

# Employee Attrition Data Analysis Report

## 1. Introduction

- This report provides a detailed analysis of the Employee Attrition dataset, which contains information about **1,470 employees across 35 attributes** such as age, salary, department, years of service, and satisfaction levels.
- The main goal of this analysis is to understand **why employees leave the company** and identify the most important factors that contribute to attrition.
- Employee turnover has a direct impact on organizational costs, productivity, and team morale.
- Reducing attrition not only saves on recruitment and training expenses but also helps maintain organizational knowledge and continuity.

## 2. Dataset Overview

The dataset captures a wide range of employee details:

- **Numerical Variables:** Age, Monthly Income, Years at Company, Daily Rate, Percent Salary Hike, Training Times, etc.
- **Categorical Variables:** Department, Job Role, Gender, Marital Status, Business Travel, Education Field, etc.
- **Target Variable:** Attrition (Yes/No), which indicates whether an employee has left the company.

A quick review of the dataset shows that **EmployeeCount**, **Over18**, and **StandardHours** are constant columns. Since they don't provide any variation, they don't add value to the analysis.

## 3. Data Quality Check

- **Completeness:** There are **no missing values** in the dataset. Every record is complete.
- **Duplicates:** No duplicate employee records were found.

- **Consistency:** The ranges for all numerical fields (such as Age, Salary, and Years at Company) are within expected limits.

Overall, the dataset is **clean, reliable, and ready for analysis**.

## 4. Attrition Analysis

Attrition is the central focus of this dataset.

- **Attrition Distribution:**
  - Yes (Employees who left): ~16%
  - No (Employees who stayed): ~84%

This means **roughly one in six employees leaves the organization**. While the majority of employees remain, this level of turnover is high enough to impact stability. For a company of this size, such attrition can lead to significant costs in recruitment, onboarding, and training, as well as potential gaps in skills and experience.

## 5. Descriptive Statistics & Workforce Profile

A deeper look into the data reveals important trends:

- **Age:**

The average age of employees is around 37 years. Interestingly, younger employees (in their 20s and early 30s) are more likely to leave, suggesting that early-career professionals are harder to retain.
- **Monthly Income:**

Salaries range widely, from less than ₹2,000 up to ₹20,000+. A clear trend is visible: employees with **lower income levels tend to leave more often**, highlighting the importance of fair and competitive compensation.
- **Years at Company:**

Many employees leave within their **first two to three years**, suggesting that onboarding, initial experiences, and career development opportunities during this period are crucial to retention.

- **Job Satisfaction & Work-Life Balance:**  
Employee satisfaction levels vary significantly. Those with **low job satisfaction or poor work-life balance** show a much higher chance of leaving compared to satisfied employees.

## 6. Key Drivers of Attrition

From the analysis, several clear drivers of attrition emerge:

- **Overtime:**  
Employees who work overtime are far more likely to leave compared to those who don't. This suggests workload stress and burnout are major issues.
- **Job Role:**  
Certain roles—particularly **Sales Executives and Laboratory Technicians**—experience higher turnover. These jobs may involve higher stress, travel, or lower pay, leading to dissatisfaction.
- **Income and Career Growth:**  
Employees with **lower salaries** and **limited promotions** show a higher likelihood of leaving. This reflects the importance of financial growth and recognition in retaining talent.
- **Work Environment Factors:**  
Variables like **Job Satisfaction, Relationship Satisfaction, and Work-Life Balance** play a crucial role in retention. Employees with poor scores in these areas are more likely to quit, regardless of pay.

## 7. Recommendations

Based on the findings, the following actions are recommended for HR and management teams:

- **Reduce Overtime Dependency:**  
Review workload distribution and consider hiring additional staff in high-demand areas. Encourage employees to maintain a healthier work-life balance.

- **Strengthen Early-Career Retention:**  
The first few years are critical. Introducing mentorship programs, career roadmaps, and strong onboarding initiatives can help new employees feel more valued and engaged.
- **Revise Salary and Promotion Policies:**  
Compensation should reflect both industry standards and employee contributions. A transparent system for raises and promotions can improve motivation and reduce frustration.
- **Target High-Turnover Roles:**  
Roles with consistently high attrition, such as sales positions, should be reviewed in detail. Tailored strategies—such as performance incentives, better tools, or role redesign—may help.
- **Prioritize Employee Feedback:**  
Regular surveys on **job satisfaction, stress, and company culture** should be conducted. Proactive action on feedback will help employees feel heard and valued.

## 8. Conclusion

- Attrition is not random—it is influenced by workload, pay, career growth opportunities, and job satisfaction. This analysis highlights that **younger employees, those earning lower salaries, and employees working overtime are the most vulnerable groups.**
- By addressing these issues with **workload management, fair compensation, transparent career paths, and a supportive work culture**, the organization can significantly reduce employee turnover.
- Ultimately, reducing attrition is not just about saving costs. It is about **building a stronger, more engaged workforce** that drives long-term success for the organization.