

HR Attrition Risk Analysis

1. Problem statement

2. Key Findings

3. Top Visualizations

4. Actionable Insight

HR Attrition Risk Analysis

1. Problem statement

KPI's Requirement

The HR department is responsible for monitoring and managing various aspects of employee data to ensure the organization maintains a healthy workforce. However, there is a lack of clear performance indicators to track and analyze key HR metrics. Therefore, there is a need to design and implement a set of KPIs to address the following points:

1. Employee Count:

The HR department lacks visibility into the total number of employees, making it challenging to assess workforce size and plan for future growth or downsizing effectively.

2. Attrition Count:

The organization lacks a standardized method to track employee attrition, resulting in incomplete and unreliable data on the number of employees who have left the organization.

3. Attrition Rate:

Without a clear measure of attrition rate, the organization cannot assess the overall turnover level or compare it with industry benchmarks, hindering the ability to gauge employee satisfaction and engagement.

4. Active Employees:

The organization lacks a mechanism to differentiate between active and inactive employees, leading to difficulties in accurately assessing the current workforce's productivity and capacity.

5. Average Age:

The HR department lacks visibility into the average age of employees, making it difficult to evaluate workforce demographics, succession planning, and the organization's ability to attract and retain younger talent.

Chart's Requirement

1. Attrition by Gender:

The HR department faces challenges in understanding the attrition patterns based on gender, making it difficult to identify any gender-related disparities and implement targeted retention strategies.

2. Department-wise Attrition:

The HR department lacks visualizations to showcase attrition rates across different departments. This hinders their ability to identify departments with higher attrition rates and address any underlying issues or concerns effectively.

3. Number of Employees by Age Group:

The HR department requires visual representations to analyze the distribution of employees across various age groups. This helps in assessing workforce demographics, identifying any age-related gaps or imbalances, and implementing targeted HR policies or programs.

4. Job Satisfaction Ratings:

The HR department lacks visualizations to represent job satisfaction ratings, hindering their ability to measure employee engagement and overall job satisfaction levels effectively.

5. **Education Field-wise Attrition:**

The HR department requires visual representations to analyze attrition rates based on education fields. This helps identify specific educational backgrounds that may be associated with higher attrition, enabling the organization to tailor retention strategies accordingly.

6. **Attrition Rate by Gender for Different Age Groups:**

The HR department lacks visualizations that display attrition rates based on gender and different age groups. This makes it challenging to identify any age and gender-related attrition trends, preventing the organization from implementing targeted retention strategies for specific employee segments.

2. KEY FINDINGS

1. Attrition Crisis

1. **16.12% attrition rate** (237 employees left) — **30% higher** than the industry average (10-12%).
2. **R&D department** is the biggest concern: **56.12% of all attrition** (133 employees).

Attrition_rate
16.12

count(attrition)
237

department	total_attritions	percentage
R&D	133	56.12
Sales	92	38.82
HR	12	5.06

2. High-Risk Employees

1. **25-34-year-olds** in R&D with **low job satisfaction (≤ 2)** are **3x more likely to quit**.
2. **Male attrition is higher** in both volume (63.3%) and rate (17.01% vs 14.8%).
3. Life Sciences females are **overrepresented** ($38/87 = 43.7\%$ of female attritions vs. $51/150 = 34\%$ of male attritions).






gender	attrition_count
Male	150
Female	87

```

SELECT
  emp_no, job_role, department, age, gender, job_satisfaction, education_field,
  CASE
    -- HIGH RISK: Young dissatisfied employees (highest quit probability)
    WHEN job_satisfaction <= 2 AND age BETWEEN 25 AND 34 THEN 'High Risk'
    -- MEDIUM RISK: R&D employees (56.12% of all attritions)
    WHEN department = 'R&D' THEN 'Medium Risk'
    -- MEDIUM RISK: Life Sciences females
    WHEN education_field = 'Life Sciences' AND gender = 'Female' THEN 'Medium Risk'
    ELSE 'Low Risk'
  END AS attrition_risk,
  -- Added risk justification for transparency
  CASE
    WHEN job_satisfaction <= 2 AND age BETWEEN 25 AND 34 THEN 'Young dissatisfied employee'
    WHEN department = 'R&D' THEN 'Works in high-attrition department'
    WHEN education_field = 'Life Sciences' AND gender = 'Female' THEN 'Overrepresented in female attritions'
    ELSE 'Standard risk profile'
  END AS risk_reason
FROM hrdata
WHERE attrition = 'No' -- Focus on current employees
ORDER BY
  CASE attrition_risk
    WHEN 'High Risk' THEN 1
    WHEN 'Medium Risk' THEN 2
    ELSE 3
  END,
  department;

```

ATTRITION RISK SCORING MODEL RESULT




Result Grid   Filter Rows: <input type="text"/> Export:  Wrap Cell Content:  Fetch rows: 									
	emp_no	job_role	department	age	gender	job_satisfaction	education_field	attrition_risk	risk_reason
▶	11145	Human Resources	HR	29	Male	1	Other	High Risk	Young dissatisfied employee
	10656	Human Resources	HR	33	Male	2	Human Resources	High Risk	Young dissatisfied employee
	11020	Human Resources	HR	25	Female	2	Human Resources	High Risk	Young dissatisfied employee
	10924	Human Resources	HR	34	Male	2	Life Sciences	High Risk	Young dissatisfied employee
	11022	Human Resources	HR	31	Female	2	Medical	High Risk	Young dissatisfied employee
	11144	Human Resources	HR	29	Male	2	Medical	High Risk	Young dissatisfied employee
	10311	Human Resources	HR	31	Male	1	Human Resources	High Risk	Young dissatisfied employee
	10896	Healthcare Representative	R&D	31	Male	1	Medical	High Risk	Young dissatisfied employee
	10201	Manufacturing Director	R&D	27	Male	1	Technical Degree	High Risk	Young dissatisfied employee
	10005	Laboratory Technician	R&D	27	Male	2	Medical	High Risk	Young dissatisfied employee
	10683	Laboratory Technician	R&D	32	Female	2	Life Sciences	High Risk	Young dissatisfied employee
	10374	Laboratory Technician	R&D	27	Male	2	Medical	High Risk	Young dissatisfied employee
	11123	Research Scientist	R&D	34	Male	1	Other	High Risk	Young dissatisfied employee
	10869	Laboratory Technician	R&D	28	Male	1	Medical	High Risk	Young dissatisfied employee
	10935	Research Scientist	R&D	25	Female	2	Medical	High Risk	Young dissatisfied employee
	10575	Healthcare Representative	R&D	34	Female	2	Medical	High Risk	Young dissatisfied employee

Result 16 x

ATTRITION RISK SCORING MODEL RESULT

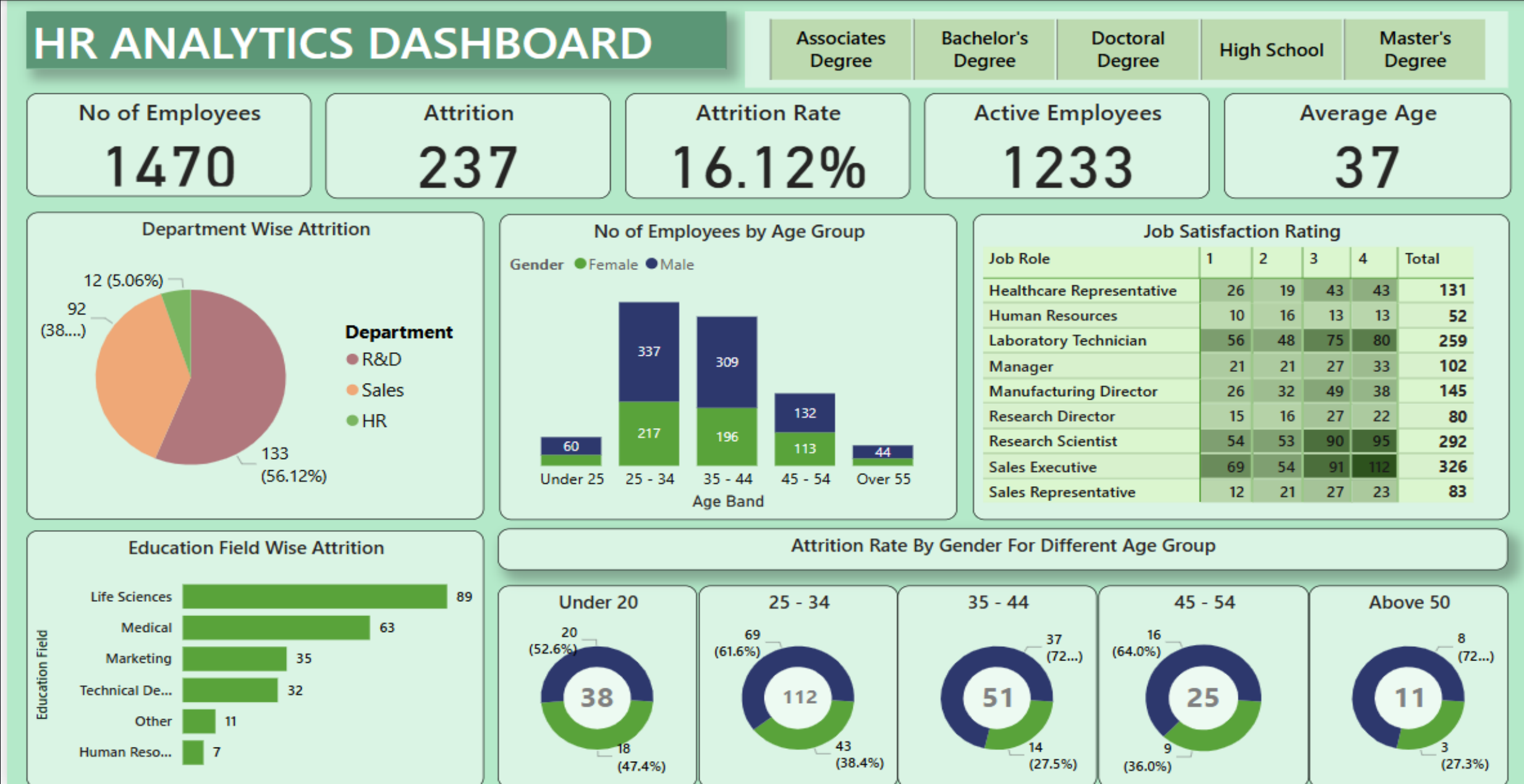
3. Financial Impact

1. **Total cost of attrition:** \$2.37M/year (*assuming 10 K per employee lost*).
2. **R&D alone costs \$1.33M/year** in turnover.

Result Grid  Filter Rows: <input type="text"/> Export:  Wrap Cell Content: 			
	department	attrition_count	cost_of_attrition(\$)
▶	R&D	133	1330000
	Sales	92	920000
	HR	12	120000

3. TOP VISUALIZATIONS

• POWERBI DASHBOARD:



- 1. Department-Wise Attrition:** R&D (56.12%) vs. Sales (5.06%).
- 2. Job Satisfaction Heatmap:** Sales Reps and Lab Techs have the lowest satisfaction.
- 3. Attrition Risk Model:** High-risk employees flagged by job role + satisfaction.

4. ACTIONABLE INSIGHT

1. Address Male Attrition (63.3% of All Attritions)

Data-Backed Hypothesis:

"Males have 17.01% attrition rate (vs. 14.8% for females), costing \$1.5M/year."

Recommendations:

Short-Term:

"Conduct targeted exit interviews for male departures to verify if career stagnation (lack of promotions) or salary gaps are key drivers."

Long-Term:

"Implement transparent promotion timelines + quarterly skills development programs for high-attrition roles (e.g., R&D)."

2. Protect Life Sciences Females (43.7% of Female Attritions)

Data-Backed Hypothesis:

"Life Sciences females account for 43.7% of female attritions—2.3x higher than expected."

Recommendations:

Short-Term:

"Launch a 6-month pilot mentorship program pairing junior female scientists with senior leaders."

Long-Term:

"Measure attrition pre/post-program; expand if attrition drops by $\geq 15\%$."

3. Cost Savings (Optional but Powerful)

💰 Projected ROI:

"Addressing these two groups could save \$565K/year (25% reduction in male attrition + 50% reduction in Life Sciences female attrition)."