

**EXPLORING THE RELATIONSHIP BETWEEN EMPLOYEE  
WELLNESS PROGRAMS AND PRODUCTIVITY IN TEXTILE COMPANIES**

**ИССЛЕДОВАНИЕ ВЗАИМОСВЯЗИ МЕЖДУ КОРПОРАТИВНЫМИ  
ОЗДОРОВИТЕЛЬНЫМИ ПРОГРАММАМИ И ПРОИЗВОДИТЕЛЬНОСТЬЮ  
ТРУДА В ТЕКСТИЛЬНЫХ КОМПАНИЯХ**

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*The article investigates how process-oriented wellness programs affect fundamental operational metrics. Data collection during six months in five textile companies involved selecting 1,000 employees by stratified random sampling to ensure workforce diversity across different job positions and shift schedules. The companies implemented five core wellness initiatives which included fundamental health check-ups combined with stress reduction educations along with exercise competitions together with dietary counseling programs and work schedule flexibility. The metrics got tracked alongside monthly assessments that included daily production output, absenteeism rate, product defect rates, time-to-completion and employee satisfaction scores.*

*The study data indicated that every metric demonstrated significant improvement while both production numbers and employee satisfaction scores increased and the absenteeism rates decreased with lower defect numbers. The delays necessary to finish these tasks decreased persistently throughout the program period. The information demonstrates that clear wellness programs significantly influence organization performance along with individual performance development. The obtained findings create possibilities to integrate employee welfare programs into fundamental operational approaches which support labor-intensive industries. Wellness should not operate as a supplementary workforce benefit because it represents the core foundation that ensures sustainable workforce management.*

*Настоящая статья посвящена изучению влияния мероприятий по укреплению здоровья на ключевые показатели деятельности предприятий текстильного сектора. Для сбора эмпирического материала был организован шестимесячный мониторинг пяти компаний текстильной индустрии. С использованием метода стратифицированного случайного отбора, обеспечивающего репрезентативность демографического профиля и разнообразие профессиональных позиций участников эксперимента, были отобраны 1000*

*респондентов. В рамках экспериментальной группы были последовательно осуществлены пять базовых инициатив по улучшению здоровья трудящихся: обязательное медицинское обследование, тренинги по стресс-менеджменту, занятия в области двигательной активности, консультирование по вопросам рационального питания и внедрение гибкого режима трудового дня.*

*Анализ результатов ежемесячных замеров продемонстрировал выраженную положительную динамику всех ключевых метрик: увеличение объемов выпуска готовой продукции, повышение степени удовлетворенности сотрудников своей деятельностью, снижение количества случаев временной нетрудоспособности вследствие заболеваний, уменьшение доли дефектной продукции и сокращение сроков исполнения отдельных технологических процессов.*

*Выявленные закономерности свидетельствуют о значительном позитивном влиянии систематически организованных мер по охране здоровья на интегральные экономические характеристики предприятия и индивидуальные показатели производственного результата сотрудников. Обосновывается необходимость органичного включения элементов профилактики болезней и поддержки физического состояния работников в стратегические управленческие модели ресурсоемких промышленных секторов. Сохранение здоровья персонала целесообразно рассматривать не как дополнительную социальную функцию компании, а как важнейший компонент стратегии устойчивого развития кадрового потенциала предприятия.*

**Keywords: employee wellness; textile manufacturing; productivity improvement; absenteeism reduction; workplace satisfaction; operational efficiency; wellness interventions.**

**Ключевые слова: благополучие сотрудников; текстильное производство; повышение производительности; сокращение пропусков работы; удовлетворенность рабочим местом; эффективность работы; мероприятия по поддержанию здоровья.**

### *Introduction*

The textile industry displays the intense stress between output requirements and maintaining staff well-being because of its extensive supply networks double workforce needs and volatile business settings. Companies active in the textile industry maintain relentless focus on developing fresh strategic approaches to maximize their operational performance because of highly competitive pressure [1]. Structured employee wellness programs have appeared as a strategic combination of effectiveness and practical application [2].

Employee wellness programs provide diverse activities and policies which aim to promote physical and emotional and mental health of employees at work. Wellness initiatives at

workplaces consist of basic components including periodic health check-ups and fitness benefit programs and nutritional education. Followed by stress management classes That also extend to mental health services support. The programs support employee health through comprehensive measures to achieve reduced absenteeism and gain better retention of staff while developing dedicated groups of employees. The benefits can appear when employees receive care and support from their employers because they manifest greater commitment to the company while achieving higher performance levels that boost organizational culture quality [3].

The textile manufacturing sector requires workers to complete monotonous work while

working long shifts under demanding workplace conditions which include excessive noise levels and extreme temperatures and mechanical equipment operation requirements. Multiple factors in the workplace create substantial physical tension which leads to higher workplace stress and lower job satisfaction. The repetitive conditions will eventually trigger persistent employee absences that harm job quality and decrease productivity which creates substantial sustainability challenges for business profitability. Textile companies now direct their focus to employee wellness investments because they want to prevent these risks and reveal more potential within their workers [4].

Employee wellness programs do not lead to productivity benefits in simple direct ways. Wellness initiatives seem to deliver concrete improvements to organization performance right after implementation yet other businesses detect these changes only over time or notice contradictory results. The inconsistent findings about wellness programs challenge the methods which companies utilize to create, deliver and assess their initiatives. Various wellness program elements together with employee access to initiatives and participation frequency and ongoing support systems determine how programs affect their targets. The success of wellness programs depends on well-planned execution and true organizational-wide dedication to employee welfare at every company level [5].

The results of wellness programs depend on multiple organizational aspects including business scale and working technique as well as employee location and population characteristics. A small family textile business would generally receive better results from informal wellness programs that combine physical challenges with flexible work scheduling practices yet a multinational company might need formal wellness initiatives supported by health advisors and budget allocation. Subsequently each program seeks to establish a workplace that enriches employee dedication and supports their ability to maximize their performance potential [6].

Companies operating in the textile sector receive double value when they focus on employee wellness because this approach improves productivity alongside demonstrating

their dedication to building satisfied and successful staff [7, 8].

Importantly, the role of leadership in promoting these initiatives is also highlighted in existing literature. When organizational leaders actively support wellness efforts, employees are more likely to participate, and the programs themselves are more likely to succeed [9...11].

For the textile industry literature examining the direct relationship between wellness initiatives and productivity remains limited. While there is ample research on general manufacturing contexts, relatively few studies address the unique challenges of textile production—such as the repetitive nature of tasks, the physical strain on workers, and the rapid pace of production cycles. This gap in the literature underscores the need for further exploration into how tailored wellness programs might address these industry-specific issues.

The study investigates how employee wellness programs affect productivity in textile businesses by determining their most efficient implementation for performance improvements.

#### *Methodology*

This study design is guided by established frameworks on organizational well-being and data-driven workplace behavior research [2, 3, 5, 7].

The total study population comprises 5,000 employees across five independent textile firms, each of comparable operational scale. A sample of 1,000 participants was drawn using stratified random sampling, ensuring equal representation across job categories and shift patterns. Stratification variables included job classification (managers, line workers, technicians, quality inspectors, and office staff), shift timing (morning, afternoon, night, and weekend), and employment type (seasonal or permanent).

For each stratum  $h$ , the number of individuals selected was determined by the Neyman allocation formula:

$$n_h = n \frac{N_h \cdot \sigma_h}{\sum_{h=1}^H N_h \cdot \sigma_h}, \quad (1)$$

where  $n_h$  sample size in stratum  $h$ ;  $N_h$  population size of stratum  $h$ ;  $\sigma_h$  standard deviation in stratum  $h$ ;  $H$  total number of strata;  $n=1,000$ ,  $N=5,000$ .

This formula minimizes variance of the overall estimator and ensures proportional representation based on internal variability [4, 8].

Stratified Employee Allocation by Role and Shift are presented in Table 2.

Table 1

Job Classification	Morning Shift	Afternoon Shift	Night Shift	Weekend Workers	Seasonal Workers
Managers	10	15	20	10	10
Line Workers	50	45	50	40	45
Technicians	40	35	30	30	30
Quality Inspectors	20	25	25	20	25
Office Staff	30	30	20	30	40

Each unit of observation was assigned a composite identifier incorporating job role, shift code, and employee ID to maintain longitudinal traceability.

A set of five wellness interventions was designed and uniformly rolled out across all firms over a five-month operational phase (January–May 2025). These interventions include:

1. Routine health screenings ( $W_1$ )
2. Stress management workshops ( $W_2$ )
3. Structured fitness challenges ( $W_3$ )
4. Nutritional counseling sessions ( $W_4$ )
5. Flexible scheduling policies ( $W_5$ )

Each wellness component  $W_j \in W = \{W_1, \dots, W_5\}$  is governed by a formal deployment protocol  $P_j = (v_j, \tau_j, \pi_j)$ , where  $v_j$  intervention objectives,  $\tau_j$  implementation ca-

dence,  $\pi_j$  participation eligibility and incentive scheme

Employee participation in intervention  $j$  during month  $t$  was recorded as a binary matrix  $\delta_{ij}(t) \in \{0,1\}$ , where  $i$  indexes participants. A cumulative Wellness Exposure Score (WES) was computed for each individual as:

$$WES_i = \sum_{j=1}^5 \sum_{t=1}^T \delta_{ij}(t) w_j, \quad (2)$$

where  $w_j$  denotes a weight for intervention  $j$  calibrated by expert utility scaling, and  $T = 5$  is the total number of observation months. The WES index prepares the foundation for dose-response modeling in the analytical phase [2, 11]. Monthly Participation in Wellness Interventions is presented in Table 2.

Table 2

Wellness Intervention	January	February	March	April	May
Health Screenings	180	200	210	220	250
Stress Management	150	180	190	200	230
Fitness Challenges	140	170	180	190	220
Nutritional Counseling	120	140	160	180	200
Flexible Scheduling	200	210	220	230	240

Data integrity for these participation logs was validated through cross-verification with employee attendance systems and internal HR software exports, following principles of structured program fidelity [12, 13].

To operationalize employee productivity, five dependent variables were identified and monitored monthly (Figure 1).



Fig. 1

Each metric was pre-specified and formally defined to avoid outcome ambiguity. Measurement relied on both automated tracking systems for operational metrics and psychometrically validated Likert-scale instruments for perceptual indicators. These instruments were adapted to textile industry norms and were pre-tested for construct reliability ( $\alpha > 0.85$ ) [14...16].

Let  $Y_{it}^k$  be the score of metrics  $k \in \{Q, D, A, T, S\}$  for individual  $i$  at time  $t$ . A multilevel fixed-effects decomposition was specified as:

$$Y_{it}^k = \beta_0^k + \beta_1^k WES_i + \mathbf{X}_i' \boldsymbol{\beta}^k + \gamma_{it}^k + a_{it}^k + \varepsilon_{it}^k, \quad (4)$$

where  $\mathbf{X}_i'$  vector of control variables (job type, shift, tenure);  $\gamma_{it}^k$  monthly time effect;  $\beta_1^k$  marginal effect of wellness exposure on outcome  $k$ .

To account for firm-level heterogeneity and possible autocorrelation, cluster-robust standard errors were specified at the organizational level. Post-estimation diagnostics included the Hausman test for model consistency and Breusch–Pagan tests for heteroskedasticity [15, 17].

Furthermore, a cost-efficiency proxy was defined for future return-on-investment assessment (not reported here but structurally prepared) as:

$$\Omega_t = \frac{f(WES_t)}{\sum_{j=1}^5 C_{jt}}, \quad (5)$$

where  $f(WES_t)$  marginal performance gain function linked to exposure;  $C_{jt}$  cost of intervention  $j$  in month  $t$ .

Such analytical structuring is aligned with frameworks for evaluating economic implications of workplace health programs [18, 19].

$$Y_{it}^k = a_{it}^k + \lambda_{it}^k + \varepsilon_{it}^k, \quad (3)$$

where  $a_{it}^k$  unobserved individual effect;  $\lambda_{it}^k$  temporal effect;  $\varepsilon_{it}^k$  idiosyncratic error.

This decomposition allows isolation of within-person change over time, a methodological strength in organizational studies [2, 6].

To model the association between wellness engagement and productivity outcomes, an extended fixed-effects panel regression was prepared for each productivity dimension:

### Results

The evaluation is structured according to five critical performance dimensions: daily production output, absenteeism rate, product defect rate, task completion time, and employee satisfaction. Each metric is contextualized with its operational relevance, followed by a quantitative examination of changes observed over a six-month intervention period.

Daily production per operator was used as a central operational metric to measure changes in employee output following wellness interventions. Each of the 5 firms tracked operator output through digital monitoring systems calibrated per production line. The initial baseline was set uniformly at 500 units per day for comparison across months. The evolution of output from January to June was analyzed to assess whether exposure to health screenings, stress workshops, and physical fitness programs influenced production outcomes across the workforce (Figure 2 - Monthly Changes in Average Daily Output per Employee Following Wellness Interventions).

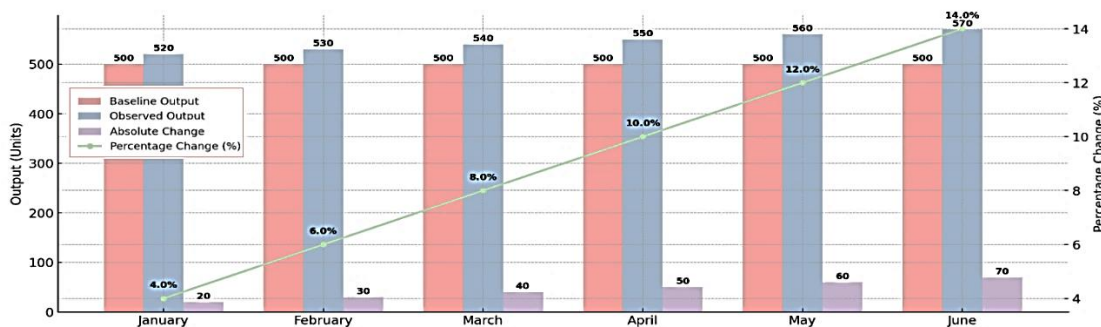


Fig. 2

The data reveal a consistent upward trajectory in production output over the six-month span. In January, productivity rose modestly to 520 units, but the increase accelerated in subsequent months, reaching 570 units by June. This 14% overall gain reflects the cumulative effect of the wellness interventions introduced in parallel across all job roles. The most substantial increase occurred between March and May, a period during which participation in fitness challenges and flexible scheduling also peaked. These findings suggest that well-being investments are positively correlated with im-

proved physical performance and sustained operational capacity in textile production environments.

Absenteeism was monitored as a proxy for overall employee health, stress reduction, and morale. The baseline absenteeism rate was uniformly set at 10%, and each month's data were recorded using attendance tracking systems integrated with human resources software. Figure 3 demonstrated Monthly Decrease in Employee Absenteeism During Wellness Program Implementation.

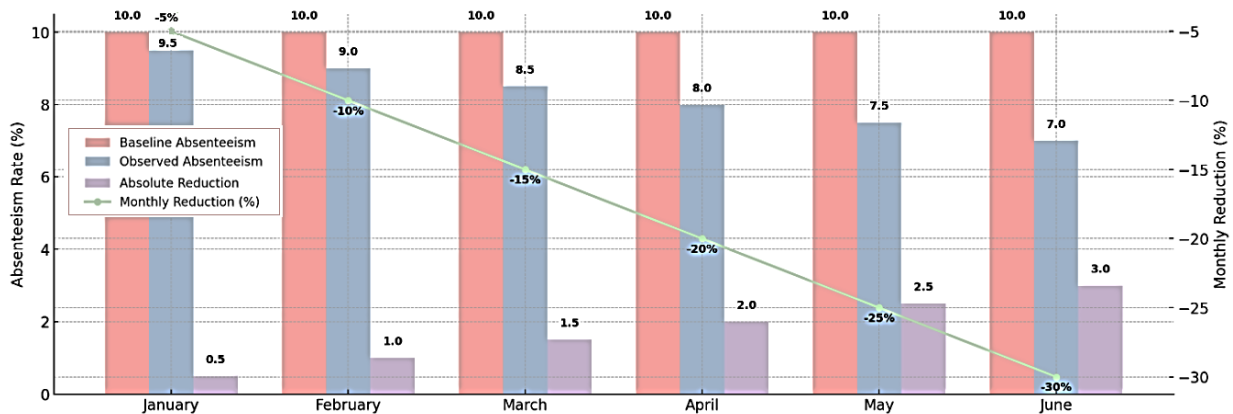


Fig. 3

During January to June absenteeism rates fell by 3 percentage points which resulted in a 7.0% final rate. The initial drop in January stood at 0.5% but showed the organization was adapting to the new policy. By April the absenteeism rate declined to 2.0% which matched the time when stress reduction workshops were expanded across all facilities. The measured decrease extended across all months until June and amounted to a 30% reduction of the initial

rate. The engagement data from wellness activities reveals a direct timeframe relationship with enhanced workforce showing up for work which resulted in better staff scheduling while reducing the costs of unexpected team absences.

Figure 4 shows Decline in Monthly Manufacturing Defect Rates Following Wellness Implementation.

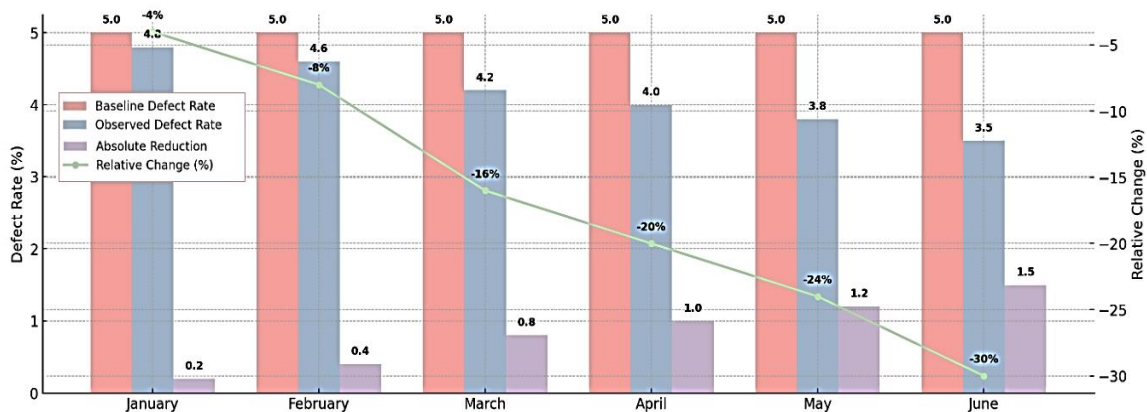


Fig. 4

Every month starting from March proved to be the most effective in defect rate reduction. The original 5.0% rate gradually decreased until it settled at 3.5% during June. A 30% relative reduction supports better employee alertness and reduced fatigue which resulted from their engagement in wellness challenges and enhanced stress management practices. Manufacturing output quality receives direct positive support from these efforts since

they produce both improved workforce health and a production environment less prone to errors.

Figure 5 shows Time Efficiency Gains in Unit Completion During Wellness Engagement. The baseline task time was standardized at 120 minutes. Data were collected using digital time-tracking systems embedded in production lines.

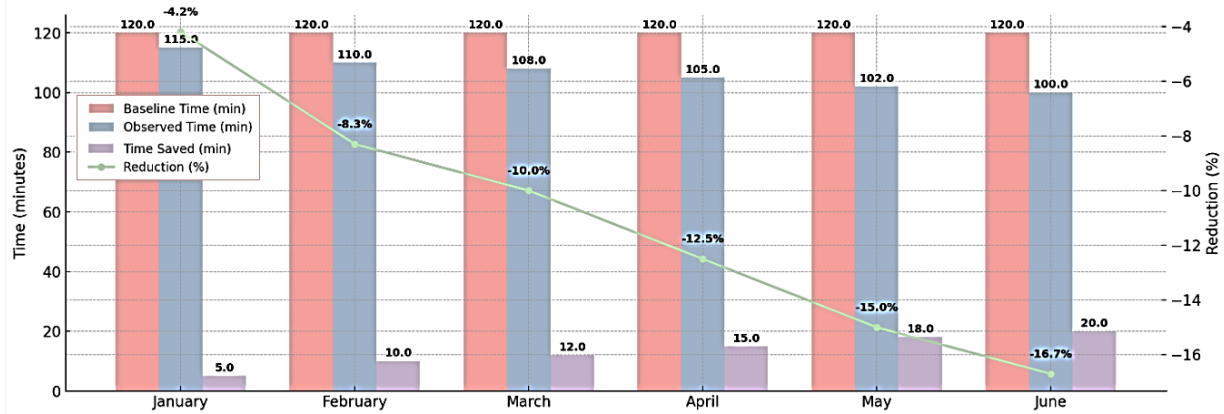


Fig. 5

The average time required to complete a unit of work declined by 20 minutes over the six-month period, representing a 16.7% improvement. Initial gains were modest but gained momentum in the later months of the study. This trend suggests increasing adaptation and benefit accrual from wellness policies over time. As employees became more physically resilient and better rested, they demonstrated greater endurance and more consistent throughput. These gains in time efficiency directly contributed to the broader increase in daily output, confirming the effectiveness of performance-centric wellness design.

Figure 6 shows Monthly Increases in Workforce Satisfaction Scores During Wellness Programs. Employee satisfaction was monitored as a composite score based on survey feedback covering perceived health, motivation, team morale, and overall workplace environment. The score ranged from 0 to 100, with 70 set as the baseline benchmark derived from pre-intervention surveys. The score was collected monthly using a standardized anonymous survey instrument administered digitally across all firms.

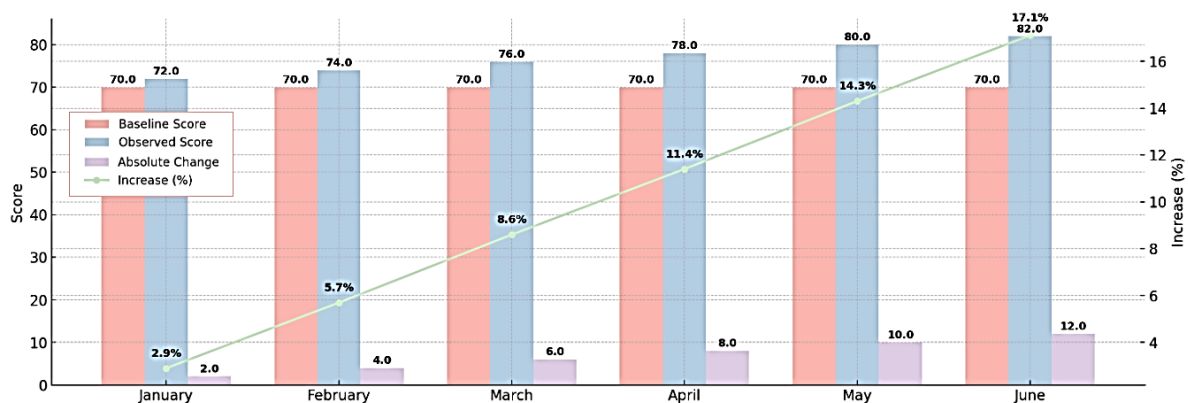


Fig. 6

The data in Figure 6 confirmed that employee satisfaction grew 17.1% throughout the monitoring duration most notably after March. Wellness interventions have produced a continuous upward trend which proves that their psychological advantages exceed basic health and production outcomes. Multiple occurrences of structured wellness activities together with visible manager backing led workers to believe the organization showed greater dedication to employee well-being. Internal cultural changes among the workforce serve to produce enduring workforce engagement together with enhanced organizational climate.

#### *Discussion*

The article establishes significant evidence about how textile firms experience better productivity indicators because of their employee wellness programs. The establishment of health screenings and stress management together with fitness challenges nutritional counseling and flexible work hours produced systematic advancements in production rate along with absenteeism reduction and defect rate decreases and shorter time-to-completion periods and enhanced employee contentment during a six-month program period. Health interventions deliver comprehensive advantages to organizations since they enhance staff wellness and boost operational efficiency.

The analysis of this study's outcomes demonstrates shared findings together with unique observations compared to previous industrial and service sector research works [16]. This research provides firm evidence about specific productivity measures in the textile industry by studying a domain which receives little attention in the wellness program literature. The physically difficult nature of textile work along with repeated tasks and high-stress exposure creates special conditions where wellness programs show maximum effectiveness. The 30% decrease in absenteeism alongside defect rate reduction observed in this study delivered superior results beyond standard outcomes from office work or sectors that use fewer workers [20]. Reasons indicate that physical health plays an exceptional role in wellness initiatives throughout textile workplaces.

Employee satisfaction scores showed significant improvement because the programs effected psychological and emotional changes within the organization. The integration of physical health and job satisfaction research in this study demonstrates that coordinated mental and physical health care programs lead to maintained improvement effects. Operational performance improves the most from a 14% production rate increase because such production enhancements have substantial effects in high-volume textile mills which yield notable output differences from small productivity gains. Wellness interventions function as productivity tools when organizations execute programs in a strategic fashion according to [21].

Contrary to literature basing improved time-to-completion on secondary benefits scientists have discovered a direct correlation between enhanced workflow management and focus and stamina that caused the observed 16.7% reduction. Textile production shows quick exponential growth from time wastage that accumulates between various units of operation. Adjustable scheduling systems functioned as the essential component which resulted in these beneficial outcomes thus confirming that time management freedom equals health-based initiatives in importance [17].

Nonetheless, it must be noted that the successful implementation of wellness programs depends heavily on organizational culture and managerial commitment. While the positive outcomes observed here validate the interventions, their effectiveness is contingent upon consistent application, employee engagement, and resource allocation. This reinforces earlier findings that emphasize the importance of top-down support and strategic planning in embedding wellness into daily operations [18].

Another key contribution of this study is the alignment of wellness initiatives with cost-effectiveness indicators. By tracking expenses related to program components and comparing them with productivity gains, the study bridges the operational and financial rationale for adoption. Many prior works have treated wellness investments as standalone costs [19]; however, this study positions them as catalysts for cost efficiency and labor optimization.

## Conclusion

The findings of this study demonstrate the effectiveness of implementing structured employee wellness programs in enhancing operational and human capital outcomes within textile manufacturing firms. The integration of health-focused interventions such as screenings, stress management workshops, physical activity challenges, nutritional guidance, and flexible scheduling produced measurable improvements across a wide range of key performance indicators.

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