Human Resource Intervention and Employee Absenteeism: A moderation Study of Biometric Attendance

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Abstract

The purpose of this research is to examine the impact of HR interventions, specifically training, recruitment policies, and support from supervisors, on employee absence using biometric attendance. Quantitative approach using self-administered questionnaire was used to collect the data. The study focused on a population of 2,422 individuals, from which a sample of about 250 participants was chosen. This sample size was selected to accurately reflect the broader population, allowing for meaningful insights while keeping the data collection process practical and manageable. By choosing this sample, the study aims to ensure the results are both reliable and applicable to the larger group. The results show that HR interventions have a significant impact on reducing employee absence, with the strongest effect seen in the use of biometric attendance. The findings provide valuable information for companies to better understand the importance of HR interventions and the role of biometric attendance in reducing employee absence as well as contributes to provide valuable insights for organizations seeking to enhance workforce attendance and overall productivity.

Keywords: *training, biometric attendance, employee absenteeism, recruitment policies, human resources, supervisor support*

This paper examines how integrating biometric attendance systems as an HR intervention can reduce employee absenteeism and improve organizational performance in Nepal's footwear industry while offering insights for policymakers and stakeholders

Introduction

The evolution of Biometric attendance is replacing the traditional method so as to ensure accuracy and the avoidance of fraudulent activities in organizations. Most of the prominent footwear brand in Nepal are pressing the issue of employee absenteeism through human resource interventions, particularly the integration of biometric attendance systems. Employee absenteeism is recognized as a critical challenge for organizations, leading to decreased productivity, heightened workload for present employees, and overall diminished morale (Bojana In the late 20th century, the industry began shifting toward mechanized production.

A study by (Bao et al., 2020) found that the implementation of biometric attendance systems can reduce employee absenteeism rates. The proposed concentrate on plans to look at the impact of HR interventions on employee absenteeism using biometric attendance systems in Nepal. By distinguishing the variables that impact representative non-appearance, associations can develop more effective strategies to address the issue and improve their overall performance. This study can also provide valuable insights for policymakers and other stakeholders interested in promoting better labor practices in Nepal.

Literature sources

Furthermore, organizational behavior theories, such as those proposed by Sitarević et al., (2023) explore absenteeism in relation to various individual, demographic, and organizational factors, suggesting that addressing workplace conditions and providing supportive HR interventions can significantly reduce absenteeism rates. Research by Salih Ali et al., (2018) suggests that employee's acceptance of biometric systems depends on factors such as trust, ease of use, and management support. Thus, it is crucial for organizations to consider these factors when integrating biometric systems to maximize their effectiveness. A substantial body of empirical research supports the effectiveness of HR interventions in reducing absenteeism. For instance, a meta-analysis by Tarro et al.,(2020b)

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found that workplace interventions, including individualized programs and counseling-based approaches, were effective in reducing absenteeism and improving work productivity. Such interventions have been shown to be particularly effective when tailored to individual employees' needs, highlighting the importance of personalized approaches to managing absenteeism. Furthermore, HR practices that focus on enhancing employee motivation, well-being, and job satisfaction have been shown to reduce absenteeism by fostering a more positive and engaging work environment (Nicola & Forte, n.d.). Biometric attendance systems have also been shown to have a positive impact on absenteeism by ensuring accurate attendance records and reducing fraudulent attendance practices such as buddy punching. Research conducted by Spectra, (2022) and Gandhi Hardi Kapadia, (2023), underscores the ability of biometric systems to streamline attendance management, improve efficiency, and foster trust between employees and employers. These systems not only track attendance more accurately but also provide organizations with real-time data that helps in better decision-making and resource allocation.

In Nepal, the implementation of biometric attendance systems has become increasingly popular as a solution to combat absenteeism. Isnanto et al., (2020) argue that biometric systems are particularly effective in Nepalese organizations, as they eliminate the possibility of time theft and ensure accurate attendance records. However, the effectiveness of biometric attendance systems in Nepal is influenced by several factors, including employees' perceptions of the technology and the level of support from management. A study by Prasain and Bhandari (2020), found that the successful implementation of biometric systems in Nepalese organizations depends on factors such as employee training, the quality of the technology used, and management's commitment to supporting the system. Furthermore, a study conducted by Shrestha et al. (2021), examined the impact of HR interventions, including biometric systems, on absenteeism in Nepalese organizations. Their mixed-methods approach revealed that the integration of HR interventions, especially biometric systems, significantly reduced absenteeism. The study also highlighted the importance of employee training and management support in ensuring the success of these systems. Employees who were well-trained and felt supported by management were more likely to accept the technology and comply with attendance policies.

Nicholson's (1977) absenteeism theory delves into the psychological and organizational aspects of absenteeism, suggesting that it results from a combination of personal factors and organizational influences. The psychosocial model, as described (Sitarević et al., 2023) expands on this idea by incorporating work-related attributes, such as job satisfaction, organizational culture, and employee mental health, as key drivers of absenteeism.

Research objectives

To evaluate the direct impact of HR interventions (Training, Recruitment, and Supervisor Support) and Biometric Attendance on employee attendance.

To analyze the moderating role of Biometric Attendance systems in the relationship between HR interventions and employee attendance.

Conceptual framework

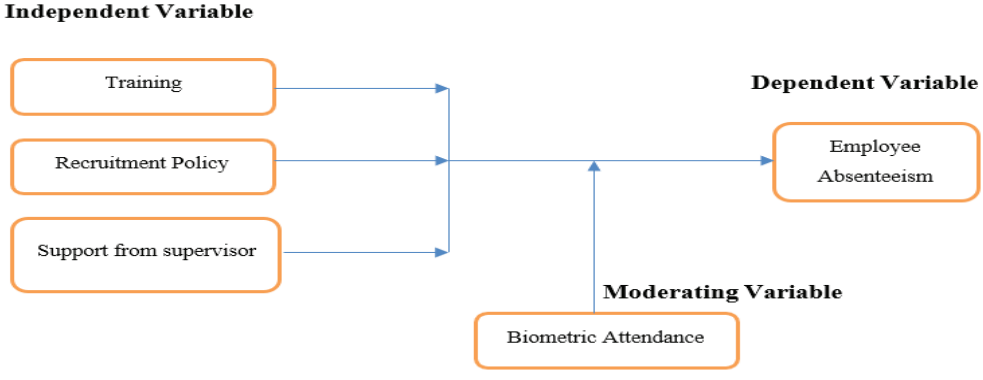

Figure 1: Framework

This study uses quantitative approach with simple random sampling of 250 employees at Goldstar, employing Likert-scale questionnaires and statistical analyses (descriptive, reliability, and moderation) to examine how HR interventions and biometric attendance systems influence employee absenteeism.

The findings indicate that Recruitment and Biometric Attendance are the most significant drivers of employee attendance at Goldstar, with biometric systems notably enhancing the effectiveness of recruitment, while Training and Supervisor Support show no significant direct or moderating impact, highlighting the dominant role of structural and technological controls over soft HR practices in this context

Research methodology

This study used a positivist research ethic and a quantitative methodology to examine the correlation between HR interventions, biometric attendance systems, and employee absenteeism at Goldstar, a Nepalese shoe company. The study methodically analyzes the impact of variables such as training, recruitment rules, and supervisor support on attendance practices, with biometric systems acting as a moderating factor. The study seeks to evaluate specific hypotheses and discern statistical linkages within the organizational context by concentrating on quantifiable numeric patterns. To get a good sample, the researcher used simple random sampling to choose 250 individuals from a total of 2,422 people in 16 different departments. The Krejcie and Morgan formula was used to figure out the sample size such that bias was kept to a minimum and the results could be applied to other situations. A self-administered online questionnaire using a five-point Likert scale was used to gather data. The scale was based on existing tools and was tested for reliability and content validity with the help of experts. Using descriptive and inferential statistics, the data analysis process turns raw survey results into useful information. This entails computing the mean to ascertain core tendencies and the standard deviation to evaluate data dispersion. Additionally, the study employs reliability testing and moderation analysis to evaluate the consistency of the research instruments and the distinct influence of the selected variables. This organized methodology ultimately offers a robust foundation for assessing the efficacy of HR interventions in reducing absenteeism.

Data analysis

Table 1 Descriptive analysis

	Mean	Std. Deviation
Training	22.7639	7.99382
Recruitment	24.4306	7.93251
Supervisor	22.7231	9.29971
Employee	24.5278	8.69186
Biometric	22.1389	8.01988

The descriptive statistics show that Employee Attendance (Mean = 24.53) and Recruitment (24.43) have the highest average scores, which means that people think they are very relevant. However, Supervisor Support has the most variation (sd= 9.30$), which means that employees have different experiences. On the other hand, Biometric Attendance (Mean = 22.14) has the least agreement among participants.

Reliability tests

Table 2 Reliability test

Variable	Cronbach's alpha	Number of items
Training	0.874	10
Recruitment	0.854	10
Supervisor	0.935	10
Employee	0.894	10
Biometric	0.884	10

The reliability analysis indicates that all five research instruments exhibit substantial internal consistency, as evidenced by Cronbach's alpha values greatly beyond the conventional 0.70 threshold. The highest reliability is for Supervisor Support (sd = 0.935), while the lowest is for Recruitment (sd = 0.854). The fact that there are 10 items for each variable shows that the scales are strong and reliable for measuring the study's constructs.

Hypothesis testing

Table 3 Hypothesis testing

[T=training, R=recruitment, S=supervisor support, B= Biometric Attendance]

Hypothesis	Path	B	t-statistic	(p-value) Sig.	Result
H1	T->EA	0.273	1.847	0.070	Rejected
H2	R->EA	0.646	3.831	0.000	Accepted
H3	S->EA	0.047	0.413	0.681	Rejected
H4	B->EA	0.705	6.682	0.01	Accepted

R Square = 0.658
F = 39.191, Sig = 0.001

P<0.05

The results of the hypothesis testing show that Recruitment (R) and Biometric Attendance

(B) are the main factors that affect employee attendance (EA). Both factors had a substantial effect on attendance at the 5% level, with p-values of 0.000 and 0.01, respectively. On the other hand, Training (T) and Supervisor Support (S) were not considered significant predictors because their p-values (0.070 and 0.681) were higher than 0.05. The model has a high R^2 value of 0.658, which means that these variables explain 65.8% of the difference in employee attendance. The F-statistic (39.191) adds to the evidence that the model as a whole is statistically significant.

Moderation analysis

Table 4 Moderation analysis

Relationship	Beta	t	P-value	
T->EA	0.231	1.847	0.070	Rejected
B->EA	0.624	6.682	0.01	Accepted
T*B->EA	-0.177	-0.539	0.592	Rejected
R->EA	0.576	3.831	0.01	Accepted
B->EA	0.624	6.682	0.01	Accepted
R*B->EA	1.139	2.664	0.010	Accepted
S->EA	0.049	0.413	0.681	Rejected
B->EA	0.624	6.682	0.01	Accepted
S*B->EA	-0.261	-0.959	0. 341	Rejected

The moderation analysis shows that Biometric Attendance (B) only has an effect on employee attendance when it interacts with Recruitment (R). Both Recruitment and Biometric Attendance have a big positive influence on attendance on their own (p=0.01), but when they are combined (R×B), the effect is even bigger (p=0.010) with a strong positive Beta of 1.139. This indicates that biometric solutions substantially augment the beneficial effects of successful recruitment procedures on mitigating absenteeism. On the other hand, Biometric Attendance doesn't have a big effect on Training (T) or Supervisor Support (S). The interaction terms T×B (p=0.592) and S×B (p=0.341) were also turned down. This means that the effect of training and supervisor support on attendance stays the same statistically, even if a biometric system is in place.

Discussion

The outcomes of the hypothesis testing and moderation analysis provide essential insights into the dynamics of employee attendance at Goldstar. A significant finding is the substantial direct influence of Recruitment (R) and Biometric Attendance (B) on attendance rates ($p < 0.05$). This indicates that the company's formal entry-point regulations and technical monitoring systems are the most effective means for managing absenteeism. It's interesting that Training and Supervisor Support were not accepted as important direct predictors, even if they are important in theory. This could mean that in this particular manufacturing setting, structural and technical controls are more effective than "soft" HR interventions at getting people to show up for work every day. The moderation analysis enhances these findings by demonstrating a significant synergy between recruiting and technology. The interaction term ($R \times B$) was accepted with a high Beta coefficient (1.139), showing that biometric systems do more than merely keep an eye on employees; they also make strong hiring procedures work even better. In essence, when the appropriate applicants are selected through stringent procedures, the biometric system functions as a reinforcing mechanism that upholds elevated attendance standards. But the fact that Training and Supervisor Support aren't heavily moderated shows that these sections work on their own without technology surveillance. The analysis shows that for Goldstar, combining selective recruiting with automated attendance tracking is the best way to make the organization more stable.

The hypothesis testing shows that Recruitment and Biometric Attendance significantly influence employee attendance ($p < 0.05$), while Training and Supervisor Support do not, with the model explaining 65.8% of attendance variation and demonstrating overall statistical significance.

The moderation analysis shows that Biometric Attendance significantly strengthens the positive effect of Recruitment on employee attendance, while it does not significantly influence the effects of Training or Supervisor Support.

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