

HR Analytics: Employee Attrition & Retention Report (2022)

1. Executive Summary

This report provides a comprehensive analysis of employee turnover based on a dataset of 13,423 unique employees. Following a rigorous data validation process in SQL, we identified 3,198 unique attrition events. The analysis reveals that attrition is not random but heavily influenced by specific operational factors—primarily overtime, travel frequency, and managerial stability.

2. Key Performance Indicators (KPIs)

● The Primary Driver: Overtime

- Overtime Workers: Attrition rate of 64.29%.
- Non-Overtime Workers: Attrition rate of 12.58%.
- Insight: Overtime is the single most significant predictor of turnover. Employees working extra hours are 5x more likely to leave the company compared to their peers.

📈 Longitudinal Trend (The COVID Spike)

By isolating unique exit events per year, we identified a clear escalation in turnover following the pandemic:

- 2018 – 2020: Stable period with an average of ~485 exits per year.
- 2021: Sharp increase to 797 exits (a 62% year-over-year jump).
- 2022: Historical peak at 945 exits.
- Insight: The company is currently facing a retention crisis that intensified in the post-pandemic labor market.

3. Deep Dive Validation Tables

A. Economic Factors (Income Brackets)

Income Bracket	Total Employees	Attrition Rate (%)
Low (<3k)	3,963	38.66%
Medium (3k-7k)	5,641	18.26%
High (7k-12k)	2,140	24.16%
Executive (12k+)	1,679	7.09%

B. Lifestyle & Demographics

Factor	Category	Attrition Rate (%)
Business Travel	Travel Frequently	46.91%
Marital Status	Single	39.21%
Work-Life Balance	Poor (Level 1)	41.83%
Job Satisfaction	Low (Level 1)	34.41%

C. Leadership Impact

- New Managers (0-2 years): Attrition rate of 26.64%.
- Stable Managers (3-5 years): Attrition rate of 16.37%.
- Insight: There is a significant "Managerial Learning Curve." High turnover under new leaders suggests a need for enhanced leadership onboarding and support.

4. Strategic Recommendations

1. Overtime Mitigation: Implement strict caps on overtime and introduce "Burnout Alerts" for HR to intervene when thresholds are exceeded.
2. Travel Policy Revision: Review the "Travel Frequently" group. Transitioning just 20% of these roles to "Rarely" could significantly improve company-wide retention.
3. Compensation Benchmarking: With a nearly 39% attrition rate in the Low-Income bracket, a salary market review for junior roles is mandatory to remain competitive.
4. Early Warning System (EWS): Utilize survey scores (Happiness/Work-Life Balance). Data shows that leavers' average happiness drops to 7.84 in their final year, providing a window for proactive retention efforts.

Data Methodology Note

This analysis utilized PostgreSQL for data cleaning and transformation. We employed DISTINCT ON logic to ensure that historical longitudinal data (47,000+ rows) did not duplicate attrition counts, resulting in a clean snapshot of 13,423 unique employee records.