FACTORS EFFECTING THE PERFORMANCE MANAGEMENT SYSTEM: A COMPARATIVE ANALYSIS AMONG MEN AND WOMEN WITH REFERENCE TO INFORMATION TECHNOLOGY SECTOR

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ABSTRACT

This positivist research outcome reports the factors effecting the performance management system (PMS) in information technology sector using a comparative with reference men and women employees. A comparative analysis of an empirical survey involving men and women employees using the factors that effect the PMS in information technology sector carried out. The primary data generated carrying out a survey with Nine hundred and twenty-four employees consisting of 379 women, and 545 men working in information technology sector in and around the Metro of Hyderabad. A structured and undisguised questionnaire, was employed on the respondents for this research study. The questionnaire prepared and published on Google form and link for the questionnaire was provided to the respondents. The six independent factors that are effecting the PMS – employee performance, working environment, personal competencies, knowledge-level, job-knowledge, interpersonal and communication competencies and a dependent factor PMS measured. The reliability and in the internal consistency of the research instrument, the survey questionnaire assessed using reliability statistic Cronbach Alpha. The C-alpha values ranged between 0.67 to 0.86 for men, and 0.63 to 0.84 for women employees for the factors assessed indicating, a strong internal consistency and reliability of the survey instrument. The factors that effect the PMS reported in the manuscript.

Keywords: Cronbach alpha, Multiple regression, Information Technology, PMS.

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1. INTRODUCTION

The performance appraisal, training and development, succession planning, talent management and compensation planning are part and parcel of the PMS in most of the organizations. The PMS measures the employee performance, and identifies deviations if any, from the expected employee performance which effect the organization's efficiency. The PMS also has mechanisms to correct the deviation in the employee and organization's performance. The efficient and effective PMS practices are must for achievement of an organization goals, and it need to be aligned with the organization's vision and mission. The PMS is continuous and evolving process to assess the employee performance in an organisation to meet the objectives and organizational goals (Shah and Aslam, 2009). The PMS can be a benchmark for measuring the employee performance, organizational outcome and will encourage employees by setting the perspectives needed to an organization's development (Babu & Suhasini, 2017).

The PMS is vital in managing organizational efficacy and ignorance of PMS creates negative performance impacts and will seriously effects the organization's outcome. The HR leaders of an organization should develop strategies to grow the organization at fullest level deploying the right talent at right place. The HR knowledge-base with employee skills, abilities and competencies will help an organisation to develop the strategies required for redeployment of resources in an organization. The PMS development strategies developed in such way so the employees are well engaged, motivated and committed, and positive impact on the employee performance can be realized. Performance is a personnel activity that can be assessed in managerial aspect to see whether the organization is sustainable on long-term basis (Paile, 2012). For high-level employee engagement perfectly designed PMS is essential, and more dedicated personnel and employee engagement conversely will influence performance of an employee (Noronha, *et al.*, 2016).

Managing and measuring of an employee performance is critical to any organisation and performance management provides a direction to the staff, where he/she stands in the organisation. Zvavahera, 2014 reported a two-fold performance management system – one, measuring the managers performance to achieve strategic objectives and two the assessment of staff performance to accomplish both the managerial and individual requirements. The PMS enables an individual employee and organization to achieve the planned determinations by means of system which are both systemic and organized (Esu, *et al.*, 2009)

The implementing of the PMS into the functioning of the organization will lead to the conduction of regular discussions through the performance cycle. The discussion will be include certain things like coating, mentoring feedback and assessment. Makhubela *et. al.*, (2016) reported that implementation of the performance management system will help to provide adequate knowledge about the performance levels of the employees in the organization. Through performance management system assessment, the employees will be categorised to low and high performing employees and low performing employees need to be provided with special coaching facilities. The coating methodology motivates the employees to increase their performance. Rusu *et al.*, (2016) reported that a employee appreciation rate of coaching methodology and increase in employee job satisfaction rate. When the performance

of the employee found be low and uninspiring it must be taken account that the employees had not accepted and the coaching given by the managers and need some modifications in more dequiare moaner based on the employee feedback (Khan, Latlitha & Omonaiye, 2017). Tkacheno et al., 2017 reviewed the subject and provided the research and practice gap on PMS systems and the aspects of rigor and relevance of performance managements in HRD research are provided bty (Brown et al. 2018).

2. REVIEW OF LITERATURE

Prasad *et al.*, (2016) reported the dimensions that influence the performance appraisal system relative to men and women employees in agricultural sector and outlined that the factors like employee skill level, job execution and knowledge, motivation and imitativeness, orientation of clients, group work, employee knowledge in understanding policies and practices significantly influence the outcome of the performance among men and women employees. The men employees prone to have a negative effect than women employees with the said factors. Prasad *et al.*, (2016) evaluated the core competencies of employees that are statistical significant in influencing the performance appraisal system with in an agriculture research centre, Hyderabad using multiple regression analysis and reported the factors that are negatively influencing the performance appraisal and the PMS in an organization includes all official and unofficial procedures to enhance efficiency of organization. The PMS in an organization can be successful with enhancement of knowledge, proficiencies and capabilities of employees. The performance management system assists the employee in well shaping the employee performance (Zinyama *et al.*, 2015). Performance management is an organizational philosophy and an array of practices which aspire to incorporate all important managerial functions within a corresponding approach for tackling the user demands and organizational purposes in a proficient way as possible.

Performance appraisal is an ingredient of PMS whereas as the performance management is a broader concept than appraisal. Performance appraisal looks back to identify what has been improper in employee performance, whereas performance management moves forward for further improvement (Joshi, 2012). Mruthyanjaya Rao *et al.*, (2019) studied the factors causing the significant influence on the outcome of performance management system and reported that factors for improved performance of employees and components of employee skill related effects performance management system, using multiple regression analysis model. This study concluded both the factors significantly influencing the performance management system. The implementation and assessment procedure of the performance of the employees is necessary to identify the productivity and its effects in an organization in a better way (Agyare *et al.*, 2016). The understanding and learning of organizations goals and vision by employees is important to perform well in the organisation. Begum *et al.*, (2015) reported that employees who had not performed well were found to have a low understanding and learning about the different goals and objective of the organization.

Tilca *et al.*, (2018) developed a model based on the multiple linear regression analysis to assess the performance of human resources in organization based on employee performance indicator. Tilca defined performance criteria of each job, number of achievements and the rate of appreciation to predict the dependent variable performance. Ravichandra and Saraswathi (2018) made an elaborative analysis of Performance Management System indicators of Tech-Mahindra, in the Metro of Hyderabad and reported a strong correlation among Employee performance in the studied 3-phases of PMS. The study reported of PMS phase Developing Planning Performance and Managing & Reviewing Performance play a significant role on Employee Performance while comparing with the third phase, Rewarding Performance). Poornima and Manohar (2015) studied the performance appraisal system and employee

satisfaction among IT employees Bangalore using multiple regression to test the hypothesis on performance appraising methods and reported partial agreement of employees with the appraising method of the IT companies studied.

The development of worker performance would future result in an upsurge in the managerial performance. Managerial leadership, infrastructure, human resource practices, and workplace environment are four different levels where in performance management system survives (Noronha et al. 2016). It is an exceptional aspect of career growth that involves a standard analysis of performance of workers in the management which does not only stop there, besides it usually goes beyond to commune fed back to the workers (Eliphas et al. 2017). The performance management system is also found to be decrease the time that is taken by the managers of the organizations to create the strategic or operational changes which are essential to bring changes in the working of the organizations by communicating the changes that are brought in by laying down a new set of goals (Khan et. al. 2017). In many of the organizations the performance management system is termed to be positive and negative based on the outcome received by the assessment procedure (Nayak et. al. 2018). Ravishanker et al. (2018) conducted a study on the impact of performance system on perspectives and perception of the employees and employee job performance and reported that these two factors are significantly influencing the performance system in an eye hospital in Mysuru, India

2.1. Research Gap

The philosophy behind the PMS is to establish alignment between capabilities and skills of the human resources and organizational vision, mission, goals and objectives. Further it also focusses on the improvement of the organizations system as a whole. The chief functions of the performance managements that are commonly used by most of the IT sector organizations are training development, succession planning, career development and to some extent compensation and benefits. In the recent past several studies were carried out the factors such as training and development, compensation and benefits, flexible working hours, and reported the results on PMS and its effect on employee job performance. However, factors that affect the performance management system as whole like working environment, employee personal competencies, and knowledge-level, job-knowledge, interpersonal and communication competencies with positivist approach i.e. with scientific evidence are rarely carried out. Further a comparatives analysis of the said factors among men and women employees are not carried out and reported in the research studies. Therefore, this empirical research study has taken the initiative to fill this gap.

3. OBJECTIVES AND HYPOTHESES

To study the factors that effect performance management system in the IT sector companies around Hyderabad and make a comparative analysis being made to measure if the factors are similar among male and female employees. A limited research is available on PMS in particular on comparative analysis among men and women employees. To study empirically if there are any similarities the factors that effect the performance management systems among and men and women employees of IT sector companies in Metro of Hyderabad.

Based on the identified research gap, the following hypotheses formulated

H₀₁: Employee performance is similar among men and women and influence the PMS in IT Sector industry in Metro of Hyderabad

H₁₁: Employee performance is not similar among men and women and influence the PMS in IT Sector industry in Metro of Hyderabad

H₀₂: Employee working environment is similar among men and women and influence the PMS in IT Sector industry in Metro of Hyderabad

H₁₂: Employee working environment is not similar among men and women and influence the PMS in IT Sector industry in Metro of Hyderabad

H₀₃: Employee personal competencies are similar among men and women and influence the PMS in IT Sector industry in Metro of Hyderabad

H₁₃: Employee personal competencies are not similar among men and women and influence the PMS in IT Sector industry in Metro of Hyderabad

H₀₄: Employee Job-knowledge competencies are similar among men and women and influence the PMS in IT Sector industry in Metro of Hyderabad

H₁₄: Employee Job-knowledge competencies are not similar among men and women and influence the PMS in IT Sector industry in Metro of Hyderabad

H₀₅: Employee Knowledge level competencies are similar among men and women and influence the PMS in IT Sector industry in Metro of Hyderabad

H₁₅: Employee Knowledge-level competencies are not similar among men and women and influence the PMS in IT Sector industry in Metro of Hyderabad

H₀₆: Employee interpersonal and communication competencies are similar among men and women and influence the PMS in IT Sector industry in Metro of Hyderabad

H₁₆: Employee interpersonal and communication competencies are not similar among men and women and influence the PMS in IT Sector industry in Metro of Hyderabad

Theoretical Framework: The theoretical framework was embraced based on the model suggested by Mruthyanjaya Rao *et al.*, (2019). The framework formulated is presented in Figure 1.

4. RESEARCH METHODOLOGY

4.1. Sample Size

A sample of Nine hundred and twenty-four respondents selected using simple random sampling method, to make every element in the subset has equal probability of being chosen. The sample consists of 549 men and 375 women employees, and the demographics are presented in Table 1.

Table 1. Age groups of employees (in years)		
Age Group	Number	Percent
20-25	150	16.23
26-30	175	18.94
31-35	85	9.20
36-40	70	7.58
41-45	80	8.66
45-50	72	7.79
51-60	154	16.67
>60 years	138	14.94
Total	924	100
Men= n(545); women n(379) = Total = 924		

4.2. Estimation and Assessment

Primary data gathering: The research instrument used for this study is a structured questionnaire with 4 Likert-type scales 1) performance management system scale with 13 factors measured on Likert-type 5-point scale with Extremely Relevant scored as 5 to Not at all Relevant scored as 1; 2) employee performance with 9 factors with Strongly agree scored as 5 to Strongly disagree as 1; 3) working environment 5 factors Strongly agree 5 to Strongly disagree 1; 4) Competency estimation assessment: personal competencies 5 factors; knowledge level competencies 3 factors; job-knowledge competency 4 factors, interpersonal and communication competences 4 factors and for all the four competencies the scale is Excellent with a score of 5 to considerable improvement needed with a score of 1. The study factors were represented in Table 2.

The factors or variables measured in all the four respective scales, the spacing across the categories are equal, and all the variable are treated as continuous as descried by (David Pasta, 2009; Richard Williams (2018); Long and Freese, 2006).

Table 2: Description and estimation of the factors studied		
SI No	Factors	Items
1	Performance Management System	13: Optimal use of available resources, quality standards, safety standards, assignment deadlines, timely product delivery, employee punctuality, work quality impact, training and development, routine performance assessments, rewards and recognition, job satisfaction; corporate social responsibility, capacity to choose between personal and organization goals
2	Employee performance	9: Feedback on performance; occupational stress levels; standards of performance; goal clarity; rewards on performance; demotivation, lack of succession and career planning; career growth; Interactions with peers
3	Working environment	5: Enhanced work life, flexible working hours, \enhance work-related key competencies; employee participation in decision making; Employee rights
4	Personal Competencies	5: Freedom of expression, co-workers, interaction with sub-ordinates, self-sufficiency in performing professional

		assignments, handling work pressure
5	Knowledge Level Competencies	3: Work-related knowledge, Quality awareness, Knowledge about routine functions
6	Job-Knowledge Competencies	4: Clarity on presenting ideas, Real time decision taking ability; Strive for excellence; Sharing of opinions on constructive criticism
7	Interpersonal and communication competencies	4: Listening capabilities, Unambiguous responses, Talent to persuade others for task completion, Sensitivity towards different ongoing activities in workplace

4.3. Data Analysis

Estimation and assessment: As this is an empirical investigation, the statistical analysis was carried out on the wherever required and necessary inferences were made using descriptive analysis and summarization from the data. The analysis was carried out using statistical package for social sciences SPSS ver. 26

4.4. Reliability Methods

The Cronbach alpha values were estimated to evaluating the internal consistencies and reliability of the questionnaire and Cronbach alpha measured for all the factors. The pilot data was tested with 100 employees and overall Cronbach alpha was estimated as 0.70. After three months Cronbach alpha measured for full sample (n=924), the Cronbach alpha value was measured which considerably improved to 0.82. The Cronbach values for men ranged from 0.67 to 0.86 and for women 0.63 to 0.84. The measures reliability statistic values presented in Table 3. All the Cronbach alpha values are calculated at >0.60 indicating a strong internal consistency (Cronbach, 1951).

Table 3: Reliability statistics of the survey instrument (Cronbach alpha)		
Factor	Men C-alpha	Women C-alpha
Performance Management System	0.86	0.84
Employee performance	0.80	0.78
Working environment	0.72	0.73
Personal Competencies	0.74	0.72
Knowledge Level Competencies	0.68	0.63
Job-Knowledge Competencies	0.68	0.67
Interpersonal and Communication competencies	0.67	0.66

5. RESULTS

5.1. Relationship among the Study Variables

A Pearson's bivariate product moment correlation was measured to evaluate the association between the PMS and A: Work Environment; B: Personal Competencies; C: Knowledge Level Competencies; D: Job-Knowledge Competencies; E: Interpersonal and Communication Competencies; F: Employee performance. The initial results indicated the data was normally as evaluated by Shapiro Wilk test ($p > 0.05$), and with no outliers. It is evident from the results that positive and high correlation between performance management system and all the six factors that effect the performance management system and is significant at 0.01 level (2-tailed, Tables 4 and 5) for both men and women employees. The similar correlations were observed for all the six independent factors indicating significant predictors, among men and women employees of IT sector. From the correlations it can be observed that there is a strong association among the variables.

Table 4. Bivariate product moment correlation among factors that effect performance management system for women employees (n=379)

	A	B	C	D	E	F	G
A	1.000						
B	0.710	1.000					
C	0.705	0.581	1.000				
D	0.723	0.602	0.594	1.000			
E	0.786	0.658	0.657	0.627	1.000		
F	0.798	0.655	0.663	0.717	0.969	1.000	
G	0.856	0.682	0.684	0.657	0.760	0.776	1
A: Work Environment; B: Personal Competencies; C: Knowledge Level Competencies; D: Job-Knowledge Competencies; E: Interpersonal and Communication Competencies; F: Employee performance; G: Performance Management System							

Table 5. Bivariate product moment correlation among factors that effect performance management system for men employees (n=545)

	A	B	C	D	E	F	G
A	1.000						
B	0.712	1.000					
C	0.728	0.621	1.000				
D	0.709	0.592	0.586	1.000			
E	0.760	0.627	0.651	0.635	1.000		
F	0.772	0.641	0.656	0.737	0.966	1.000	
G	0.858	0.716	0.708	0.708	0.744	0.764	1.000
A: Work Environment; B: Personal Competencies; C: Knowledge Level Competencies; D: Job-Knowledge Competencies; E: Interpersonal and Communication Competencies; F: Employee performance; G: Performance Management System							

5.2. Multiple Regression Analysis

A separate regression analysis run for men and women employees to predict the performance management systems outcome. The Six independent factors employee performance, working environment, personal competencies, knowledge-level, job-knowledge, interpersonal and communication competencies entered concurrently for the analysis using the enter method for both women and men regression models.

Table 6: Model Summary^{b,c} men employees

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson Statistic	
	Gender = Male				Gender = Male (Selected)	Gender ~ Male (Unselected)
1	.886 ^a	.786	.783	.31299	1.719	1.674
a. Predictors: (Constant), employee performance factors, working environment, personal competencies, knowledge-level, job-knowledge, interpersonal and communication competencies						
b. Gender = Men						
c. Dependent Variable: Performance management systems						

Men Employees: The multiple correlation coefficient *R*, is Pearson correlation coefficient between the scores predicted by the regression model, and actual values of the dependent variable. In Table 6, *R* is a measure of the strength/association of the linear relation between

these two variables. This values will give how the model is fit, and a value that can range from 0 to 1, with higher values indicating a stronger linear relation. A value of 0.886, in this model indicates a high level of relation. However, R , is not a common measure used to assess goodness of fit (Table 6).

The R^2 , the coefficient of determination is equal to 0.786. The R^2 is the proportion of variance in the dependent variable performance management system that can be predicted from the independent variables employee performance factors, working environment, employee personal competencies, employee expertise, job-knowledge competency, interpersonal and communication competencies. The value 0.786 indicates that 78.6 of the variance in the PMS can be predicted from the independent variables employee performance, working environment, personal competencies, knowledge-level, job-knowledge, interpersonal and communication competencies. This is the overall measure of the strength of association. The adjusted R^2 value at 0.783 which is closer to the R^2 indicate a high effect size according to the classification of Cohen's (1988).

Women: In the similar way R value for Women employees is 0.876 indicating a high level of association, whereas R^2 is 0.768 indicating 76.8% variability of dependent variable, performance management system in women employees. The adjusted R value of 0.764 is indicating a high effect size.

Table 7. Model Summary^{b,c} for women employees

Model	R		R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson Statistic	
	Gender = Female (Selected)	Gender ~ Female (Unselected)				Gender = Female (Selected)	Gender ~ Female (Unselected)
1	.876 ^a	.881	.768	.764	.32716	1.718	1.717
a. Predictors: (Constant), employee performance factors, working environment, personal competencies, knowledge-level, job-knowledge, interpersonal and communication competencies							
b. Gender = Female.							
c. Dependent Variable: Performance management system							

5.2.1. Statistical Significance of the Model

Men: The significance value in ANOVA Table 8 is .000 indicate that $p < .0005$, and $P < .05$ is and an addition of all independent variables leads to a model that is statistically significant, and predicted the dependent variable better than the mean model. The predicted model is statistically significant and better fit to the data than the mean model. The results are $F(6, 538) = 328.695$ $P < .0005$; F is indicated that a comparison with F -distribution (F -test) is made, 6 in (6, 544) is degrees of freedom, 544 in (6, 544) indicate the residual degree of freedom, 328.695 is obtained value of the F -statistic i.e. F -value and $P < .0005$ is the probability of obtaining the observed F -value if the null hypothesis is true (Table 8).

Women: In the similar The ANOVA value Table is .000 significant $p < .0005$, and $P < .05$ is statistically significant. The results $F(6, 372) = 205.140$; that comparison with F -Distribution (F -test) is made 6 in (6,378) is degrees of freedom, 378 in (6, 378) indicate the residual degree of freedom (Table 9)

Table 8. ANOVA^{a,b} for men employees

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	193.200	6	32.200	328.695	.000 ^c
	Residual	52.704	538	.098		
	Total	245.904	544			

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a. Dependent Variable: Performance management system
b. Gender = Male
c. Predictors: (Constant), employee performance factors, working environment, personal competencies, knowledge-level, job-knowledge, interpersonal and communication competencies

Table 9. ANOVA ^{a,b} for women employees						
	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	131.738	6	21.956	205.140	.000 ^c
	Residual	39.815	372	.107		
	Total	171.553	378			

a. Dependent Variable: PMS

b. Gender = Female

c. Predictors: (Constant), employee performance factors, working environment, personal competencies, knowledge-level, job-knowledge, interpersonal and communication competencies

Table 10. Regression Coefficients ^{a,b} for men employees										
	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	.165	.084		1.979	.048	.001	.329		
	Employee performance	.054	.090	.059	.603	.547	-.123	.232	.41	24.406
	Interpersonal and Communication competencies	.073	.079	.084	.931	.352	-.081	.227	.49	20.255
	Job-knowledge competencies	.105	.032	.121	3.324	.001	.043	.167	.301	3.319
	Knowledge level competencies	.081	.025	.099	3.252	.001	.032	.130	.430	2.326
	Personal competencies	.132	.027	.146	4.915	.000	.079	.185	.453	2.207
	Working Environment	.486	.039	.487	12.381	.000	.409	.563	.257	3.887

a. Dependent Variable: performance management system

b. Gender = Men

Performance Management System (Men) = $b_0 + b_1 \cdot x_1 + b_2 \cdot x_2 + b_3 \cdot x_3 + b_4 \cdot x_4 + b_5 \cdot x_5 + b_6 \cdot x_6$
PMS (Men) = $0.165 + 0.054 \text{ employee performance} + 0.073 \text{ interpersonal and communication} + 0.105 \text{ job-knowledge} + 0.081 \text{ knowledge level} + 0.132 \text{ personal competencies} + 0.486 \text{ working environment}$

Table 11. Regression coefficients ^{a,b} for women employees										
	Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	.318	.102		3.115	.002	.117	.518		
	Employee performance	.270	.108	.308	2.494	.013	.057	.482	.41	24.470
	Interpersonal and Communication competencies	-.081	.095	-.099	-.851	.395	-.269	.106	.46	21.620
	Job-knowledge competencies	-.034	.038	-.039	-.884	.377	-.108	.041	.318	3.149
	Knowledge level competencies	.084	.028	.109	2.962	.003	.028	.140	.462	2.167
	Personal competencies	.092	.033	.105	2.813	.005	.028	.156	.450	2.224

	Working Environment	.553	.049	.565	11.237	.000	.456	.650	.247	4.053
a. Dependent Variable: performance management system										
b. Gender = Women										

$$\text{PMS (Women)} = 0.318 + 0.270_{\text{employee performance}} + -0.081_{\text{interpersonal and communication}} + -0.034_{\text{job-knowledge}} + 0.084_{\text{knowledge level}} + 0.092_{\text{personal competencies}} + 0.553_{\text{working environment}}$$

5.3. Interpreting the Coefficients

Men: Considering the unstandardized coefficient value β (Beta B) for the independent variable personal competencies, for one unit change in this predictor variable 0.132 units increase or improvement in performance management system is predicted holding all other variables of the model constant. In the same way, for one unit change in job-knowledge competencies 0.105 units of increase in performance management system is predicted holding all other variables constant. The standardized coefficients (β) a beta value of 0.146 indicates that a change of one standard deviation in the independent variable personal competencies, results in a 0.146 standard deviations performance management system will be positively improved, keeping all other variables in the model constant. If we consider standardized coefficients of job-knowledge competencies the value of 0.121 indicates for one standard deviation change in this independent variable the PMS will increase by 0.121 standard deviations, and so on (Table 10) as positive effect on performance management system from the predictor variables.

Women: In the similar way one unit change in the independent variable personal competencies will increase 0.092 units of performance management system holding all other variables constant for unstandardized beta values. If we consider β beta value of 0.105 of independent variable indicates 0.105 standard deviation increase in performance management system is predicted (Table 11).

Multiple regression analysis results reported: A separate multiple regression analysis for men and women were run to predict effect of independent factors employee performance, working environment, personal competencies, knowledge-level, job-knowledge, interpersonal and communication competencies on performance management system. The partial regression plots and studentized plot of residuals against the predicted values for both men and women indicated the linearity. The Durbin-Watson statistic of 1.719 for men, and 1.718 for women indicate the independence of residuals. The visual inspection of a plot of studentized residuals vs. unstandardized predicted values indicate homoscedasticity. The tolerance values greater than 0.1 indicated there is no multi-collinearity. And non-presence of studentized deleted residuals $> \pm 3$ standard deviations, no leverage values greater than 0.2, and values for Cook's distance above 1 and the evaluation of Q-Q Plot indicated normality was met. The multiple regression model statistically significantly predicted PMS, $F(6, 544) = 328.695$ for men, $p < .0005$, adj. $R^2 = 0.761$; and $F(6, 378) = 205.140$; for women $P < .0005$; adjusted $R^2 = 0.764$;

The multiple regression analysis reveal that the factors employee knowledge level competencies, personal competencies and working environment are significantly influencing the performance management system in IT sector and these factors are similar for both men and women employees. The job-knowledge competencies significantly influencing the performance management system in men employees. Whereas, employee performance factor is significantly influencing the performance management system of women employees.

Based on the results of regression coefficients from multiple regression analysis (Tables 10 & 11) we reject the null hypothesis H_{01} : Employee performance is similar among men and women and influence the PMS in IT Sector industry in Metro of Hyderabad and accept the

alternate hypothesis H₁₁: Employee performance is not similar among men and women and influence the PMS in IT Sector industry in Metro of Hyderabad

Accept the null hypothesis H₀₂: Employee working environment is similar among men and women and influence the PMS in IT Sector industry in Metro of Hyderabad and reject the alternate hypothesis H₁₂: Employee working environment is not similar among men and women and influence the PMS in IT Sector industry in Metro of Hyderabad

Accept the null hypothesis H₀₃: Employee personal competencies are similar among men and women and influence the PMS in IT Sector industry in Metro of Hyderabad and reject the H₁₃: Employee personal competencies are not similar among men and women and influence the PMS in IT Sector industry in Metro of Hyderabad

Reject the null hypothesis H₀₄: Employee Job-knowledge competencies are similar among men and women and influence the PMS in IT Sector industry in Metro of Hyderabad and accept the alternate hypothesis H₁₄: Employee Job-knowledge competencies are not similar among men and women and influence the PMS in IT Sector industry in Metro of Hyderabad

Accept the H₀₅: Employee Knowledge level competencies are similar among men and women and influence the PMS in IT Sector industry in Metro of Hyderabad and reject the H₁₅: Employee Knowledge-level competencies are not similar among men and women and influence the PMS in IT Sector industry in Metro of Hyderabad

And reject the null hypothesis H₀₆: Employee interpersonal and communication competencies are similar among men and women and influence the PMS in IT Sector industry in Metro of Hyderabad and accept the alternate hypothesis H₁₆: Employee interpersonal and communication competencies are not similar among men and women and influence the PMS in IT Sector industry in Metro of Hyderabad

The results are more or less similar to the studies carried out by Prasad et. al., (2016), Tilca. et al., (2018), Mamatha & Prasad, 2017), who carried out the research using multiple regression analysis. The post hoc comparisons were carried out based on the following the procedure Assaad et al., (2014), and the results confirm that no significant age group differences among men and women employees and age group is not the good predictor of performance management system (Tables 12 and 13).

Table 12. Post-hoc comparisons of age groups among men employees						
	1 (n = 96)	2 (n = 97)	3 (n = 74)	4 (n = 99)	5 (n = 94)	6 (n = 85)
A	3.91 ± 0.0644	3.93 ± 0.0643	3.98 ± 0.0724	3.76 ± 0.0764	3.95 ± 0.0696	3.95 ± 0.0756
B	3.86 ± 0.0778	3.87 ± 0.0773	3.99 ± 0.066	3.72 ± 0.0796	3.86 ± 0.0809	3.92 ± 0.0781
C	3.94 ± 0.0843	3.92 ± 0.0726	3.93 ± 0.0945	3.77 ± 0.0915	4.01 ± 0.0754	3.87 ± 0.1
D	3.84 ± 0.0911	3.91 ± 0.0768	3.96 ± 0.0818	3.79 ± 0.0852	3.99 ± 0.0702	4.04 ± 0.0753
E	3.89 ± 0.0776	3.95 ± 0.075	4.04 ± 0.0722	3.74 ± 0.0906	4.02 ± 0.0775	3.99 ± 0.0824
F	3.86 ± 0.0774	3.94 ± 0.0724	4.02 ± 0.0734	3.77 ± 0.0865	4.02 ± 0.0707	4.01 ± 0.0752
G	3.81 ± 0.0692	3.85 ± 0.0632	3.9 ± 0.0691	3.65 ± 0.075	3.82 ± 0.0692	3.83 ± 0.0741

A: Working environment; B: personal competencies; C: Knowledge level competencies; D: Job-knowledge competencies; E: Interpersonal and communication competencies; F: Employee performance; G: performance management system

Age Group (Years): 1: 20-25; 2: 26-30; 3: 30-40; 4: 40-50; 5: 50-60; 6: > 60

Values are means ± SEM.

Means in a row without a common superscript letter differ ($P < 0.05$) as analyzed by one-way ANOVA and the TUKEY test.

Table 13. Post-hoc comparisons of age groups among women employees

Factor	1 (n = 54)	2 (n = 79)	3 (n = 81)	4 (n = 52)	5 (n = 62)	6 (n = 51)
A	3.92 ± 0.0989	3.85 ± 0.081	3.92 ± 0.0782	4.07 ± 0.0685	3.83 ± 0.0864	3.85 ± 0.105
B	3.95 ± 0.1	3.79 ± 0.0903	3.85 ± 0.093	4.08 ± 0.0881	3.84 ± 0.0934	3.86 ± 0.112
C	3.77 ± 0.124	3.8 ± 0.0986	3.82 ± 0.102	4.02 ± 0.1	3.75 ± 0.11	3.98 ± 0.124
D	3.88 ± 0.111	3.74 ± 0.103	4 ± 0.0821	4.05 ± 0.0882	3.71 ± 0.101	3.93 ± 0.0981
E	3.88 ± 0.115	3.84 ± 0.0982	3.91 ± 0.088	4.1 ± 0.0924	3.83 ± 0.0992	3.85 ± 0.131
F	3.86 ± 0.109	3.83 ± 0.0962	3.95 ± 0.0794	4.05 ± 0.0866	3.84 ± 0.0957	3.87 ± 0.118
G	3.83 ± 0.0841	3.71 ± 0.0813	3.81 ± 0.0793	3.85 ± 0.0722	3.67 ± 0.0912	3.71 ± 0.0943

Values are means ± SEM.

Age Group (Years): 1: 20-25; 2: 26-30; 3: 30-40; 4: 40-50; 5: 50-60; 6: > 60

Values are means ± SEM.

Means in a row without a common superscript letter differ ($P < 0.05$) as analyzed by one-way ANOVA and the TUKEY test.

6. DISCUSSION

In this study the author made an attempt to identify the association between PMS an dependent factor with the above said six independent factors using an empirical survey with 545 women and 379 men employees of Information Technology companies. A large representative data was collected suing survey instruments publishing the instrument on google form. The authors observed a strong association between PMS and similarities in the factors knowledge level competencies, personal competencies and working environment among men and women, Impact on PMS employee performance are significantly The results and hypotheses are in line and hypotheses are well supported with similar study carried by (Mruthyanjaya Rao *et al.*, 2019). In the study, the post-hoc comparisons on age-groups have no influence on performance management system outcome not the good predictor of PMS among and men and women.

7. CONCLUSIONS AND LIMITATIONS

The reason for carrying out this study is that very limited research was conducted on performance management systems and comparative analysis among men and women employees using multiple regression analysis. The limitation of the study is that the authors have restricted this empirical observation to the information technology companies around Hyderabad. The authors also faced some tough time in preparing the questionnaire which fits all the companies, as performance management system vary from company to company. The authors have included most of the items from the several company's performance appraisal systems studied, while designing the survey questionnaire to make the measure perfect. This was further confirmed by the measurement values of reliability statistics. The authors recommend gender-related parity studies to make a comparative analysis among women and men employees on the performance analysis system.

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