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Using Social Auditing to Analyze Absenteeism in Industrial Companies: A Case Study of the GICA Cement Company, Hamma Bouziane Branch

Nabti Hind [1], and **Bouhrine Fatiha** [2]

[1] Doctor, University of Constantine 2 Abdelhamid Mehri (Algeria)
Email: hind.nabti@univ-constantine2.dz
[2] Professor, University of Constantine 2 Abdelhamid Mehri (Algeria)
Email: fatiha.bouhrine@univ-constantine2.dz

Abstract---This study aims to utilize social auditing to analyze the phenomenon of absenteeism at GICA company, Hamma Bouziane branch, while examining future developments of this phenomenon by forecasting absenteeism indicators for the years 2025-2027 using Power BI software. The analytical descriptive methodology was adopted as the foundation for covering theoretical aspects and collecting and analyzing absenteeism data. The study concluded that social auditing revealed challenges and problems in absenteeism management that require proactive intervention and restructuring of organizational practices. This audit was not limited to current diagnosis only, but extended to future forecasting, where it outlined potential scenarios for employee absenteeism during the period from 2025 to 2027, thereby confirming its role as an effective analytical tool in diagnosing and developing institutional performance.

Keywords---social auditing, human resource management, employee absenteeism, prediction.

1. Introduction

The contemporary business environment is witnessing rapid changes in ensuring corporate continuity, particularly in human resource management. Human resources are no longer viewed merely as an operational element but as a fundamental partner in value creation and achieving desired objectives, thereby serving as profit generators. In light of these transformations, companies face increasing challenges in managing their human resources, especially in understanding the root causes of employee

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absenteeism, which is considered one of the most prominent problems negatively affecting overall corporate performance. To attempt to uncover the underlying aspects of this phenomenon, it is essential to study and analyze applied procedures and examine, evaluate, and audit adopted policies. In this context, social auditing, also known as human resource management auditing, has emerged as the most effective tool for analyzing and assessing risks associated with the absenteeism phenomenon.

1.1. Research Problem

In light of the above, the following problem can be posed:

How can social auditing techniques be utilized to analyze the absenteeism phenomenon at GICA Cement Company, Hamma Bouziane branch?

2.1. Sub-questions

The following sub-questions emerge from the main research problem:

- How can social auditing indicators be used to diagnose and analyze the absenteeism phenomenon in the company under study?
- To what extent does social auditing contribute to predicting future absenteeism rates?

3.1. Significance of the Study

The significance of this study lies in directing attention toward the importance of implementing social auditing in Algerian institutions, particularly in the field of absenteeism management, by highlighting the practical importance of this type of auditing. This is represented in its ability to bring about a qualitative shift in the management of Algerian institutions, as it constitutes a comprehensive strategic tool that enables management to uncover hidden problems and analyze performance indicators with high precision. It helps institutions improve their various operations, such as absence management, which enhances their operational efficiency and provides them with the ability to predict and adapt to future trends.

Moreover, social auditing contributes to enhancing institutional competitiveness and ensuring their sustainability and long-term growth, making it a fundamental approach for developing administrative practices and achieving institutional excellence in the contemporary economic environment.

4.1. Research Objectives

This study seeks to:

- Simplify understanding of social auditing;
- Demonstrate the importance of examining and evaluating absenteeism management procedures;
- Study and analyze employee absenteeism rates in the company under study;
- Predict absenteeism rates for the years 2025, 2026, and 2027;
- Provide recommendations to reduce this phenomenon based on the results of indicator analysis and predicted absenteeism rates.

5.1. Research Methodology

The analytical descriptive methodology was adopted through presenting theoretical and intellectual literature on the study topic. Additionally, the case study approach was employed by collecting absenteeism management indicators and measuring their evolution using Power BI software to extract the contribution of social auditing in reducing the employee absenteeism phenomenon, and conducting a predictive study of this phenomenon's rates and anticipating future developments.

2. Literature Review and Hypothesis Formulation

In this section, the theoretical framework of the study was constructed by addressing the intellectual literature related to social auditing with a focus on absenteeism auditing, and discussing social auditing indicators specific to absenteeism, predicting organizational behaviors, and clarifying the role of social auditing in early warning of the absenteeism phenomenon, followed by formulating the study hypotheses.

1.2. Applications of Social Auditing in Diagnosing the Absenteeism Phenomenon

R. Vatier describes social auditing as a guidance and control tool whose purpose, similar to financial and accounting auditing, is to assess the institution's ability to manage problems related to the human and social aspects posed by its environment through employing competent employees suitable for its activities **(el ghazali mebarka, 2022, p. 84)** ‹According to **Candau**, social auditing is an objective, independent, and inductive methodology that combines observation, analysis, evaluation, and recommendation provision, relying on specific methods and techniques, while using clear reference standards to identify strengths, problems arising from human resource management, and constraints represented in costs and risks **(kirimi brahim, 2020, p. 682)** ‹**(khelassi, 2014, p. 27)** clarified in his book the gradual construction of the social auditing concept over time as follows:

- **1960s**: Beginning of applying the auditing concept to human resource management control;
- **1970s**: The term "social auditing" gained popularity and became widespread and diverse, especially regarding social issues, in addition to developing the social dashboard and establishing the Social Auditing and Expertise Development Unit by VATIER institution;
- **1980s**: This period was characterized by the emergence of institutions as human communities, in addition to social dysfunctions that attracted considerable attention. This period also witnessed a gradual transformation in institutions from the personnel affairs function to the human resources function. In 1981, the International Institute of Social Auditing (IAS) was established;
- **1990s**: This period witnessed the development of the social performance concept along with structuring the social auditor function and developing social auditing. Procedures and standardization criteria specific to social auditors were established starting in 1994 (ISO 9002);
- **2000s**: Spread of notable and increasingly growing sensitivity to approaches centered on the social concept, social standards, socially responsible investments, and achieving sustainable development.

Accordingly, it can be said that social auditing is an operational audit focusing on evaluating employment policies, training and development programs, working conditions, and employee job well-being. Additionally, it includes job auditing, where job structure is analyzed, job descriptions are examined, and their suitability to institutional objectives and employee needs is evaluated. Therefore, social auditing has prominent importance in improving economic performance, particularly as it serves as a compass for human resource management.

The economic thinker Friedman through two approaches demonstrated this: the price competitiveness approach and the competitiveness through diversification approach. According to the approach focusing on price competitiveness, social auditing is considered a tool for controlling costs within the institution, specifically human resource costs such as payroll, compensation, and turnover rate. As for the approach focusing on competitiveness through diversification, it concentrates significantly on human capital, i.e., investing in human resources. Therefore, the importance of this audit lies in increasing human resource contribution to institutional success by enabling employees to acquire multiple skills that allow the institution to adapt to the diversification strategy **(tiguit, 2019, p. 443).**
Continuous employee absenteeism without monitoring or knowing the causes will create a tense environment that negatively affects company performance. In this context, absenteeism management auditing has emerged as the most suitable means for in-depth analysis of the causes of this phenomenon and proposing recommendations to help reduce it. Accordingly, absenteeism auditing can be defined as an in-depth analysis of causes and proposing tools to help reduce employee absenteeism at the company level. According to Drissi **(drissi, 2017, p. 170)** the examination and auditing process requires defining objectives, which include: ensuring the institution identifies various forms of absenteeism appearing at its department levels, ensuring the institution conducts absenteeism analysis and determines the absenteeism rate at both the entire institution level and its departments, and

ensuring the institution implements procedures to reduce the absenteeism rate. It also requires determining the program, which refers to the auditor's most important tasks in examining absenteeism, including several fundamental aspects: monitoring and identifying apparent forms of absenteeism, monitoring and analyzing this phenomenon by studying its different dimensions, in addition to monitoring the evaluation of absenteeism's impact on the company's financial situation, and finally monitoring the determination of necessary preventive and corrective measures in the auditing process.

Analyzing the absenteeism phenomenon requires an in-depth study encompassing analysis by age, gender (where it is usually observed that women's absence rate is higher than men's), professional qualification level, and seniority, and relying on indicators to analyze causes, which Guerrero **(guerrero, 2008, pp. 111-112)** summarized in the following table:

Table 1: Absenteeism indicators

The indicator	**How to calculate**
Absenteeism rate	Number of hours absent/number of theoretical working hours
Absenteeism rate by socio-professional category	Number of hours of absence for socio-professional category/number of theoretical working hours for socio-professional category
Average duration of absence	Number of hours absent/number of absences
Absence recurrence rate	Number of absences/total number of employees
Short-term absence rate	Number of absences less than 3 days/total number of absences
Risk of absence	Cost of absence/wage bill

Source : Sylvie GUERRERO, Les outils de l'audit social, Edition DUNOD, Paris 2008, p111-112.

Absenteeism is associated with numerous causes, which requires integrating these factors, such as health and safety, into indicator calculations to enhance the analytical study of absenteeism and enable the social auditor to increase the effectiveness of the examination and auditing process. The following table illustrates the most important of these indicators.

Table 2: Indicators related to health and safety

The indicator	**How to calculate**
Classification of absences according to reasons	Number of hours lost due to accidents/total hours lost
	Number of hours absent due to illness/total hours absent
Work accident rate	Number of accidents/number of working hours
Percentage of serious accidents	Rate of accidents causing lost time/total number of accidents
Classification of accidents by cause	Number of accidents related to cause X / Total number of accidents
Disease recurrence rate A	Number of people infected with disease A / Total number of workers
Proportion of staff working at night	Number of workers working at night / Total number of workers

Source **:**Sylvie GUERRERO, Les outils de l'audit social, Edition DUNOD, Paris, 2008, p212-213.

Furthermore,**(drissi, 2017, p. 176)** identified the documents and records that should be relied upon to conduct investigation and examination operations, comprising:

- Employee files over extended periods;
- Tables and data illustrating various forms of absenteeism;

- Dashboard indicators related to absenteeism;
- Factors and causes of absenteeism during the audit period;
- Corrective measures to reduce absenteeism.

Ravalec**(ravalec, 1986, p. 202)** delineated absenteeism patterns through the number of days absent related to employee illness, workplace accidents, commuting accidents, maternity leave, authorized leave, and other reasons. He further noted that the audit process for this phenomenon encompasses three principal stages: data collection, indicator construction, and cross-data analysis with dashboard creation.

Based on the aforementioned considerations, it can be indicated that employing social audit techniques in analyzing absenteeism, through conducting systematic examination and comprehensive evaluation of various mechanisms with in-depth analytical study of relevant indicators, provides the social auditor with the capability to present an accurate and objective scientific diagnosis of this organizational phenomenon. This enables the identification and analysis of different prevailing forms of absenteeism within the organization, understanding their dynamics and temporal-spatial patterns, as well as measuring their financial and economic impacts on institutional performance. Moreover, this multidimensional analysis facilitates the examination of demographic, professional, and organizational variables influencing absenteeism behavior, thereby contributing to identifying the root causes of the phenomenon and constructing preventive and corrective intervention strategies based on reliable empirical evidence.
Accordingly, the following hypothesis can be formulated:
H1: Social audit indicators enable accurate diagnosis of absenteeism through analysis of quantitative, qualitative, and social dimensions.

2.2. Predictive Models Based on Human Resources

According to Mohammed**(Mohammed, 2019, p. 57)** , HR-based predictive analytics applies forecasting to unknown events using statistical data analysis, modeling, machine learning, and artificial intelligence to analyze current data and predict future patterns. Predictive analysis in human resources represents a critical domain where HR managers utilize predictive analytics to analyze human behavior. Mishra (2016, p. 34) added that predictive models combine analytical algorithms with results presentation in the form of probability values upon which decisions are made. This study further elucidated applications of predictive modeling in HR management functions for decision-making across various domains:

- **Predictive Modeling for Turnover:** Forecasts future employee turnover rates in specific jobs, business units, geographic areas, and countries by considering factors such as commute time, time elapsed since last job change, and performance over time. Consequently, recruitment can be measured extensively, leading to improved hiring, fewer interviews, reduced costs, and enhanced recruitment quality.
- **Response Modeling:** Utilizes historical data from previous advertising campaigns to avoid contacting candidates who will not respond and focus on effectively functioning channels.
- **Predictive Retention Modeling:** Identifies high-risk employees, builds profiles, predicts vacancies, understands leadership needs, and comprehends risk distribution throughout the organization.
- **Risk Modeling:** Develops profiles for candidates with higher risks of early departure or substandard performance.
- **Talent Prediction:** Enables forecasting of new employees based on their profiles who are likely to be high performers, subsequently transferring them to high-potential programs.

Kakulapati **(V. Kakulapati, 2020, p. 4)** emphasized the fundamental role of predictive analytics in HR management in supporting administration through implementing HR functions such as forecasting market trends and personnel needs, appropriate training requirements, employee salaries based on performance, and maintaining employee data for reward assessment while preserving employee privacy. Predictive analytics also assists administrative personnel in making decisions regarding recruitment, employee retention, training costs, awards, employee career path development, administrative efficiency, and productivity. HR predictive analytics can estimate imminent consequences and understand the implications of theoretical adjustments in organizations.

With the advancement of machine learning, emergence of massive social survey data, and improved computational processing capabilities, the era of social prediction has commenced. According to Ju (**Ju, 2021, pp. 7-10)** , machine learning is defined as developing computational algorithms to achieve clustering, classification, and prediction tasks through optimizing statistical performance criteria. Machine learning is divided into two types: supervised learning (for prediction and classification) and unsupervised learning (for clustering). Supervised learning aims to achieve prediction accuracy by training models on pre-labeled datasets, employing methods such as regularized regression and neural networks. Social prediction is defined as utilizing temporal and spatial data with machine learning to accurately measure unknown information, thereby providing a foundation for social decision-making and scientific research.

Consequently, the above can be applied to absenteeism prediction, which is considered one of the most important applications of predictive analysis in human resource management. It aims to anticipate the probability of employee absence before occurrence. This type of prediction relies on analyzing a diverse set of explanatory variables such as employee demographic characteristics (age, gender, marital status), professional factors (years of experience, nature of work, working hours), personal circumstances (distance from workplace, number of children, health status), in addition to temporal patterns such as seasonality and days of the week. Through utilizing machine learning models, employees most susceptible to absence and expected time periods can be identified, enabling organizations to establish effective preventive strategies, improve work scheduling, optimally allocate resources, and reduce costs associated with unplanned absences, thereby elevating overall organizational productivity and efficiency. Therefore, the second hypothesis can be formulated as follows:
H2: Social auditing facilitates early detection of predictive warning indicators of absenteeism.

3. Methodology and Tools

The study relied on calculating absenteeism indicators for the organization under investigation and measuring their evolution using Power BI software to extract the contribution of social auditing in improving absence management quality, in addition to a predictive study of social indicators specific to employee absenteeism and forecasting future developments.

4. Study Results

1.4. Calculating Absenteeism Indicators

The absenteeism indicator is calculated monthly in the organization according to the following formula:
Absenteeism Rate = Number of Absent Hours / Number of Working Hours

This indicator or rate represents the proportion of absent hours compared to total working hours. In the organization under study, a target value was set at less than 3%. That is, if the indicator exceeds 3%, the human resources management must reassess and examine employee absenteeism, identify causes of absence, and implement corrective actions to improve employee attendance and enhance HR management performance specifically and organizational performance generally. The following table illustrates absenteeism indicator rates at Hamma Bouziane Cement Company during the period (2018-2023):

Table 3: Absenteeism rates at the institution under study

month	2018	2019	2020	2021	2022	2023
jan	0%	5,32%	4,51%	4,56%	6,91%	5,50%
feb	0%	5,20%	4,57%	4,31%	4,65%	5,90%
march	0%	4,50%	3,99%	4,84%	6,19%	7,79%
April	3,96%	4,74%	3,53%	4,84%	5,95%	9,00%
may	5,12%	5,13%	3,92%	4,72%	5,07%	7,30%
June	4,61%	4,56%	3,91%	5,13%	5,23%	7,32%
July	3,82%	3,39%	3,27%	5,53%	4,39%	9,00%
August	4,92%	3,18%	4,06%	6,32%	5,45%	7%
sep	4,62%	4,35%	4,44%	6,77%	5,63%	7,00%
oct	5,34%	4,73%	4,16%	5,98%	5,77%	6,21%
nov	4,62%	4,41%	0%	6,43%	5,13%	5,77%
dec	5,08%	4,84%	0%	6,12%	5,67%	5,79%

Source: Prepared by the researcher based on the institution's documents.

The table presents data from Hamma Bouziane Cement Company regarding absenteeism indicators throughout the study period. As demonstrated in the table, the organization faces a significant challenge manifested in employee absenteeism. The lowest recorded rates ranged between 3.18% and 3.99%, which exceed the established threshold of 3%. The highest rates were recorded during April and July 2023, reaching 9%—a substantially elevated value compared to the target rate of 3%. The remaining rates ranged between 4.06% and 7.79%, which are also considered elevated levels.

This persistent pattern of absenteeism above the organizational target indicates a systematic issue requiring comprehensive investigation and strategic intervention to identify underlying causes and implement effective remedial measures.

2.4Measuring the development of absence indicators

The evolution of absence indicators over the months can be illustrated in the following figure:

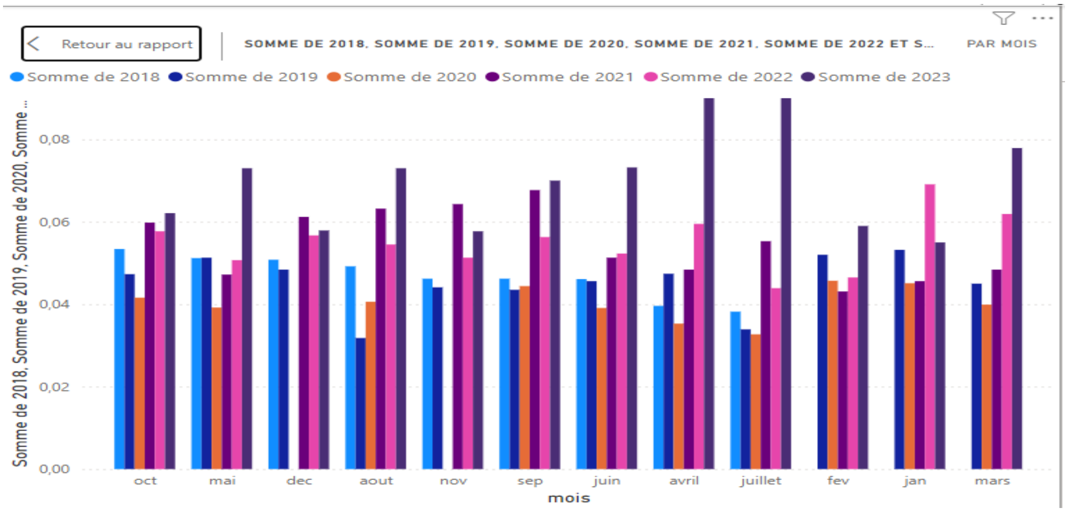

Figure 1: Absenteeism indicators in the institution under study

Source: Prepared by the researcher based on the institution's documents.

Based on the data presented in the figure, it is evident that Hamma Bouziane Cement Company confronts substantial challenges with employee absenteeism. Recorded rates ranging from 3.18% to 9% consistently exceed the targeted threshold, which should not surpass 3%. This persistent pattern of absenteeism above the organizational target indicates a systematic issue requiring comprehensive investigation and strategic intervention to identify underlying causes and implement effective remedial measures.

3.4. Forecasting absence indicators during the period (2025-2027)

The following figure shows the predicted values for absence indicators during the months of the years from 2025 to 2027.

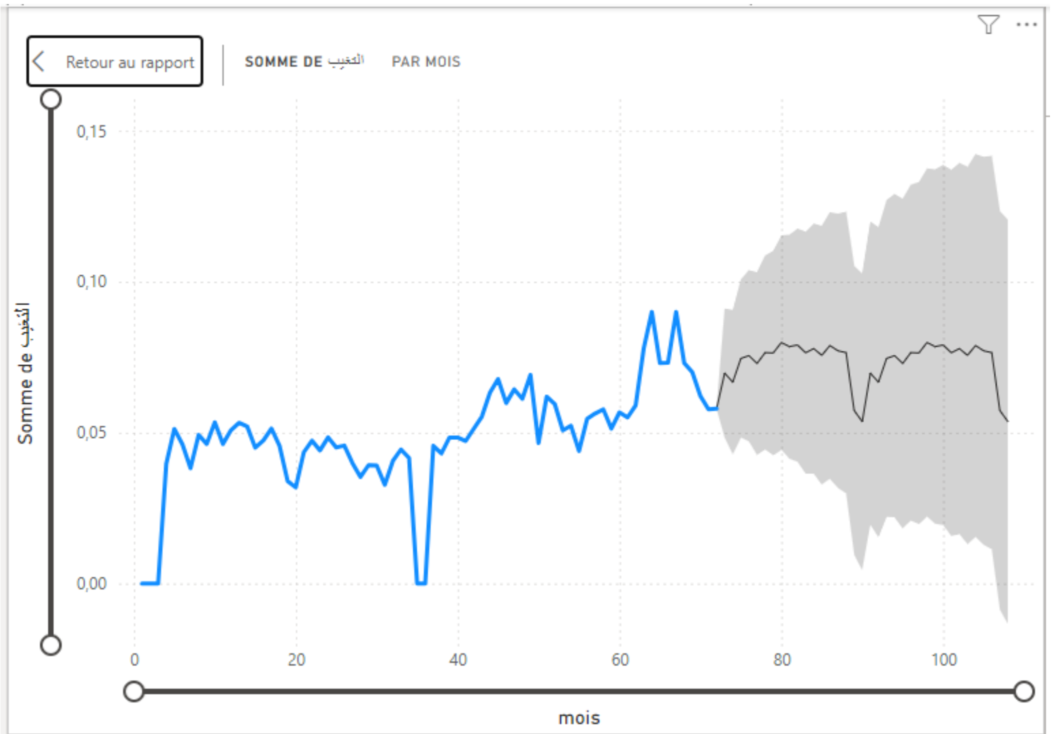

Figure 2: Prediction of absence indicators during (2027-2025)

Source: Prepared by the researcher

The prediction results can be interpreted in the following table:

Table 4: Predicted results for absence indicators during the period(2027-2025)

12	11	10	9	8	7	6	5	4	3	2	1	The months / years
8%	8%	8%	8%	8%	8%	8%	7%	8%	7%	7%	7%	2025
8%	7%	8%	7%	7%	7%	5%	6%	8%	8%	8%	8%	2026
5%	6%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	2027

Source: Prepared by the researcher

5. Testing the study hypotheses

1.5. Testing the first hypothesis

The first hypothesis posits that social audit indicators enable accurate diagnosis of absenteeism through analysis of quantitative, qualitative, and social dimensions. It can be formulated as follows:

H0: Social audit indicators do not enable accurate diagnosis of absenteeism through analysis of quantitative, qualitative, and social dimensions.

H1: Social audit indicators enable accurate diagnosis of absenteeism through analysis of quantitative, qualitative, and social dimensions.

As evident from Table 1 and Figure 1, the utilization of social auditing techniques, represented by indicator calculation, revealed deficiencies in the procedures employed for managing and controlling employee absenteeism. Consequently, the null hypothesis is rejected, and the alternative hypothesis is accepted.

2.5. Testing the Second Hypothesis

The second hypothesis addresses social auditing's assistance in early detection of predictive warning indicators of absenteeism and can be formulated as follows:

H0: Social auditing does not facilitate early detection of predictive warning indicators of absenteeism.

H1: Social auditing facilitates early detection of predictive warning indicators of absenteeism.

As demonstrated in Table 4 and Figure 2, the organization continues to experience inadequacies regarding absenteeism management. Therefore, it should adopt the social auditor's recommendations to reduce employee absenteeism cases. Accordingly, the second hypothesis is confirmed; thus, the null hypothesis is rejected, and the alternative hypothesis is accepted.

6. Discussion of Results

1.6. Results of Measuring Employee Absenteeism Indicator Evolution

According to the results presented in Table 3 and Figure 1, Hamma Bouziane Cement Company faces notable challenges concerning employee absenteeism, indicating weak monitoring and follow-up mechanisms. Specifically, deficiencies exist in attendance and absenteeism control mechanisms, facilitating recurring absences without accountability. This notable increase in absenteeism rates can be attributed to several factors:

- Working conditions in the cement industry are arduous and demanding, leading to frequent occupational injuries and diseases, consequently elevating absenteeism rates;
- Decreased employee commitment and organizational belonging, prompting frequent absences;
- Personal or family circumstances leading to recurring employee absences from work.

2.6.Results of Absenteeism Indicator Prediction

Through Table 4 and Figure 2, it is evident that the organization continues experiencing deficiencies in absence management. Predicted values ranging between 5% and 8% were recorded—significantly elevated compared to the threshold established by HR management, which should not exceed 3%. Therefore, auditing, examination, and evaluation of absenteeism within the organization must be conducted to identify the principal causes underlying HR management's weak performance in absence management. To reduce these indicators, we propose the organization implement a series of measures:

- Improving working conditions and providing a more suitable work environment for employees;
- Enhancing organizational commitment through incentive programs and career development initiatives;
- Activating attendance and absenteeism monitoring and control mechanisms more rigorously;
- Providing psychological and social support programs for employees to address personal problems;

• Establishing a comprehensive action plan to address absenteeism causes and prevent their escalation.

7. Conclusion

This study examined the reality of social auditing utilization in analyzing absenteeism at the Hamma Bouziane branch of the cement company, demonstrating the effective role of social auditing in uncovering latent problems and difficulties encountered by HR management concerning this phenomenon. Given the importance of these indicators and their effective role in analyzing HR management risks, particularly absence management, we forecasted employee absenteeism through predicting indicators for the next three years. Following analysis, several findings were reached, which can be outlined as follows:

• Absence of effective social auditing at the company level and lack of systematic and continuous implementation of its mechanisms, resulting in failure to detect and address absenteeism causes early;
• The study demonstrated that activating social auditing contributes to identifying genuine causes of absenteeism and enables proactive treatment;
• Social auditing can play a preventive role by monitoring early indicators and personal problems before they transform into recurring absences;
• Absence of a clear and effective penalty system to limit absenteeism and deter violators;
• Deficiencies exist in tools and procedures adopted for monitoring and tracking absenteeism cases, facilitating their recurrence without actual accountability.

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