HR CASE STUDY

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Business Case

A large company named XYZ, employs, at any given point of time, around 4000 employees. However, every year, around 15% of its employees leave the company and need to be replaced with the talent pool available in the job market. The management believes that this level of attrition (employees leaving, either on their own or because they got fired) is bad for the company, because of the following reasons -

1. The former employees' projects get delayed, which makes it difficult to meet timelines, resulting in a reputation loss among consumers and partners
2. A sizeable department has to be maintained, for the purposes of recruiting new talent
3. More often than not, the new employees have to be trained for the job and/or given time to acclimatize themselves to the company

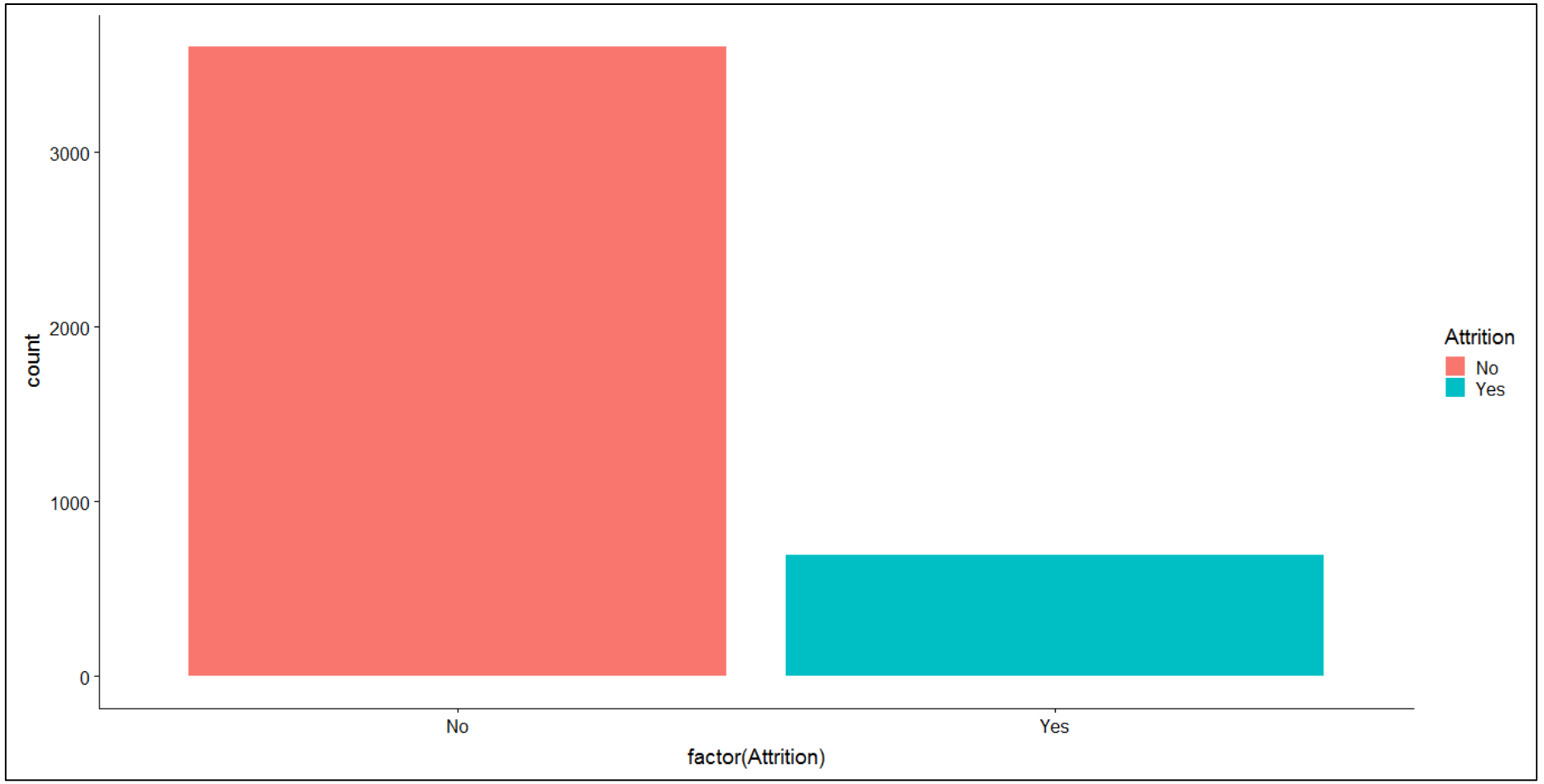
Business Objective.

To understand what factors needs to be addressed to curb attrition and recommend changes that should be made in the workplace, in order to get most of their employees to stay.

APPROACH FOLLOWED

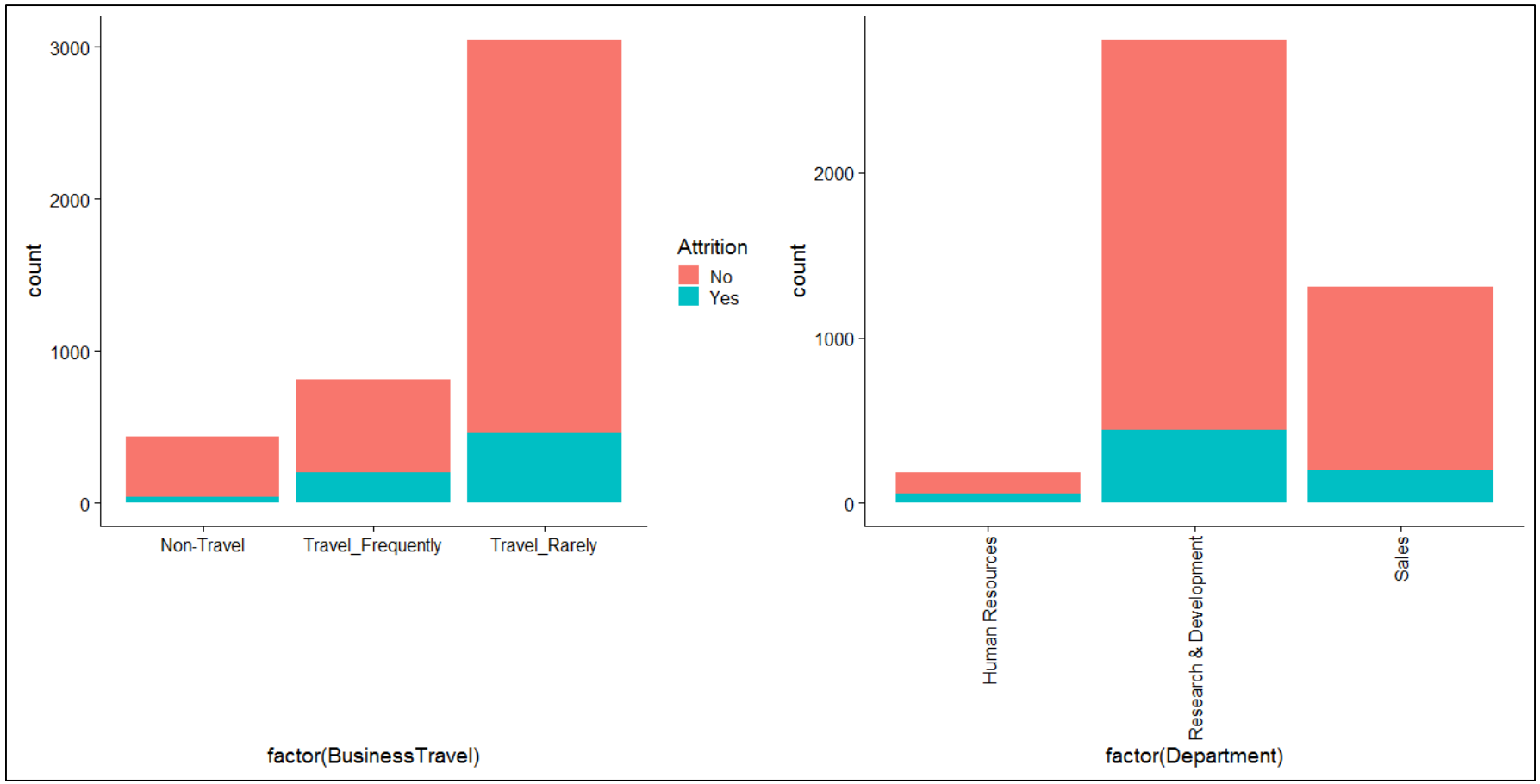
- Employee Data is analyzed and cleaned in order to remove unwanted columns
  - Review of columns with NA values
  - Review of columns with zero values
  - Columns have the same value
  - Columns not having any significance with regard to this case study
- Perform bivariant analysis on columns to study possible trends.
- Factored and scaled the variable.
- Perform logistics regression to obtain driving factors for attrition
- Obtained cut-off values and applied KS on decile table.
- Recommendations based on driving factors for attrition.

UNIVARIANT ANALYSIS



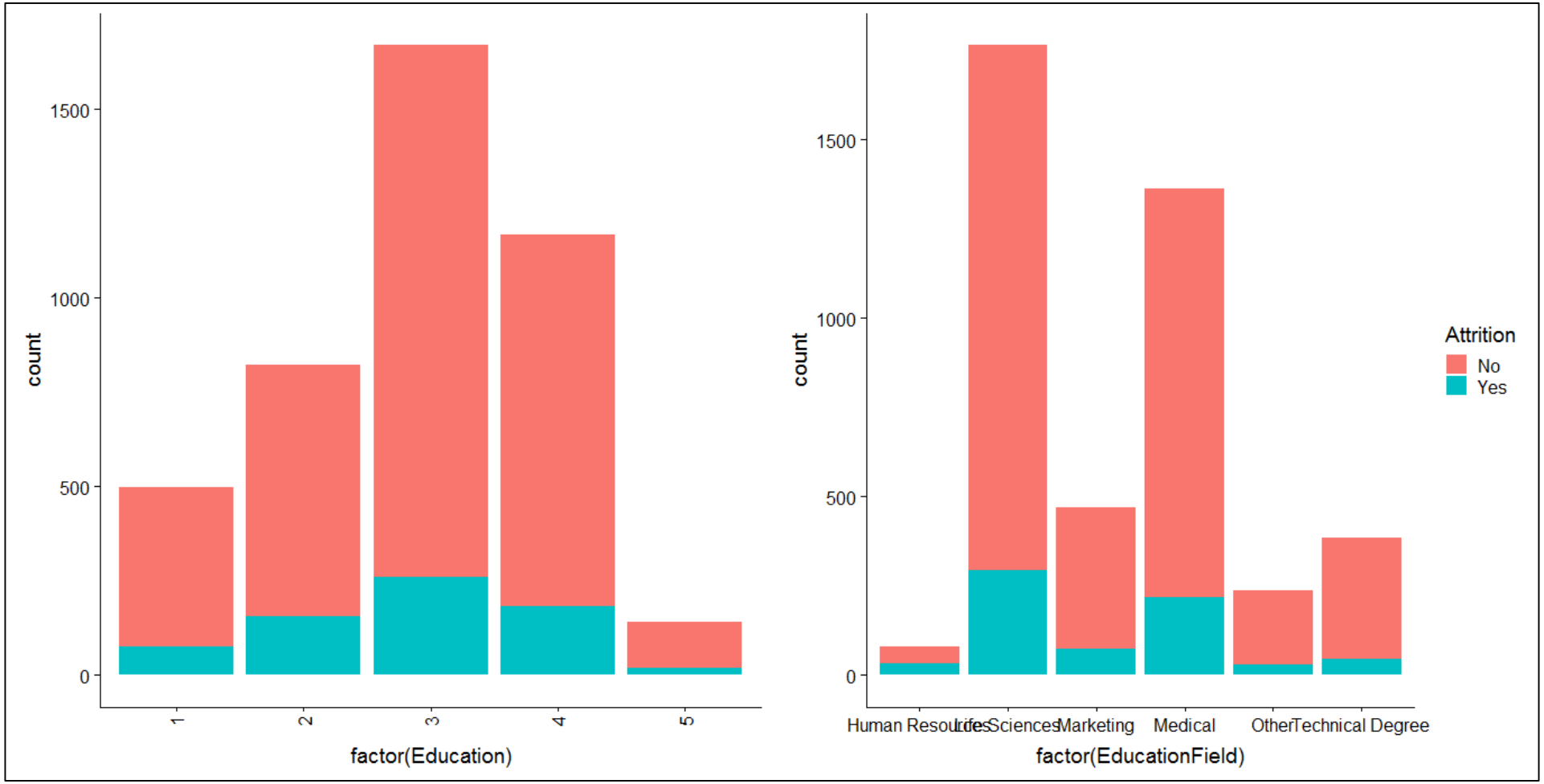
- 16% attrition observed which is much higher than industry standard.

BIVARIANT ANALYSIS ..1



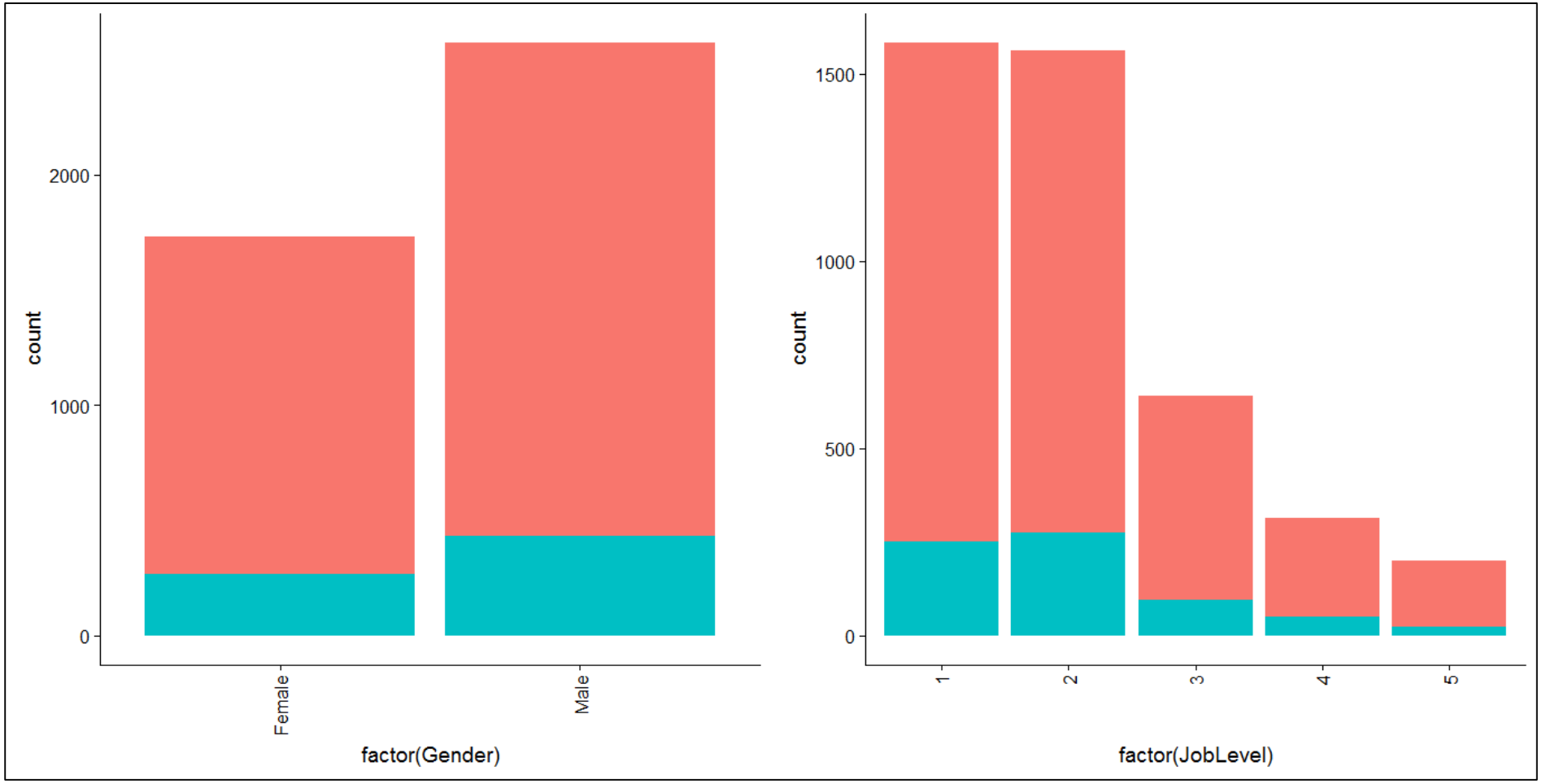
- No significant trend observed. More frequently travelled employees might see more churn as compared to those who have not travelled.
- RnD Department seems to show more attrition as compared to the other departments.

BIVARIANT ANALYSIS ..2



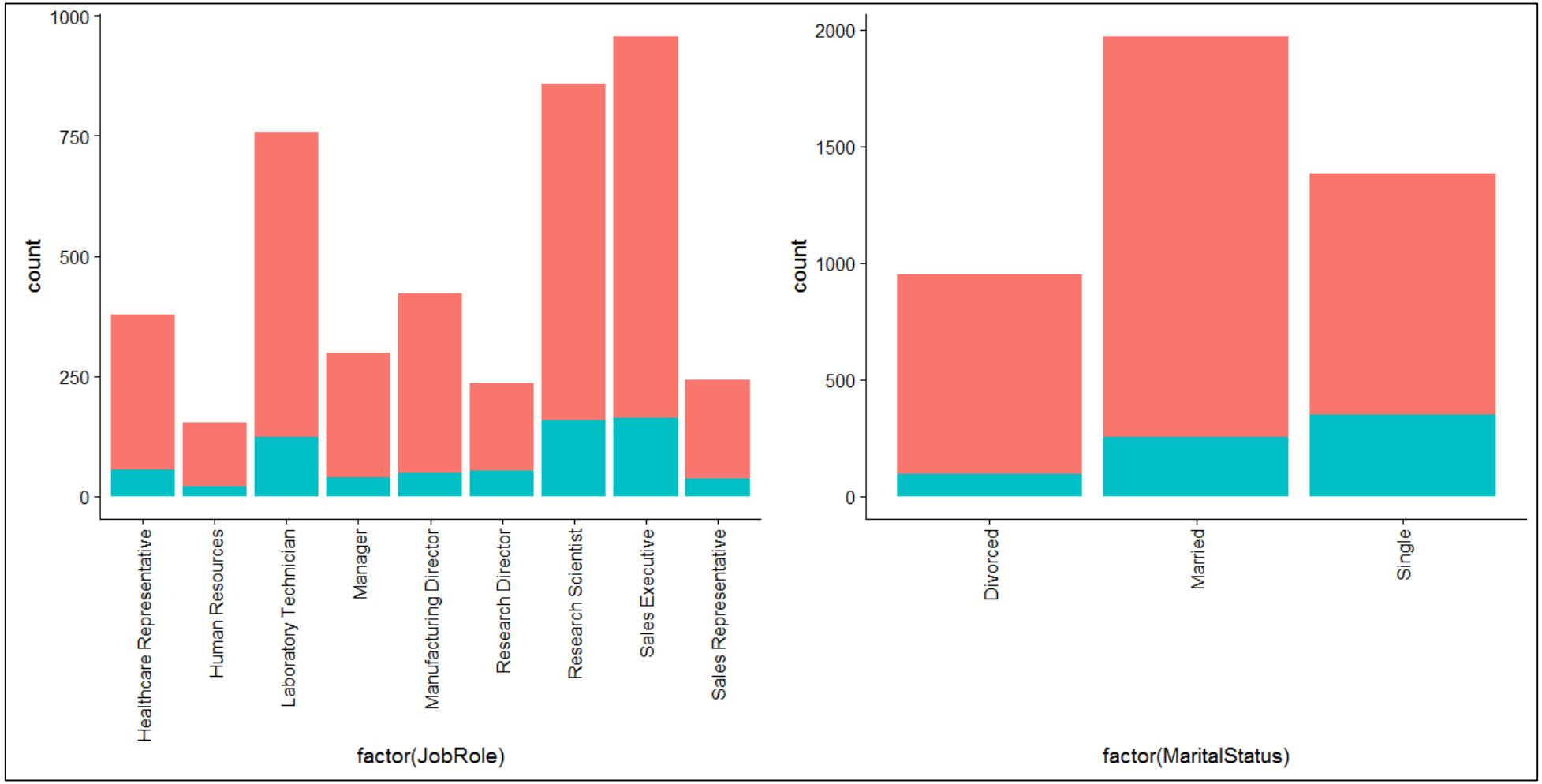
- Education level 4 seem to show high attrition possibility.
- Education field of Medical seems to show high attrition possibility.

BIVARIANT ANALYSIS ..3



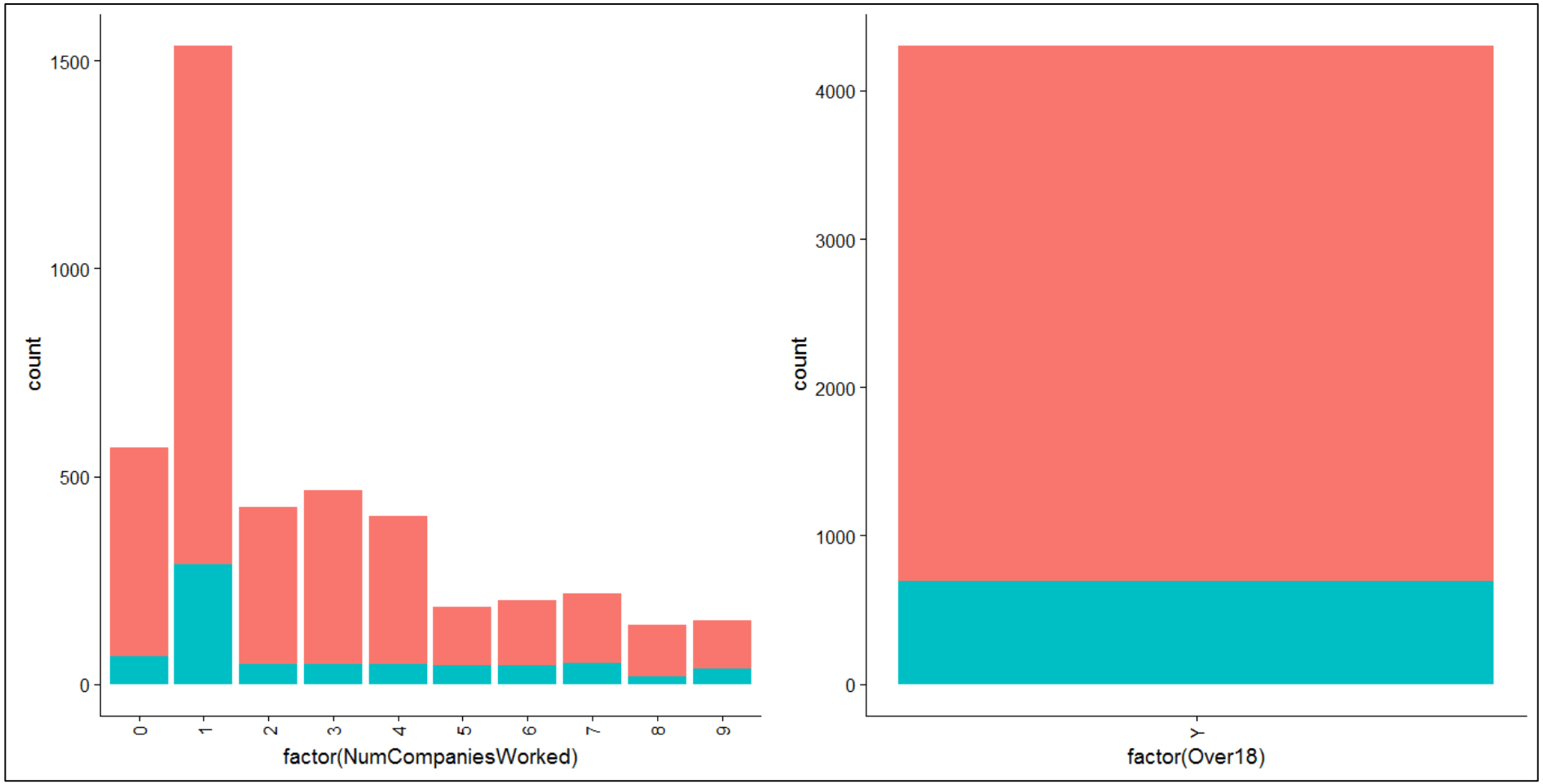
- Female employees seem to see more attrition as compared to male.

BIVARIANT ANALYSIS ..4



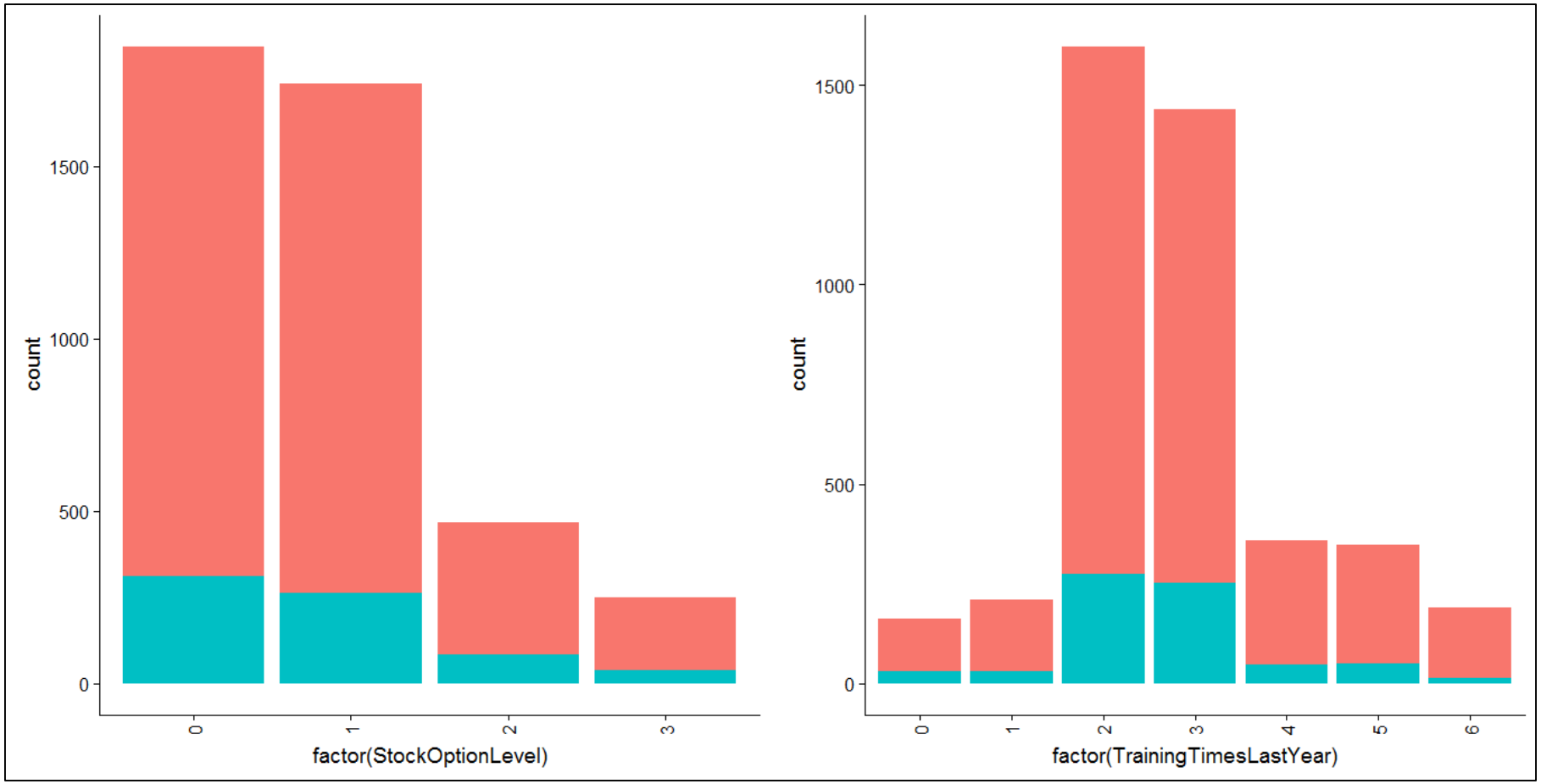
- Single employees seem to see more attrition as compared to others.

BIVARIANT ANALYSIS ..5



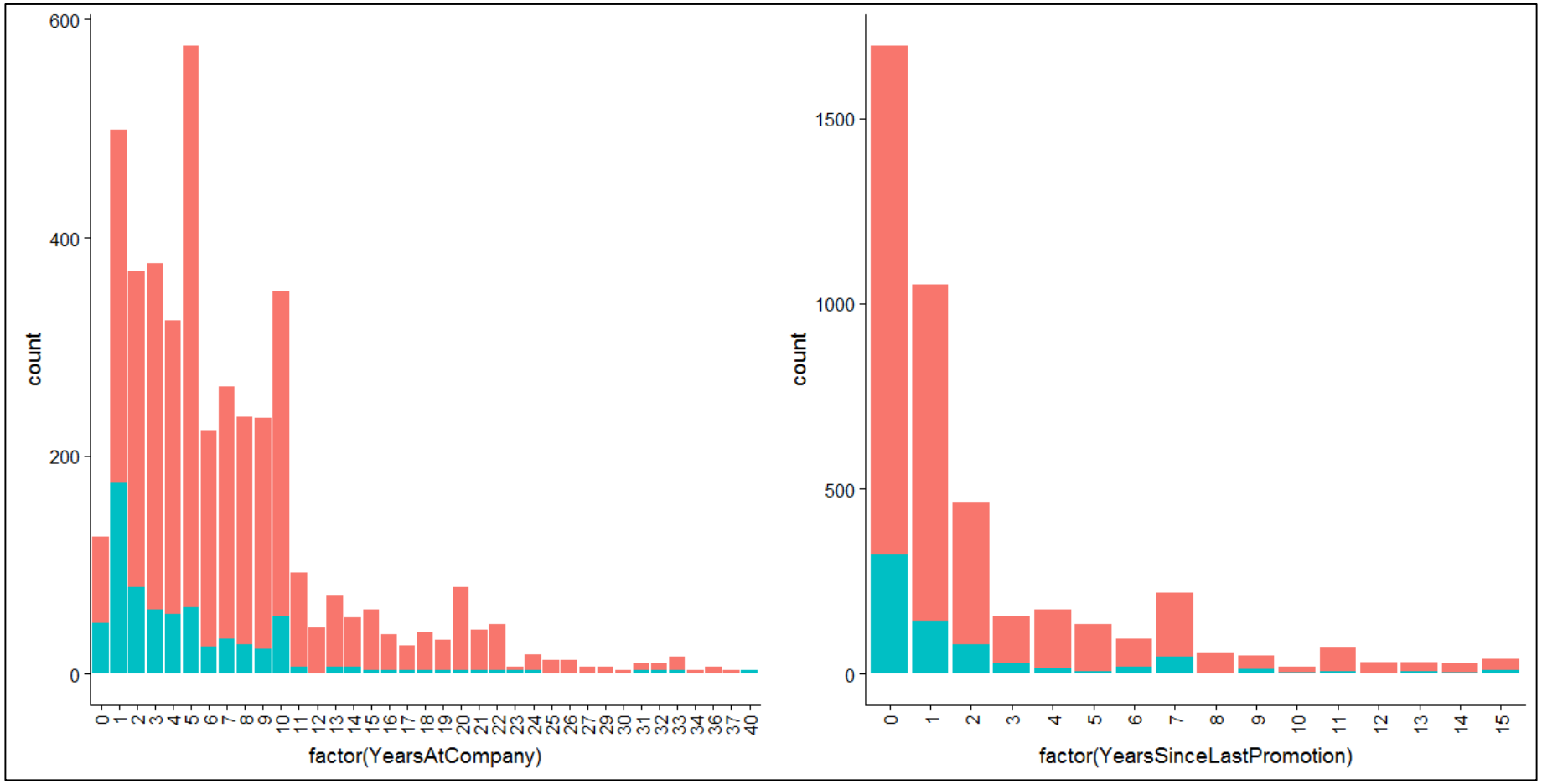
- Employees worked with 1 year in a company seem to be most vulnerable to attrition.

BIVARIANT ANALYSIS ..6



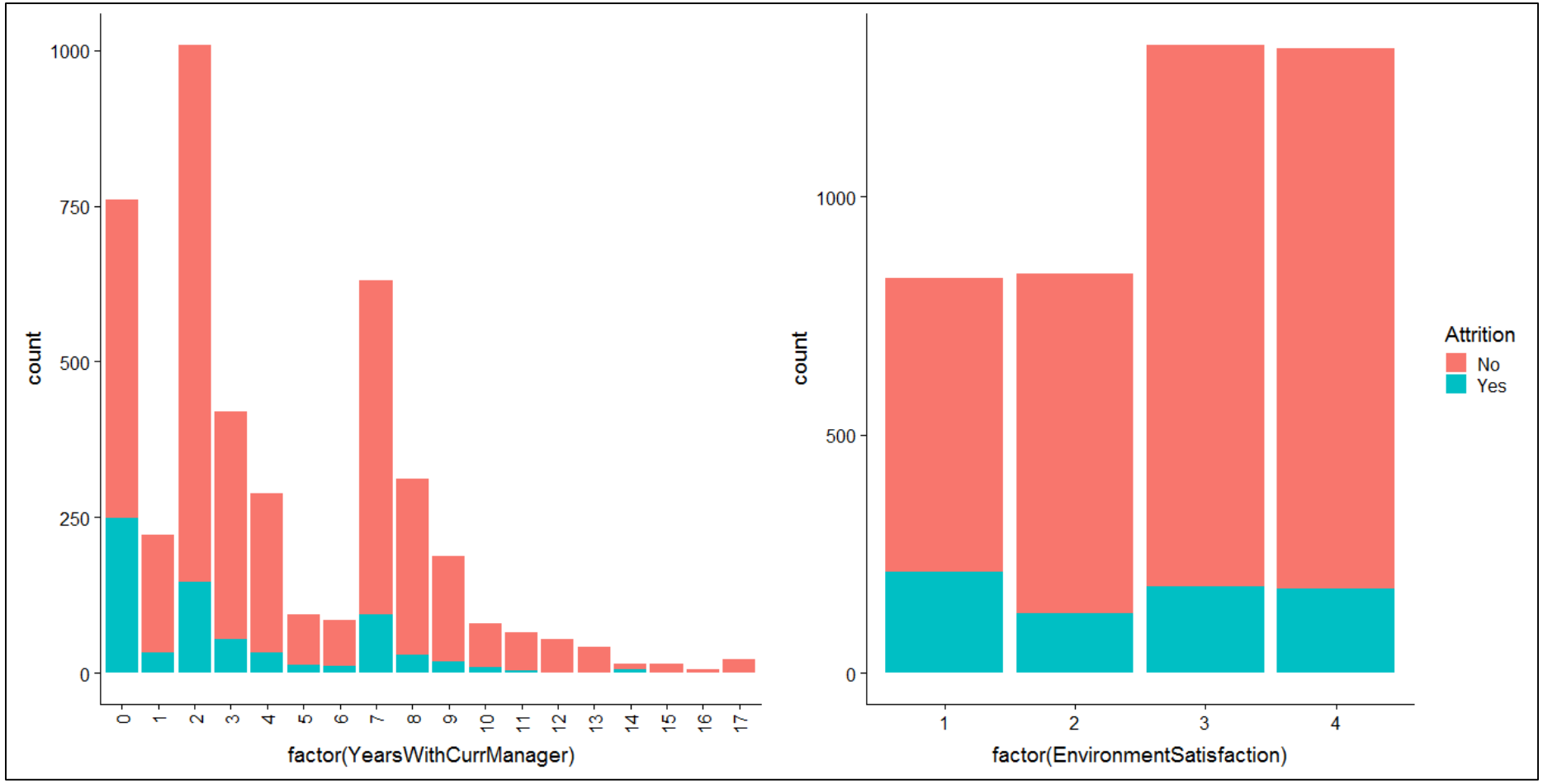
- Employees with no training provided in 2 or 3 years seem to be attrition vulnerable.

BIVARIANT ANALYSIS ..7



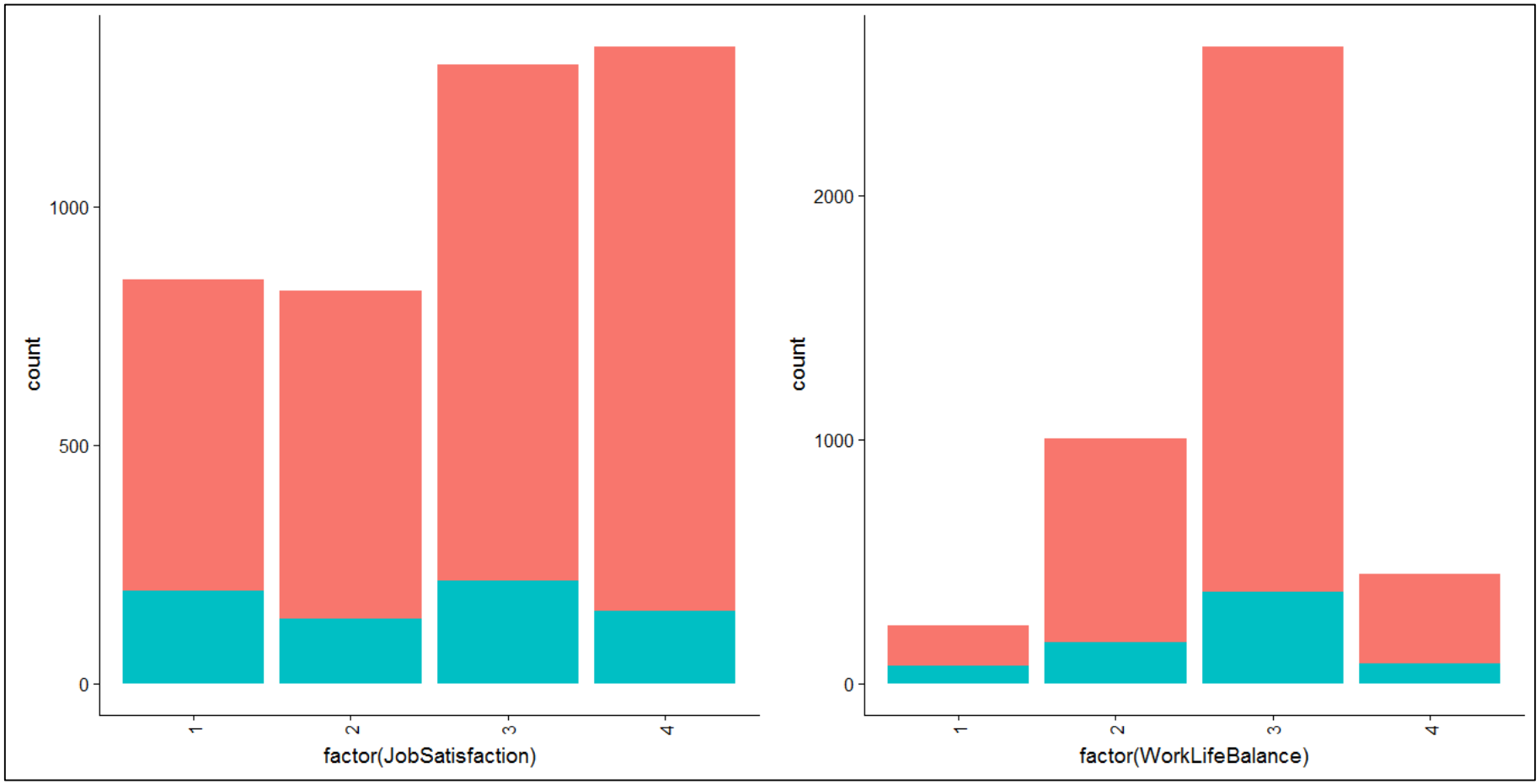
- Employees with 40 years in company see 100% attrition indicating retirement for employee.
- Employees with 7 years since no promotion shows higher attrition.

BIVARIANT ANALYSIS ..8



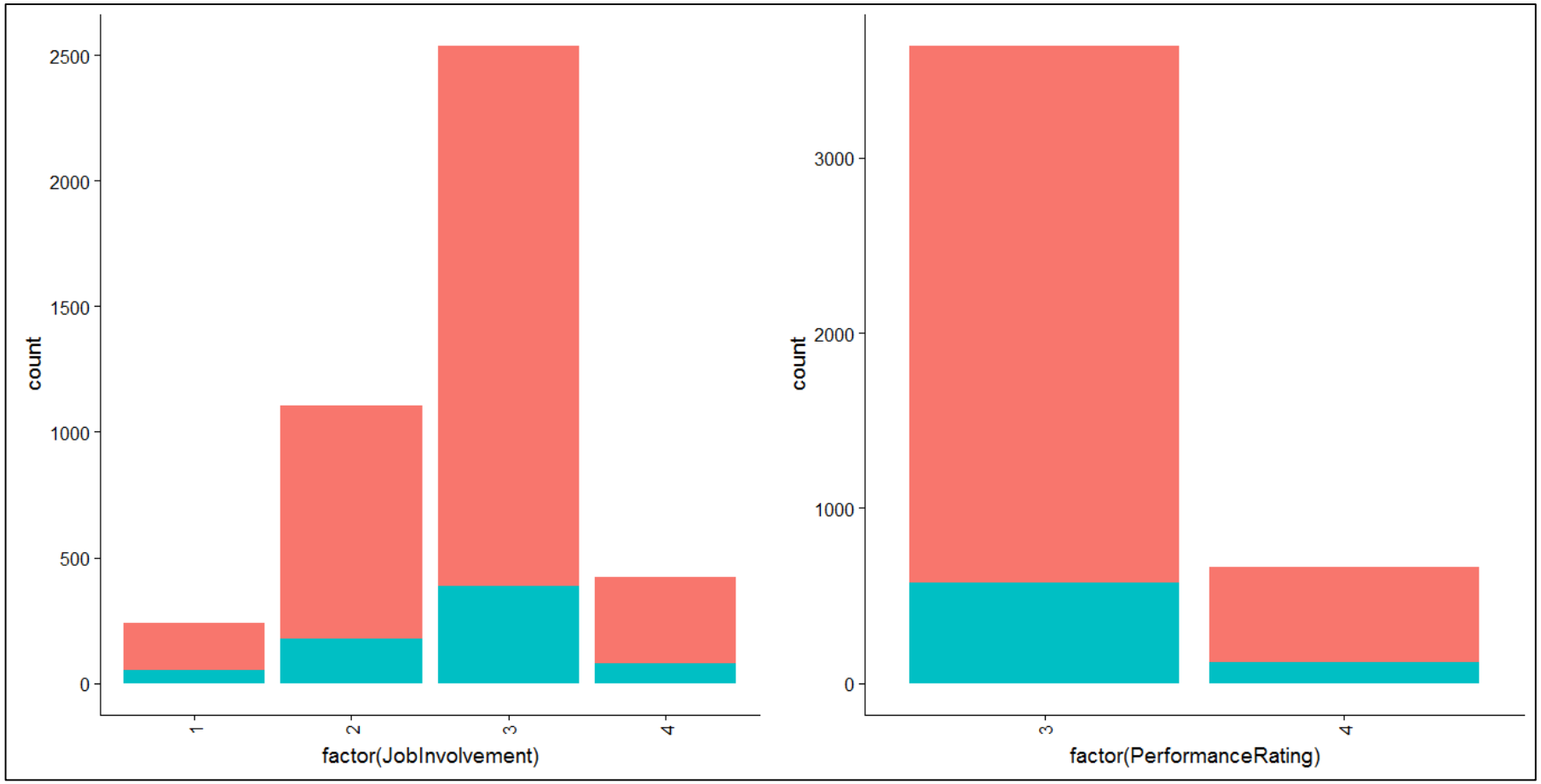
- The first year experience with manager plays an important role in employee attrition.
- Employees with same manager with 7 years show higher attrition possibility.
- Employees with lower satisfaction with environment show higher percentage of attrition.

BIVARIANT ANALYSIS ..9



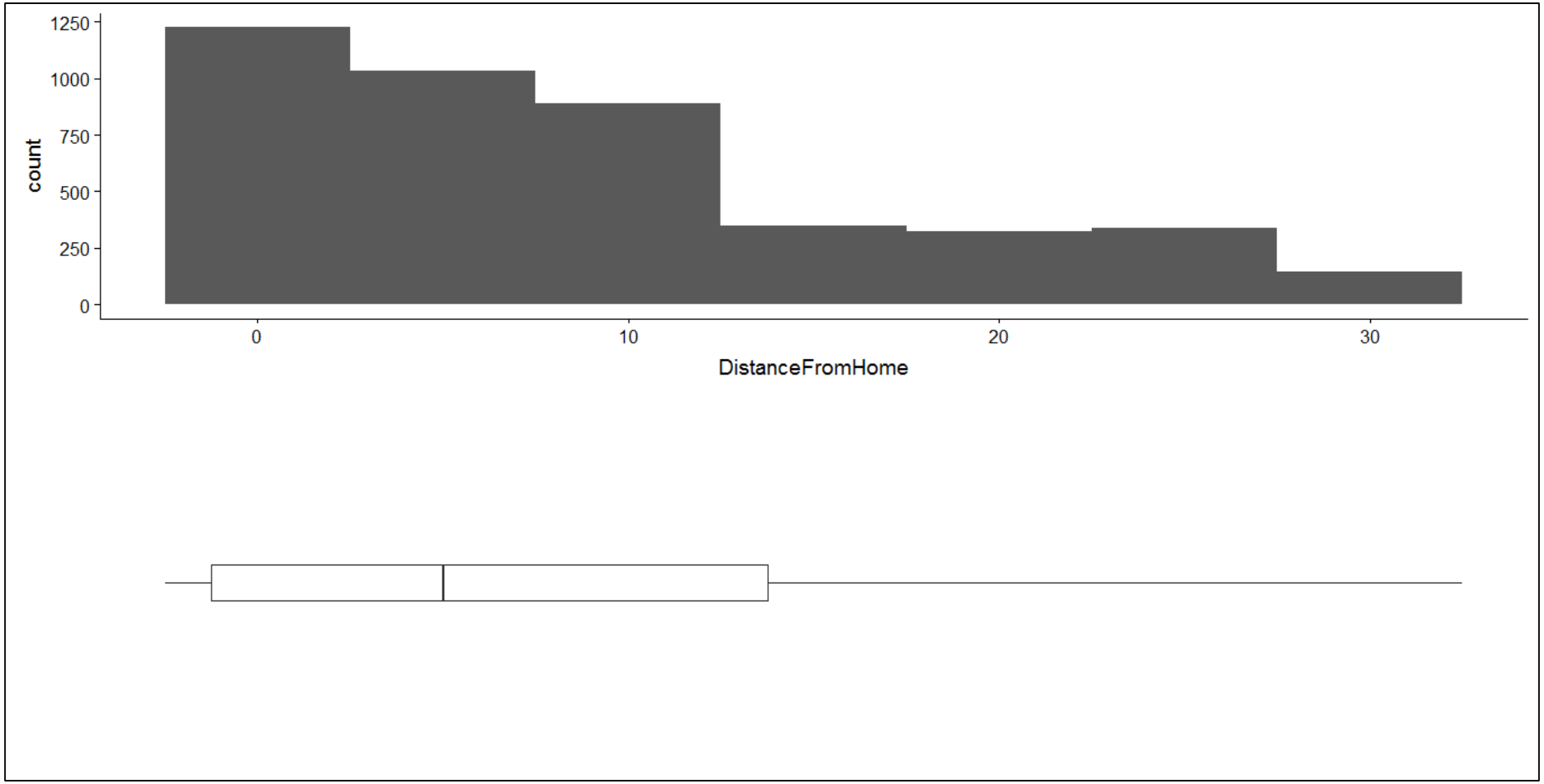
- Low job satisfaction can lead to employee attrition.
- Lower “Work Life Balance” can cause employee attrition.

BIVARIANT ANALYSIS ..10



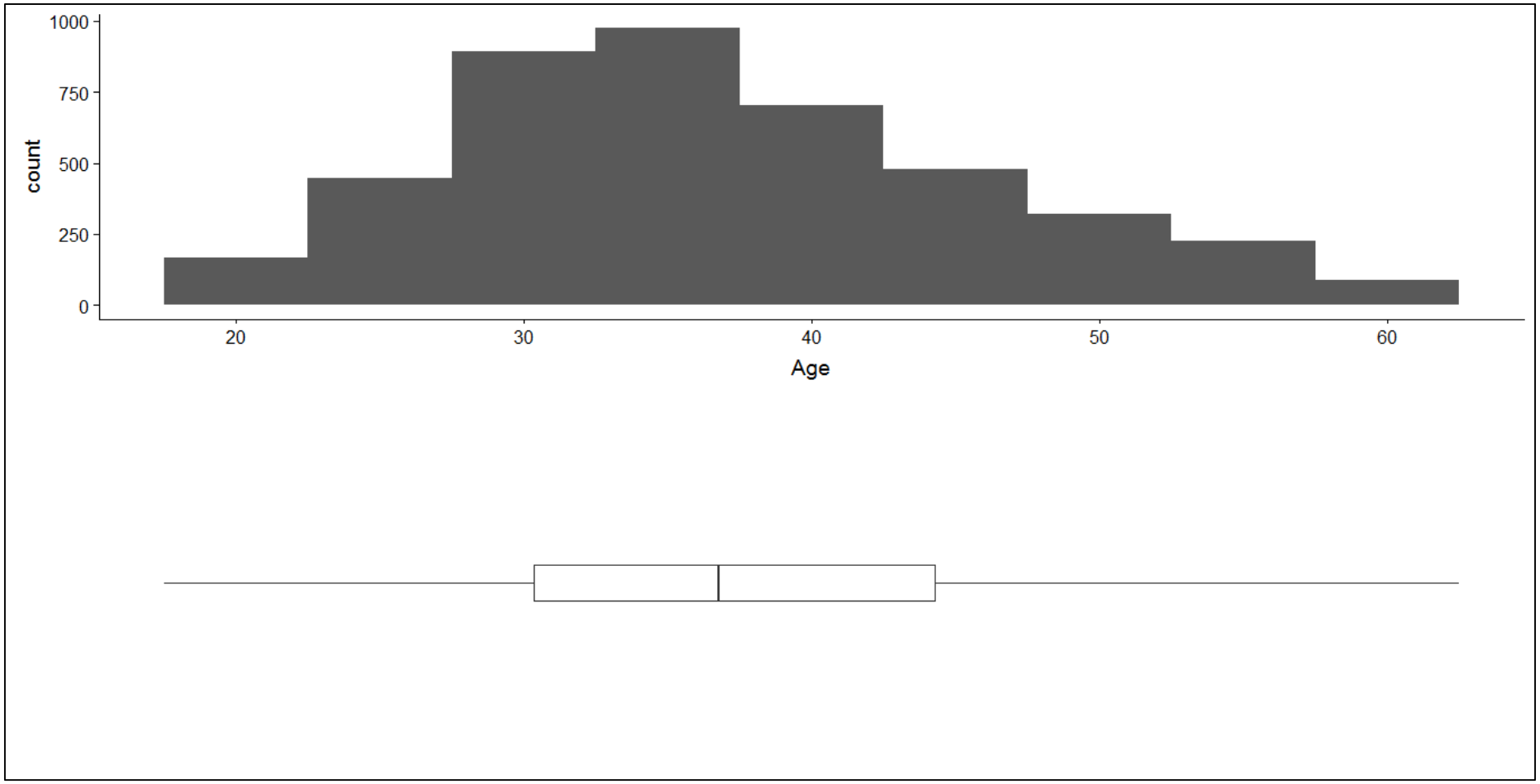
- Employees with low job involvement seem to likely leave the organization.

BIVARIANT ANALYSIS ..11



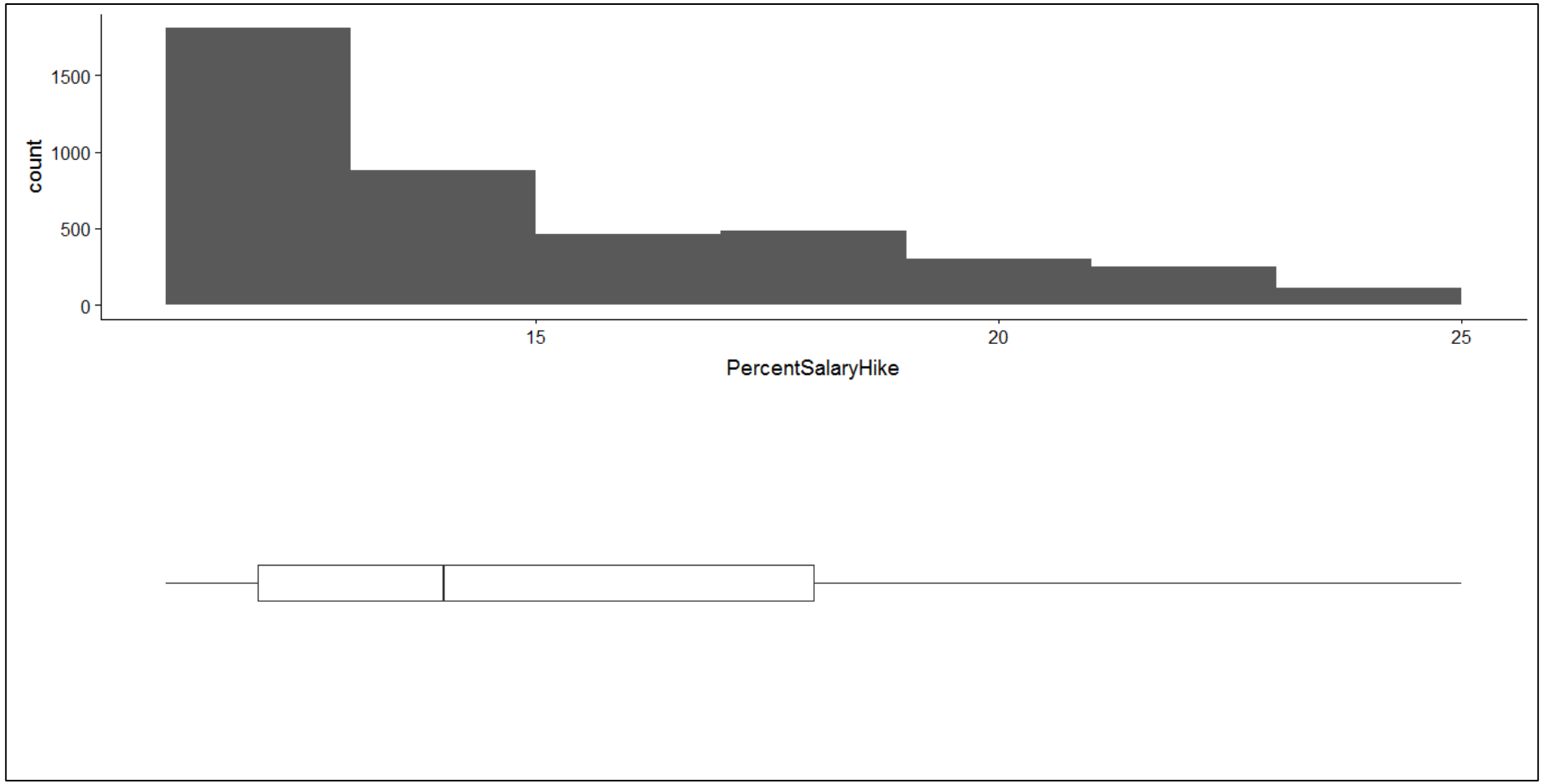
- Typically employees prefer to be up to 10kms away from office.

BIVARIANT ANALYSIS ..12



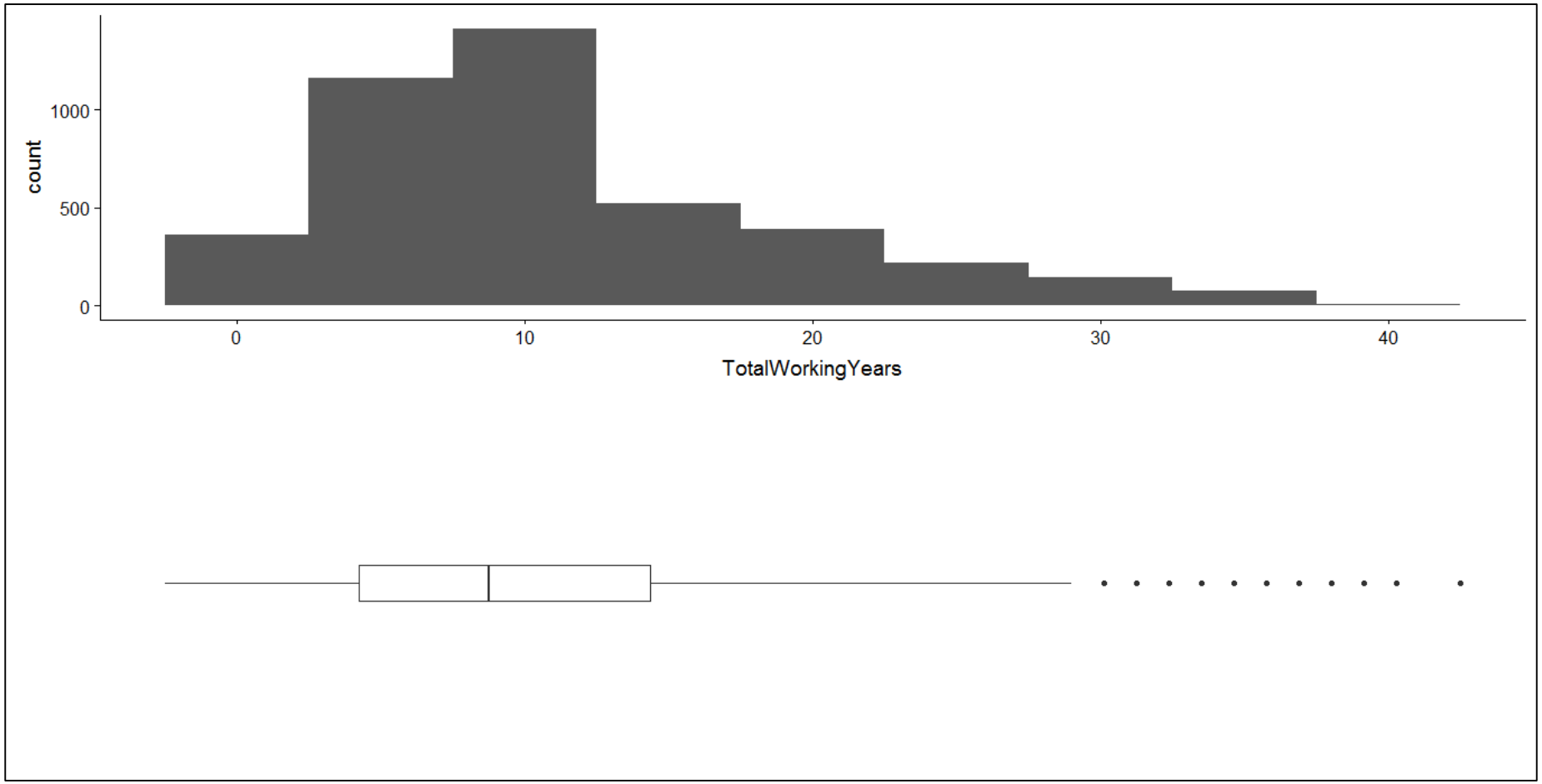
- Maximum work force in the company is in the age group between 30 and 40 years.

BIVARIANT ANALYSIS ..13



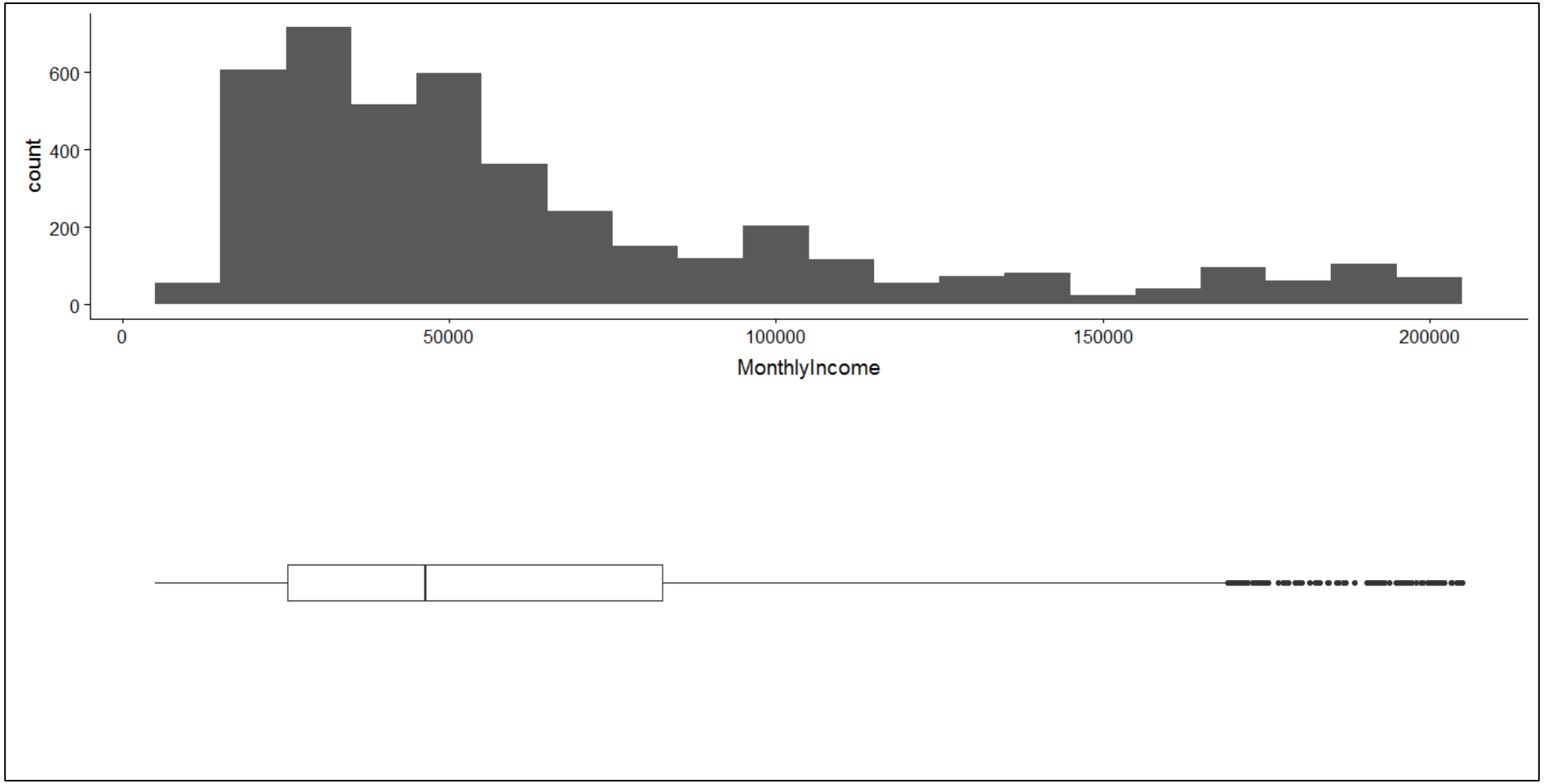
- Average salary hike in this company is up to 15%.

BIVARIANT ANALYSIS ..14



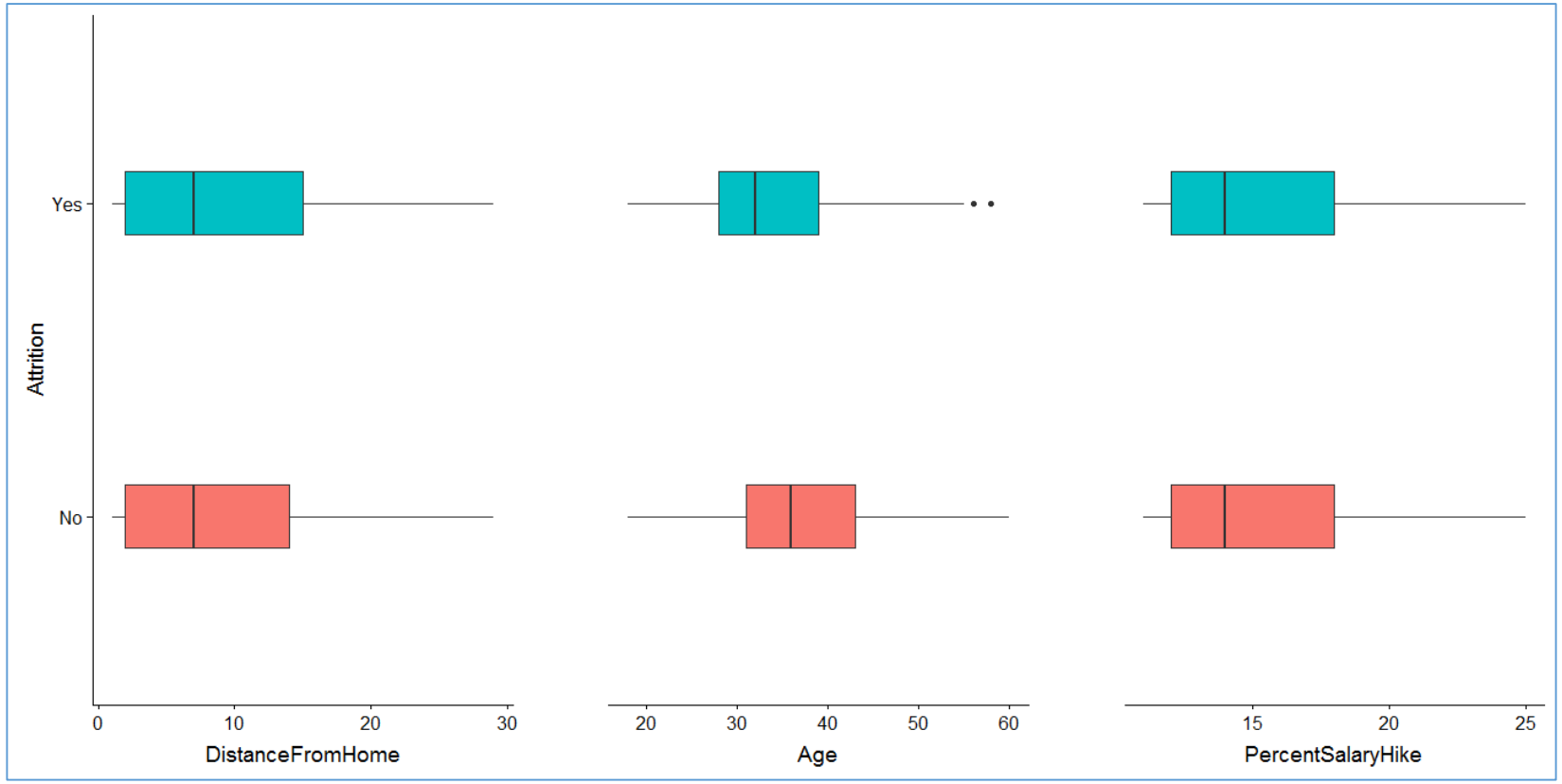
- Maximum work force in the company are those with approximately 10 years of experience.

BIVARIANT ANALYSIS ..15



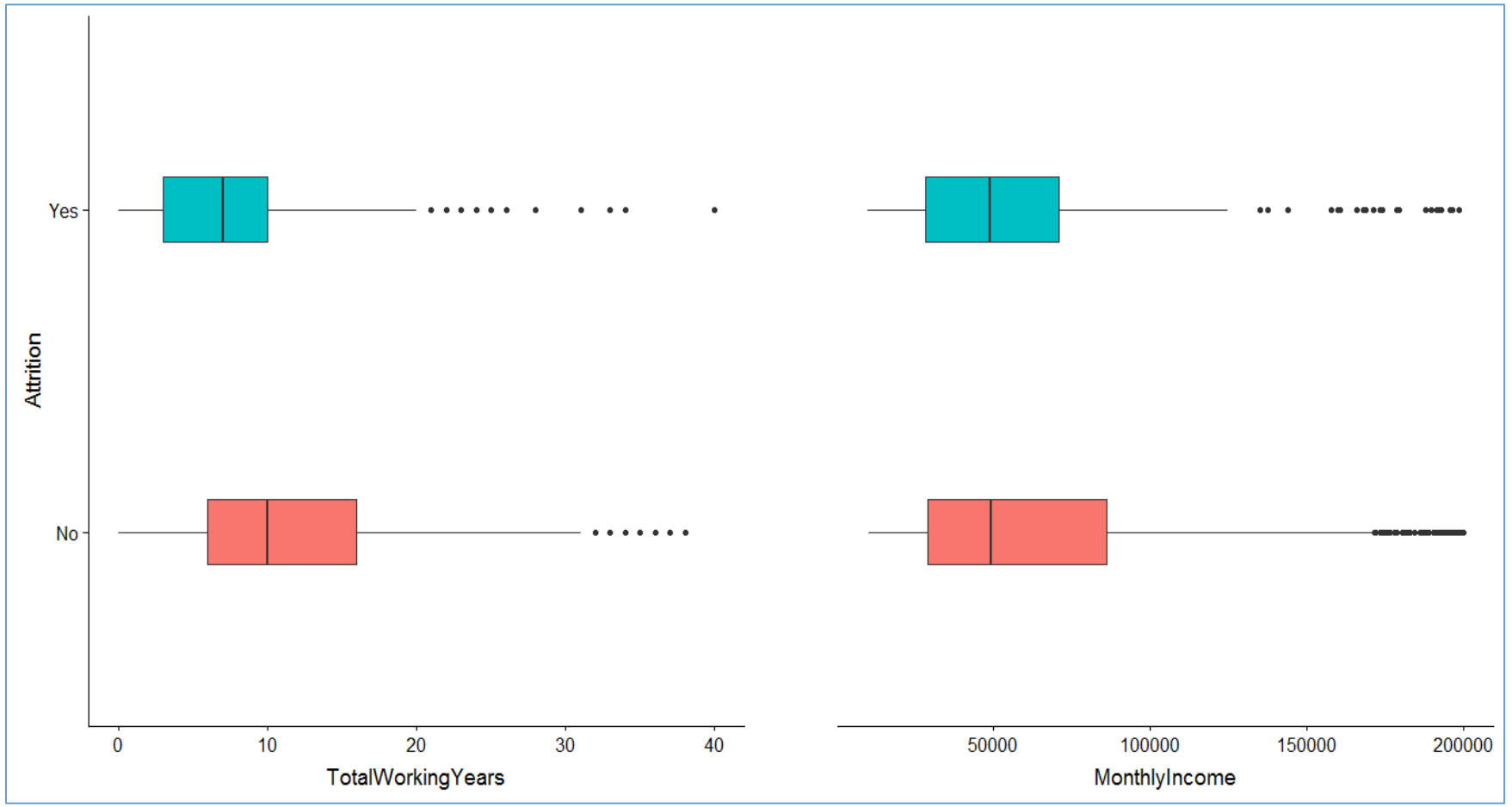
- Average salary for employees is about 50000 per annum.

OUTLIER TREATMENT .. 1



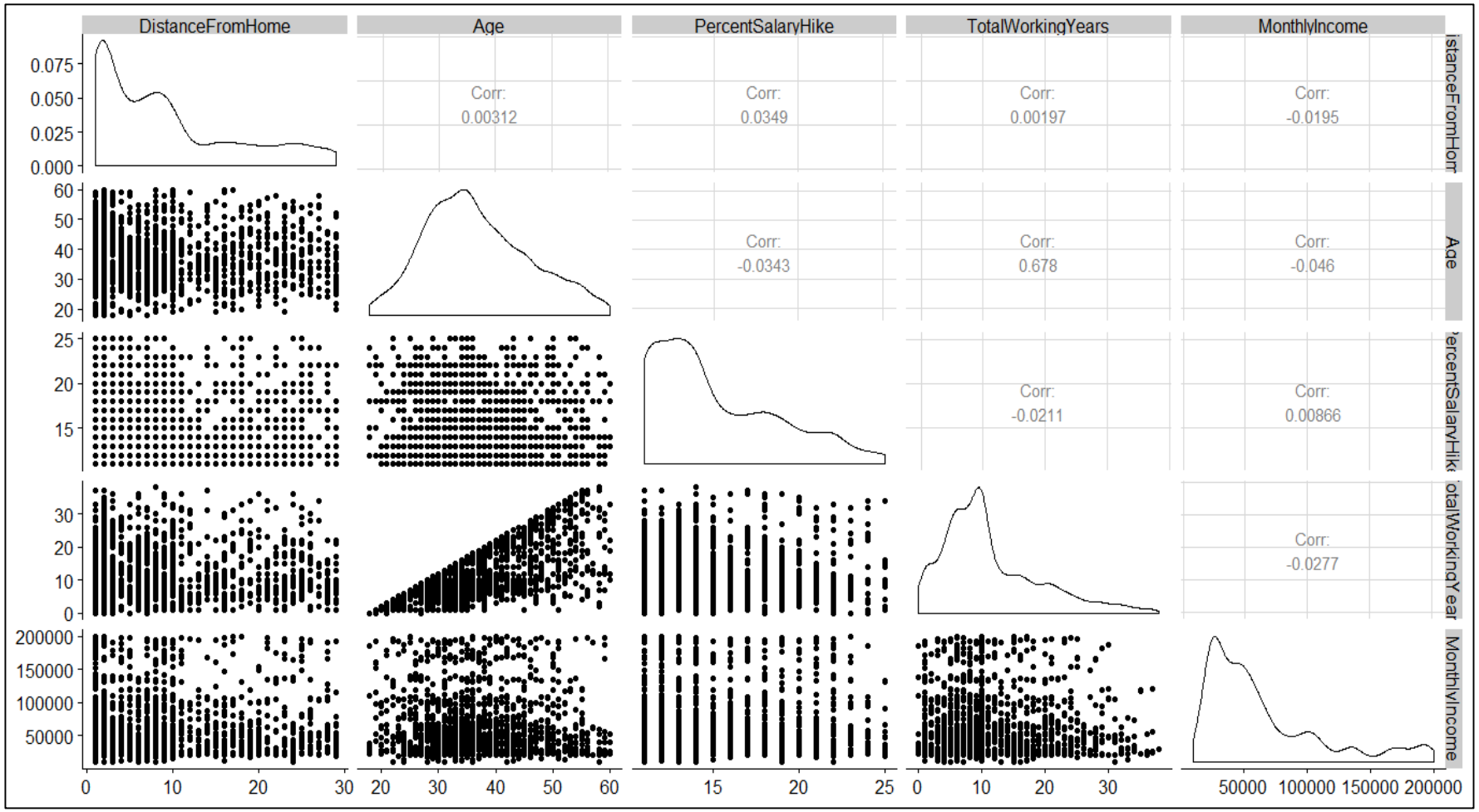
- Employees worked with 1 year in a company seem to be most vulnerable to attrition.

OUTLIER TREATMENT .. 2



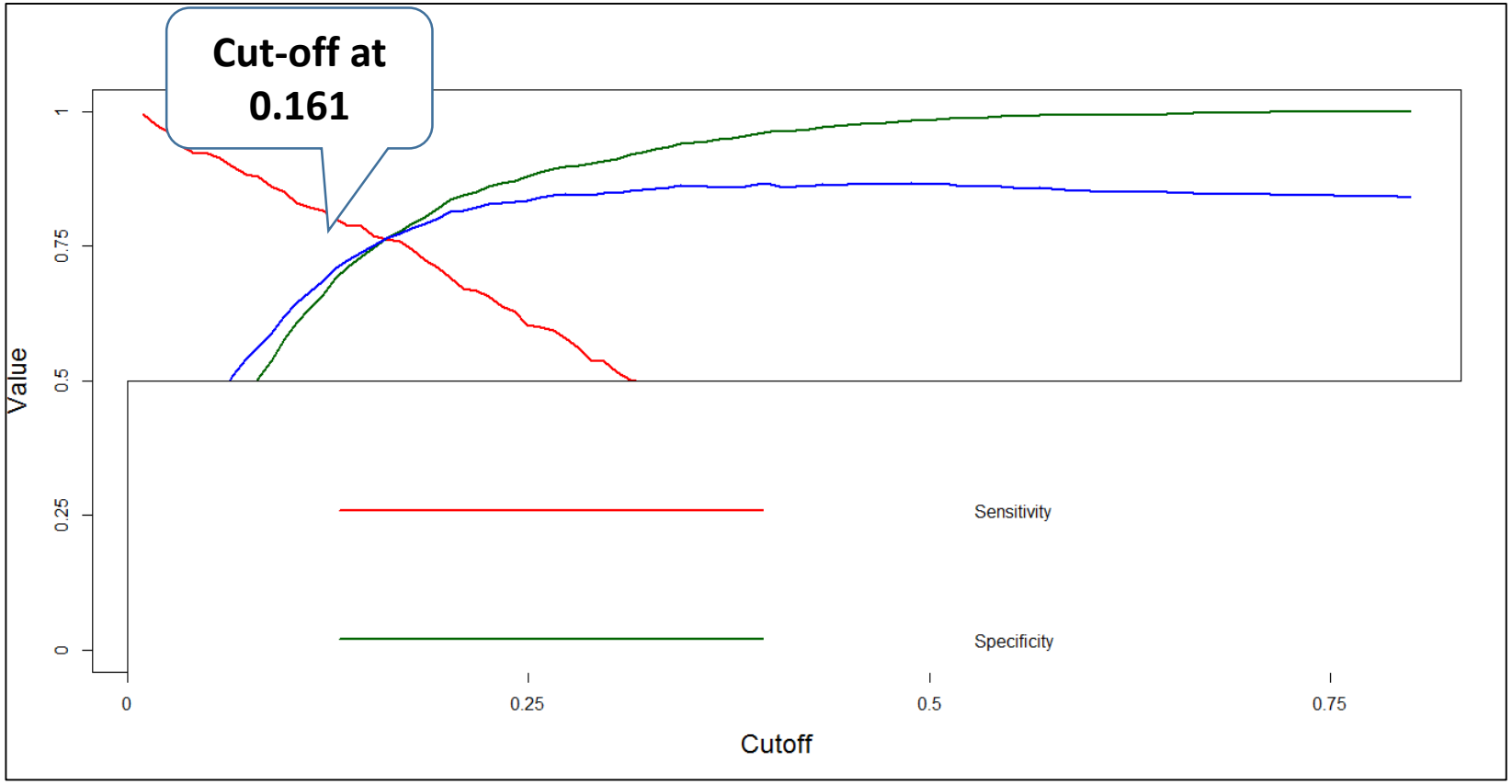
- Employees with greater than 35 years seems to wait for retirement.

CORRELATION



- Age and no. of years of experience are corelated as expected

ACCURACY, SENSITIVITY & SPECIFICITY CHART



- The cutoff value where accuracy, sensitivity and specificity meet is: 0.161

GAIN TABLE

A tibble: 10 x 6

	bucket	total	totalresp	Cumresp	Gain	Cumlift
	<int>	<int>	<dbl>	<dbl>	<dbl>	<dbl>
1	1	129	78.	78.	37.7	3.77
2	2	129	48.	126.	60.9	3.04
3	3	129	31.	157.	75.8	2.53
4	4	129	10.	167.	80.7	2.02
5	5	128	9.	176.	85.0	1.70
6	6	129	7.	183.	88.4	1.47
7	7	129	8.	191.	92.3	1.32
8	8	129	3.	194.	93.7	1.17
9	9	129	5.	199.	96.1	1.07
10	10	128	8.	207.	100.	1.00

- Gain table shows that KS value 52.92 falls between 1st and 2nd decile

DRIVING FACTORS FOR ATTRITION

```
Coefficients:
                                Estimate Std. Error z value Pr(>|z|)
(Intercept)                     -0.89421    0.24521  -3.647 0.000266 ***
TotalWorkingYears               -0.60776    0.07295  -8.331  < 2e-16 ***
BusinessTravel.xTravel_Frequently  0.68307    0.13174   5.185 2.16e-07 ***
Department.xResearch...Development -0.94725    0.22979  -4.122 3.75e-05 ***
Department.xSales               -1.04090    0.24265  -4.290 1.79e-05 ***
MaritalStatus.xSingle            0.90291    0.11337   7.964 1.66e-15 ***
NumCompaniesWorked.x5            1.23177    0.22659   5.436 5.45e-08 ***
NumCompaniesWorked.x7            0.87355    0.22893   3.816 0.000136 ***
YearsAtCompany.x1                1.14720    0.14562   7.878 3.33e-15 ***
YearsSinceLastPromotion.x7       0.86287    0.22966   3.757 0.000172 ***
EnvironmentSatisfaction.x2      -0.75306    0.16576  -4.543 5.55e-06 ***
EnvironmentSatisfaction.x3      -0.91677    0.15258  -6.009 1.87e-09 ***
EnvironmentSatisfaction.x4      -1.00562    0.15235  -6.601 4.09e-11 ***
JobSatisfaction.x4              -0.90209    0.13698  -6.586 4.53e-11 ***
sumhours                         0.61125    0.05353  11.419  < 2e-16 ***
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- Table indicates the factors which drive attrition in the company and whether they are directly or indirectly proportionate to attrition.

DRIVING FACTORS TO STAY

Driving Factor	Stay	Interpretation	Recommendation
Total Working Years	Stay	Most experience employee will stay with the current employer	Keep status quo.
Department	Stay	Employees in Sales and R&D department seem to stay as compared to other departments	Allow possible rotations or ON-Job Training from other departments in to R&D and Sales department
Environment Satisfaction	Stay	Better facilities and benefits offered by the organization will result in employee to stay with the company	Better to avoid any changes in the facilities and benefits offered by the company. One can always think of improving them.
Job Satisfaction	Stay	Higher job satisfaction will result in the employee to stay with the company.	Frequently poll job satisfaction levels within the organization and take appropriate actions based on the findings.

DRIVING FACTORS TO LEAVE

Driving Factor	Leave	Interpretation	Recommendation
Business Travel Frequency	Leave	1. More exposure to external world makes an employee want to leave 2. More work visa are being issued	1. Promote only business critical travels. 2. Promote travel on business visa which will not allow employee to explore outside.
Singles	Leave	Singles are more vulnerable to change their jobs	For critical projects, plan for members who are singles and married.
Number of companies > 5	Leave	Employee who changes job very frequently will continue to be vulnerable	Avoid positioning such employees on critical projects.
First year at company	Leave	This is the time to make an impression on the employee about the company, technology , work and culture	Showcase the best the company can offer regarding career growth, technology and long term product roadmap.
Years since last promotion 7 and above	Leave	Employees who have not been promoted for long will most likely leave the company	1. Offer career planning session early enough based on identifying the correct potential and expertise area of the employee. 2. Encourage alternate skill development.
Hours at Work	Leave	1. Certain employees prefer to work extra hours. 2. Return On Investment not up to the expectation. 3. Certain employees who are made to work more hours show a possibility to quit the company.	1. Employees who like to work more and contribute to the company should be encouraged through R&R. 2. Employees who work extra hours but with not satisfactory output should be allowed to explore other avenues within the organization. 3. Employees working extra hours under pressure should be offered compensatory holidays.

CONCLUSIONS

- Data provided for company XYZ indicated there are factors which will result in an employee to stay or to leave.
- Factors which will enable the employee to stay are
    1. Total Working Years
    2. Department
    3. Environment Satisfaction
    4. Job Satisfaction
- Factors which will enable the employee to leave
    1. Singles
    2. Number of companies > 5
    3. First year at company
    4. Years since last promotion 7 and above
    5. Hours at Work