and employee morale in labor-intensive garment factories. Two complementary Production Management System (PMS) tools were developed: one for Labor Turnover Monitoring (LTMS) and another for Worker Grievance Processing (WGPS). Implemented simultaneously, these tools led to measurable improvements in employee retention, grievance resolution time, and production line stability. The study discusses the design, development, implementation, and impact of these PMS tools on factory performance.

Keywords: Industrial Engineering, Labor Turn Over, PMS Tools, Worker Grievance.

1. INTRODUCTION

High labor turnover and unresolved worker grievances are critical challenges in garment manufacturing industries that affect production consistency, training costs, and workplace morale (Rashid & Rahman, 2017). During a one-month internship in a knitwear factory in Tirupur, Tamil Nadu, this study aimed to develop practical digital solutions to monitor and reduce labor turnover and improve grievance management.

The baseline labor turnover rate was approximately 8.5% monthly, resulting in frequent skill shortages and increased recruitment costs. Additionally, unresolved grievances affected around 15% of the workforce, contributing to absenteeism, low morale, and productivity loss (Priya, 2023). Prior research indicates that addressing these human resource challenges systematically can enhance production stability and reduce operational disruptions (Islam & Sharif, 2021).

To address these intertwined problems, two Excel-based PMS tools were developed. The Labor Turnover Monitoring System (LTMS) tracked employee tenure, resignation reasons, and forecasted turnover trends, enabling proactive retention strategies. The Worker Grievance Processing System (WGPS) streamlined grievance registration, classification, and resolution tracking, with automated alerts to management for timely responses and anonymous feedback channels to build trust. These tools integrated human resource data with production scheduling to align workforce planning with operational needs.

Over a four-week pilot on selected high-turnover lines, LTMS helped reduce labor turnover from 8.5% to 6.3%, while WGPS cut grievance resolution time by 40%. Together, they stabilized workforce availability and improved line efficiency by 7%. This dual approach demonstrates how targeted PMS tools addressing human factors can foster sustainable productivity gains in labor-intensive settings.

Optimizing garment production efficiency through time study and method study is essential for achieving higher productivity, cost-effectiveness, and better quality control. By analyzing and restructuring work methods, industries can reduce unnecessary movements, improve machine utilization, and streamline workflow. Implementing these techniques ensures faster production cycles, reduced labor costs, and increased worker efficiency, ultimately leading to a more profitable and sustainable garment manufacturing process (Sangeetha at all 2025).

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2. METHODOLOGY

This study employed a comprehensive, data-driven approach to analyze and address the challenges of labor turnover and worker grievances in a knitwear manufacturing factory located in Tirupur, Tamil Nadu. The methodology focused on gathering both quantitative and qualitative data over a one-month internship period, which provided a robust foundation for designing effective Production Management System (PMS) tools.

Initial data collection involved compiling detailed records from various factory sources. Employee information such as tenure, resignation dates, and reasons for exit were extracted from human resources (HR) databases and exit interview reports. Concurrently, grievance records were reviewed, including details on complaint types, submission timestamps, and resolution statuses. To complement these, production line data such as absenteeism rates, operator assignments, and output levels were collected from production reports and management information systems (MIS).

In addition to these quantitative data, the study incorporated qualitative insights through structured interviews and focus group discussions with a representative sample of 40 workers and 10 supervisors. These sessions helped uncover underlying reasons for labor turnover and dissatisfaction, especially those related to unresolved grievances and communication gaps within the workplace.

Once the baseline metrics were established, including a labor turnover rate averaging 8.5% monthly and grievance incidence affecting approximately 15% of the workforce, root cause analysis techniques such as the 5 Whys and Ishikawa diagrams were applied. These tools facilitated a systematic examination of contributing factors like limited grievance channels, inadequate communication of policies, and a lack of predictive tools to anticipate employee attrition.

Based on these insights, two Excel-based PMS tools were developed. The Labor Turnover Monitoring System (LTMS) was designed to track employee retention trends by categorizing workers according to tenure, exit reasons, and job categories. It incorporated forecasting algorithms that utilized historical turnover patterns to identify high-risk employee groups, enabling HR teams to implement targeted retention initiatives proactively. The system featured dashboards for real-time visualization of turnover metrics and generated automated alerts to prompt timely interventions.

Simultaneously, the Worker Grievance Processing System (WGPS) was created to digitize grievance submission and management. This system allowed employees to lodge complaints electronically, which were then categorized and tracked for resolution progress. It also included escalation protocols, where grievances unresolved beyond predefined thresholds triggered alerts to higher management levels. To foster transparency and trust, the WGPS supported anonymous grievance submissions and periodic feedback loops, encouraging a culture of open communication.

The implementation phase involved deploying both tools in three production lines historically prone to high turnover and grievance cases. Supervisors and HR personnel received training on data entry protocols and interpretation of dashboard insights to enable efficient monitoring and prompt action. Daily updates ensured the PMS tools remained accurate and actionable, while regular coordination meetings utilized these insights for workforce planning, grievance redressal, and retention strategy adjustments.

Post-implementation, the study measured key performance indicators including turnover rate, grievance resolution time, frequency of repeated grievances, and line efficiency. Statistical analysis was conducted using mean comparisons and trend evaluations to validate improvements. Results demonstrated a notable reduction in turnover from 8.5% to 6.3%, a 40% decrease in average grievance resolution time, and a 25% drop in recurrent complaints. These human resource improvements correlated with a 7% increase in line efficiency, reflecting enhanced workforce stability and morale.

Overall, this methodology integrated quantitative factory data with qualitative worker insights to develop targeted PMS tools. These tools facilitated proactive management of labor turnover and grievances, improving workforce satisfaction and production performance in a replicable, scalable manner for similar labor-intensive manufacturing environments.

3. RESULTS AND IMPACT ANALYSIS

The LTMS tool’s predictive capability allowed HR to implement timely retention measures such as targeted communication and engagement programs for at-risk employees. This proactive approach reduced voluntary resignations and associated recruitment/training costs.

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The WGPS tool significantly improved grievance transparency and responsiveness, enhancing worker trust and reducing morale-related absenteeism. Anonymous feedback encouraged open communication, helping management address systemic issues earlier.

Collectively, these improvements contributed to greater workforce stability, smoother production flows, and a 7% rise in line efficiency. Reduced labor churn decreased operational disruptions and allowed better skill retention. Moreover, improved grievance handling fostered a more positive workplace culture.

4. CONCLUSION

This study demonstrates that addressing labor turnover and worker grievances through integrated, data-driven PMS tools can substantially improve workforce stability and operational efficiency in labor-intensive garment manufacturing. The LTMS and WGPS tools offer scalable, low-cost solutions to human resource challenges, providing real-time insights and actionable alerts for factory management.

Future work should explore integration with payroll and HR management systems, incorporate machine learning models for turnover prediction, and expand grievance feedback channels using mobile platforms. Embedding these tools into continuous improvement cycles can sustain productivity gains and enhance worker well-being in competitive manufacturing environments.

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