

Factors affecting High Employee Attrition in Manufacturing Firms – A Case Study

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Abstract

Human Resource Management encompasses the various activities that are designed to enhance the effectiveness of the manpower in an organization in the achievement of organizational goals. There are a number of challenges in the Indian industries which require serious attention of HR managers. It is imperative for organizations to have a strong HR team with sufficient top management support. Employee Attrition/turnover is the outflow of people from an organization by means of superannuation, change of career or job, relocation of place, ill health etc. This study identifies the factors affecting high employee attrition at a manufacturing firm in India. It also focused on suggesting guidelines in addressing the high attrition prevailing in the plant. Primary data for quantitative analysis is collected using a structured questionnaire. Stratified random sampling is used for this study. Factor analysis and multiple regression analysis are used to identify the factors and to find the effect of these factors on various levels of management. The study revealed that organisational culture and granting leaves to the employees are the two important factors that affect employee attrition. Also work atmosphere inside the organisation emerged as the second most critical factor. From the findings, it is observed that HRM practices in the organization have to be improved significantly for reducing high employee attrition. This study will offer necessary inputs to the management of the firm and other companies in manufacturing sector in addressing the high employee attrition problem.

Keywords: human resource management; employee attrition; critical factors; multiple regression analysis.

1. Introduction

Successful organizations have a strong and dedicated work force. Companies with strong HR practices and good employee relations have excelled globally. Human Resource Management aims at achieving individual and organizational goals through people and other resources. The goal of the organization is achieved by the employees working there. According to David A Decenzo, et al. (2008) it is the duty of the organization to train the people working there and ensure that they contribute towards achieving organizational goals. The goal of Human Resource Management is to ensure that there is a work force that is skilled and motivated to work.

Employee Attrition:

Michael Armstrong (2006) defines employee attrition as the movement of people out of an organization by means of retirement, career or job change, change of location, ill health etc. The impact of employee attrition can be detrimental and expensive to the organization. A company is affected because

he/she takes away certain knowledge, and there is no ready replacement in the market. Wayne F Cascio and John W Boudreau (2008) found that attrition rate can be used as an important tool to measure the organization's effectiveness. People are the integral part of an organization and it is the duty of the HR team to ensure that recruitment, management and retaining of people happens seamlessly to so that employee turnover is minimum and the organization can have a strong team.

2. Literature Review

There are no dearth of studies in the area of employee attrition in manufacturing firms. Employee attrition will increase the cost of productivity, cost of HR and other hidden costs. Bhuiyan et al, (2015) in a study in Bangladesh attributed the financial results to HR practices. Employee attrition also influences quality of a product or service, customer satisfaction and continuity in operations which are key to the firm's success. Attrition in India today is alarmingly high. This could be due to

growth in economy and availability of opportunities. Age plays a crucial role in employee retention. Armstrong et al., (2009) in a study conducted among older people observed that career satisfaction, training and development motivates people to stay in the organisation. Employees quit their jobs because of lack of career advancement and ineffective utilization of their knowledge and skills. Shaw et al. (2001), observed that the behaviours of immediate supervisors and especially their understanding of disability management and workplace accommodations plays a major role in supporting employees. Selden and Sowa (2015) concluded that high performance work practices results in low employee turnover and suggested that firms should undertake practices like leadership development, employee relationship and on boarding. In another study conducted in Sweden, Schubert & Andersson (2014) concluded that firms can compensate old work force by employee turnover to increase innovation. Trade unions play a crucial role in the functioning of the organisation. Relationship with unions are important to reduce employee attrition (Cosar et al., 2016).

Cahuc et al., (2016) relates stringent job protection laws to employee turnover. They concluded that higher firing costs increase the share of entries into temporary jobs. Education level of the employees has a strong relationship with the employee turnover. It is found that educated employees have more job stability compared to un-educated work force. Cairo and Cajner (2018) concluded that higher training opportunities reduce separation rates among employees. Effective HR systems will reduce employee attrition. Strategic HR is the need of the hour. HR needs focus and this can only be achieved with the support of top management. Chadwick et al., (2015) proved the importance of top management's commitment on HR practices for reducing attrition levels. Employee attrition has a direct impact on the performance of the manufacturing firms. In a study that compared the employee attrition and its impact on performance between service and manufacturing firms (Eckardt et. al.,2014) concluded that the negative impact of production worker turnover on performance is more in manufacturing firm than the service firms. The cost of employee attrition is very high. There are also other costs like production loss and safety costs related to this attrition (O'Connell, M., & Kung, M. C. (2007). Employee turnover is also related to the profitability of the manufacturing firm. Koys (2001) in his study related the employee turnover to profitability, organization effectiveness and employee satisfaction. The literature survey indicates the importance of employee attrition in manufacturing firms and various factors like skill of employee, management level, organization policy and effectiveness are identified to play a crucial role in the employee attrition rate.

3. Problem Definition

Manufacturing industries are skill dependent. These industries are facing many challenges in the area of Human Resource Management particularly employee attrition and its effect in manufacturing. Employee attrition is often used as an indicator of company performance and can easily be observed negatively towards the organization's efficiency and effectiveness. Higher rate of attrition is a major problem and it definitely requires urgent attention of the HR community. How can we bring down this to optimum level? The effect on employee attrition seriously affects the economics of the firm. Many strong organizations have felt that the cost of replacing the employees are having a detrimental effect in the profit of the firm. This particular firm where the study is carried out, employs 729 workers spread across different levels. One of the major problems faced by the firm is the high rate of employee attrition, which is between 10%-25% for the past three years. This alarming range of attrition rate prompted the researchers to carry out this study in this particular firm.

4. Objectives

1. To study the causes and nature of high employee attrition in a manufacturing firm.
2. To identify the factors influencing high employee attrition
3. To study the impact between identified factors and different organisational levels in the company.
4. To assess and rate the HRM practices followed

5. Research Methodology

5.1. Sample Size

The sample for this study consists of employees working at various levels in the manufacturing firm. The respondents are employees from different functional departments and from various levels such as higher level managers, executives to union workers. The respondent's work in various functional areas like marketing, maintenance, financial accounting, human resources, engineering, quality, production, procurement and others. Among the 729 employees working in selected organization, there are 95 Managers, 180 Executives/officers and 454 union workers. This study uses stratified random sampling technique. A sample size of 260 was selected. This includes 34 Managers, 64 executive officers and 162 union workers. The three levels of employees are the three strata selected for the study.

5.2 Pilot Study

A pilot study with 20 respondents (employees) from different levels in the organization is carried out. This helped in proposing the statements (proposed attrition factors, HR practices & job satisfaction) which affect the employee attrition. Qualitative nature of the data is converted to quantitative for analysis using a Likert 5 point scale. The pilot study showed that the questionnaire is reliable.

5.3. Data Collection

A well designed self-administered questionnaire having 13 proposed factors (5 HR factors and 8 job satisfaction factors) for consideration has been used for collecting primary data. Also discussions and deliberations with employees within the level starting from entry level to manager level have been conducted for this purpose. Responses on each factor have been taken on all the 26 factors with the adopted sample of 260. Each factor response is tabulated and descriptive analysis of each factor has been done. Statistical Package for the Social Sciences (SPSS) version 17.0 is used as a tool for the statistical analysis.

To reduce the total number of variables to smaller set factor analysis was carried out. To identify the factors a set of 13 items included in the employee attrition scale was used. Multiple Regression Analysis is carried out to identify all the factors causing high employee attrition in the organisation both critical and non-critical. A study of the respondents based on gender, age, department, qualification, and experience in the company have been conducted and the findings are presented using percentage diagrams and charts.

5.4. Data Analysis and Findings

Reliability analysis

Reliability analysis is carried out with a pilot study of 20 respondents. Likert 5 point scale is used to measure the attitude of respondents using 26 items.

Statistics for	Mean	Standard Deviation	Number of items
Part 1	3.285	1.287	13
Part 2	2.299	1.724	13
Scale	2.83	1.488	26

Table 1. Factor Variables Analysis

The items of the scale were equally distributed into two parts. 13 items from each part was selected. The correlation of 0.6518, indicates good correlation. Reliability coefficients of the scale are found using Spearman-Brown and Guttman scale by dividing the scale items into two halves in random manner.

Number of Cases	260	Number of Items	26
Part 1 with 13 items		Part 2 with 13 items	
Between forms-Correlation	0.6518	Equal-length Spearman-Brown	0.6746
Guttman Split-half	0.6636	Unequal-length Spearman-Brown	0.649
Part 1 Alpha	0.586	Part 2 Alpha	0.854

Table 2. Reliability coefficients

Three statistical methods are used to study the reliability namely Spearman Brown, Guttman and Cronbach alpha. In all these reliability measures reliability of scale is between 0.60 and 0.86, which makes the constructed scale fairly reliable. In the next stage factor analysis is carried out on all the 260 valid responses.

5.5. Factor Analysis

Principal Components Analysis (PCA) is used to extract factors. The 13 variables considered in the primary data were reduced to 3 factor model and each factor is given a name that associated with the corresponding variables. The factor names and descriptions of the factors are given in the following table:

Item no.	Statement	Factor Name
12	Lack of Performance-based bonus causes high attrition	Dissatisfaction with rewards & hikes
13	Increase in salary every six months is a better option to bring down high attrition	
11	Organisation is not transparent with the reward system	
10	Reason for high attrition could be internal job rotation	
2	My salary is not on par with the work I do in the company	
8	Poor transportation facility leads to high attrition	Work atmosphere
3	Increment I get is not satisfactory	
6	This organisation is closed to ideas and suggestions given by employees	
4	The promotion policy of the organisation is logical and free from bias	
9	This organization provides timely, hygienic food to its employees	Organizational culture & leaves
1	More working hours leads to high attrition	
5	The culture of this company creates a very positive work environment	
7	This organization provides sufficient holidays for employees	

Table 3. Factor Names and description of factors

Analysis of Socio economic factors

The socio economic factors included in this study includes: age, gender, marital status, qualification, department, salary and experience in the company. An analysis of the respondents based on the above factors is discussed as follows.

5.6. Multiple Regression Analysis

Regression Analysis is carried out to find the effect of variables on employee attrition. Overall attrition score is considered

the dependent variable. The overall attrition score was calculated by adding the score of the five major attrition factors. The other variables namely age, gender, levels, experience, salary, department and qualification are independent variables that may have an effect on the dependent variable.

The result of the regression analysis is tabulated below:

	Regression Coefficients (B)	Std. Error	t	Sig.
(Constant)	79.667	4.779	16.672	.000
age	-1.093	.876	-1.248	.213
gender	-4.773	1.549	-3.080	.002 hs
levels	.444	1.739	.255	.799
experience	-.171	.861	-.198	.843
salary	.364	.986	.369	.712
department	-.022	.384	-.056	.955
qualification	2.221	.713	3.116	.002 hs

Table 4. Dependent Variable: Overall Attrition Score

Model	R	R Square	Std. Error of the Estimate
1	.282 ^a	.079	10.29836

Table 5. R square value

5.7. Result

The value of the multiple correlation co-efficient (R) was found to be 0.282 which shows that there is moderate level of correlation between the dependent variable and the set of independent variables taken together. The R square value indicates that 7.9% of variation in the overall attrition score is explained by the set of independent variables included in the model. Individually, looking at the regression co-efficient, it is seen that age, gender, experience and department have affected the overall score of attrition negatively. That is the employee's attitude towards attrition decreases when these variables are on the higher side. For example, attitude of older age groups is less towards attrition. Levels, salary and qualification have a positive effect on attrition. Which means, people who are highly qualified and draw more salary have higher level of attrition than those who draw lesser salary or less qualified or in a lower level in the hierarchy. Gender-wise, men tend to switch jobs frequently than women. Among all these regression co-efficient, it is found that gender and qualification affect the attrition scores either at 5% level of significance.

5.8. Hypothesis Testing

Based on the objectives of the study hypothesis are formed. The primary data from the questionnaire is used for testing the hypothesis:

Relationship between levels and Attrition factors:

Hypothesis: Dissatisfaction with rewards & hikes and levels:

H0: Dissatisfaction with rewards and hikes does not differ significantly with the respondent's level.

H1: Dissatisfaction with rewards and hikes does differ significantly with the respondent's level.

		Dissatisfaction with rewards & hikes		
		Mean	S.D.	No.
Levels	Union workers	15.30	4.52	162
	Executives/officers	14.17	4.80	64
	Managers	15.97	5.91	34
Total				260

Table 6. Dissatisfaction with rewards & hikes Vs levels

F	p
1.906	0.151

Table 7. ANOVA for dissatisfaction with rewards & hikes

Result

To find whether there is significant difference among the level of the respondent groups and the average dissatisfaction with rewards & hikes scores one way ANOVA is used.

Since the calculated F-ratio value 1.906 is lesser than the table value 2.237 at 5% level of significance, we accept the null hypothesis. Hence, it is inferred that dissatisfaction with rewards and hikes does not differ significantly with the respondent's level.

Hypothesis: Work atmosphere and levels:

H0: Work atmosphere does not differ significantly the respondent's level.

H1: Work atmosphere does differ significantly the respondent's level.

		Work atmosphere		
		Mean	S.D.	No.
Levels	Union workers	15.26	3.32	162
	Executives/officers	15.78	3.08	64
	Managers	14.50	3.80	34
Total				260

Table 8. Work atmosphere and levels

F	p
1.651	0.194

Table 9. ANOVA for work atmosphere

Result

Since the calculated F value of 1.651 is lesser than the table value of 2.237 at a level of significance of 5 %, we accept the null hypothesis. So the inference is that there is no significant difference among the level of the respondent groups in the work atmosphere scores.

Hypothesis: Organisational culture & leaves and levels:

H0: Organisational culture & leaves does not differ significantly with the respondent's level.

H1: Organisational culture & leaves does differ significantly with the respondent's level.

		Organisational culture & leaves		
		Mean	S.D.	No.
Levels	Union workers	6.50	1.60	162
	Executives/officers	6.25	2.04	64
	Managers	6.08	1.16	34
Total				260

Table 10. Organisational culture & leaves and levels

F	p
1.165	0.314

Table 11. ANOVA for organisational culture & leaves

Result

On using ANOVA we get an F value of 1.165. Since this value is lesser than the table value of 2.237 at 5% level of significance, we accept the null hypothesis. Hence, it is inferred that there is no significant difference among the level of the respondent groups in the organisational culture & leaves.

Hypothesis 3.4: HR Practices and levels:

H0: HR Practices does not differ significantly with the respondent's level.

H1: HR Practices does differ significantly with the respondent's level.

		HR Practices		
		Mean	S.D.	No.
Levels	Union workers	15.91	3.38	162
	Executives/officers	19.21	2.36	64
	Managers	16.88	3.16	34
Total				260

Table 12. HR Practices and levels

F	p
25.524	<.05 Sig.

Table 13. ANOVA for HR Practices

Result

Again one way ANOVA is used to test the hypothesis. Since the calculated F-ratio value 25.524 is greater than the table value 2.237 at 5% level of significance, we reject the null hypothesis. The inference is that there is significant difference among the level of the respondent groups in the HR Practices scores.

Hypothesis: Job satisfaction and levels:

H0: Job satisfaction does not differ significantly with respondent's level.

H1: Job satisfaction does differ significantly with respondent's level.

		Job satisfactions		
		Mean	S.D.	No.
Levels	Union workers	22.25	4.94	162
	Executives/officers	23.70	6.08	64
	Managers	23.70	5.89	34
Total				260

Table 14. Job satisfaction and levels

F	p
2.206	0.112

Table 15. ANOVA for job satisfaction

Result

The results of one way ANOVA shows an F-ratio value of 2.206 which is lesser than the table value of 2.237 at 5% level of significance, hence we accept the null hypothesis. It is hence inferred that there is no significant difference among the level of the respondent groups in the job satisfaction scores.

Rating of Human Resource Management Practices:

Rating of the Human Resource Management Practices has been conducted and the results are given as follows:

Grade/Opinion	Number of respondents	Percentage of the total sample
Excellent	0	0
Good	106	40.8
Average	152	58.4
Satisfactory	2	0.8
Poor	0	0
Total	260	100.0

Table 16.

Human Resource Management Practices (HRM) Rating

Source: Data from the survey

Table 16 gives an account of the human resource management practices rating using the grades: Excellent, Good, Average, Satisfactory and Poor. The group 'Excellent' has 0 respondents, 'Good' has 106 respondents, 'Average' has 152 respondents, 'Satisfactory' has 2 respondents and the 'Poor' group has 0 respondents.

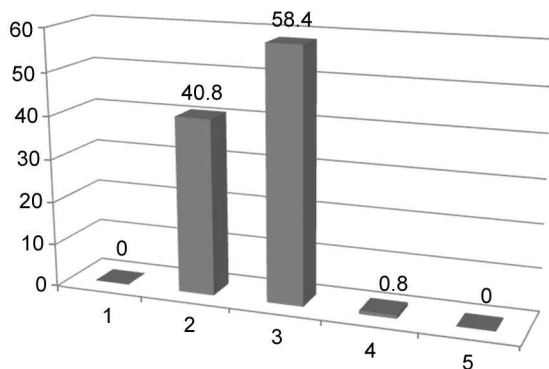


Figure 1. HRM Rating Percentage distribution

1 –excellent, 2 – good, 3 – average, 4 – satisfactory & 5 – poor.

Figure 1 shows that 58.4% of the respondents have rated HRM practices as 'Average', 40.8% of the respondents have rated 'Good', 0.8% of the respondents rated HRM practices as 'satisfactory', It may be noted none have rated the practices as Excellent or Poor.

Inference:

From the above study it is found that 58.4% of the respondents have rated HRM practices of their organization as 'Average' and 40.8% of the respondents has rated HRM practices of their organization as 'Good'. Therefore the HRM practices of the organization need to improve so that attrition can be minimised.

6. Major Findings

The responses shows that the distribution of male and female respondents for the study is moderate. Among the respondents, majority falls in the age group of '25-44' years. It is observed that all the respondents possess experience ranging from less than 1 year to above 10 years. From the total sample, it is concluded that majority (38.9%) have an 'engineering' background, where employee attrition is highest. From the responses, it is also found that majority of the respondents have Diploma level qualification. It is also observed that from the total sample more than half (62.3%) are from union workers group and the rest of the respondents are in 'Executives/officers group.

Rating for HR practices in the manufacturing firm shows that more than 50% of the respondents rated HRM practices of the organizations as 'Average'. Therefore in order to reduce the employee attrition the HRM practices of the organization need to be improved significantly. Factor Analysis grouped the 13 variables considered in the primary data to 3 factors model and each factor was given a name that associated with the corresponding variables. The factor names given are: Dissatisfaction with rewards & hikes, Work atmosphere, and Organizational culture & leaves. From the Multiple Regression analysis, it is seen that age, gender, experience and the department they work have impacted the overall attrition score negatively. Which means that the employee's attitude towards attrition decreases when these variables increases. For example, respondents in the older age group have lesser attitude towards attrition. Employee Levels, salary and qualification affect the attrition score positively. That is, people who are highly qualified and draw more salary have higher level of attrition than those who draw lesser salary or less qualified or in a lower level in the

hierarchy. Gender-wise, men tend to switch jobs frequently than women. Among all these regression co-efficient, it is found that gender and qualification affect the attrition scores either at 5% level of significance. From One Way ANOVA, it is found that there is a significant difference among the departments in the average HR Practices, work atmosphere and organisational culture & leave scores. Also it is observed that there is no significant difference among the departments in the average Job satisfaction scores. While considering the difference among the level of the respondent groups, the analysis shows that there is significant difference among the level of the respondent groups in the HR Practices scores. Also it is found that there is no significant difference among the level of the respondent groups in the work atmosphere, dissatisfaction with rewards and hike, organisational culture & leaves and job satisfaction scores.

7. Conclusion, Limitations & Future Scope

HR Managers in manufacturing firms have many challenges. This study identifies some important elements that need attention in the manufacturing firm. It is imperative for the organizations to have an innovative and competent HR pool, sound HR management practices with strong business knowledge. Organisational culture and granting employee leaves emerged as the most critical factors affecting attrition rate in the company. It has shown a significant difference in departments, age group, and experience of the respondents, gender, salary & qualification. Hence the company should have liberal leave policies. Those who draw higher salary and those who are highly qualified have higher level of attrition than those who draw lesser salary or less qualified. Men tends to jump jobs more than women employees. Since more than 50% of the respondents have rated HRM practices of the organizations as 'Average', the HRM practices have to be improved significantly for reducing employee attrition. In the study, work atmosphere has been emerged as the 2nd most critical factor responsible for high attrition in the company, as it has shown a significant difference between departments, qualification, gender & experience. It shows that it is imperative that an organisation has a good work ambience to bring down the attrition rate. The management also have to ensure that their employees are treated well in the organization. This case study can be generalized for other manufacturing firms as most of the practices are common among these firms. This study is limited to manufacturing firms. Further study can be among cross section of sectors including service sectors where the number of employees are more. This study will enable the readers, researchers and practitioners (HR Managers) to have a professional approach in addressing the critical issue of employee attrition.

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