



Assessment of Motivational Factors at Workplace for Mid-Level Professionals

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Abstract

In an organisation, high performer need to have potential and motivation to achieve (Popper and Maysseless, 2007). Talent can be acquired but also it needs to be retained to get the best from employees. Motivation plays a key role in this aspect, to motivate employees' various components e.g. salary, rewards, recognition, relations with peers and seniors are to be managed carefully. For that it is necessary to measure nature of relation of each factor with motivation. This paper aims to measure the type and degree of association of different variables with motivation. The paper explored the variables of motivation and their association with the motivation. Data is collected from seventy-five mid-level professionals working in hospitals of Jaipur. Mann-Whitney test was carried out to test the hypothesis for difference between male and female perceptions and level of motivations. To measure association between the factors (recognition, authority, salary, management support, peer bonding, working environment and peer bonding) and motivation, spearman rank correlation was performed. Based on the responses from the working professional's, strength of relation was measured. Job security was found most lucrative factor to motivate employee. Authority and recognitions are also important for employee that encourage them to perform more. Salary exerts positive effect. Bonding with peers seems to be less effective to motivate employee to put extra efforts in work. Study can be used to develop various strategies including reward, compensation and develop a profound working culture to get the best from the employees. The study was done to measure straight relation between the variable and motivation. Further studies can be carried out with more detailed variable and interrelation of each variable. A qualitative study brings out hidden variables that motivate to perform.

Keywords: Motivation, job satisfaction, working environment, recognition

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Introduction

Motivation is very important element of organisation to ensure its success, and to achieve set goals (Amstrong, 2008). Motivation is the factor or the set of factors that make people move (Schwartz, 2006). Motivation can be defined as willingness to put efforts to achieve organisational goal and to satisfy personal needs (Robbins, 2013). Motivation is a kind of incentive to act (Drafke,

2002) and is like a catalyst for the performance of every individual for achieving the organisational goals (Panagiotakopoulos, 2013).

Motivation can be achieved by rewards, reward includes two types; extrinsic rewards and intrinsic; extrinsic rewards are also termed as financial or monetary rewards (salary, bonus, etc.) and non-financial rewards such as recognition, job-security, appreciation, decision making involvement, flexible working hours, suitable work environment etc. are intrinsic rewards (Yang, 2008; Bateman & Snell, 2009). Motives of all these rewards are to align individual efforts to achieve goals desired by management (Amstrong, 2008). An organisation must integrate both internal and external factors to achieve the desired level of motivation and performance (Kuo, 2013). Motivation will decide the direction and strength of efforts put in by individuals by promoting productive efforts (DeNisi and Griffins, 2008; Jex and Britts, 2008). Motivation is equally important for groups as for the individuals. To ensure effectiveness, motivational efforts should be crafted keeping individual and organisational vision, mission and objective aligned in a direction (Campbell, 2007). In the competitive environment today, it is necessary to retain the top performers, motivation plays an important role in this regard as well. Monetary benefits play very important role in motivation and performance (Aguinis et al., 2013). Beretti et al. (2013) stated that monetary rewards create a positive environment and develop job interest which results in the organisational performance. Motivation also helps in making a job more worthy and interesting as highly motivated employees find the meaning, importance and purpose of their work in view of personal and social development (Ashmos and Duchon, 2000; Den & Verburbg, 2004; Vuori and Okkonen, 2012).

Problem Statement

Work motivation is a challenging and key factor for maintaining the performance and retaining employee in an organisation. Various studies have been done to find the factors that motivate employees in corporate sector. Health industry has seen vast development and growth in recent years. Like the service industry, in health care industry, majority of tasks e.g. medical care treatment intensively depends upon the employees (Lambrou et.al. 2010). Motivation levels of the employees significantly affects the performance which determines quality of service and the level of satisfaction among the patients and their relatives (Bansal & Malhotra, 2018). It is crucial to get the best talent, retain and nourish them, for that organisations need to identify the most satisfying factors to develop the strategies (Hondeghe & Wise, 2010)

Objectives of the Study

- To analyse the forces of motivation for mid-level professionals in Health Industry.
- To compare the level of motivation of male and female employees.

Hypothesis

Recognition at workplace is one of the best tools to motivate & encourage to take initiatives and to achieve organisational and individual objectives (Mahazril et al. 2012, Achieve Global, 2003). A throughout recognition can motivate the employees to do better work than merely giving incentive or rewards at the end of year (Bao & Nizam, 2015). How recognition works to motivate employees, can be understood with the performance at theatre, applauses from audience and coaches motivating the performers to give their best. In same manner, employees can be motivated with continuous recognition (Elton, & Gostick, 2006). Recognition at workplace can motivate

employees even in odd situations like less salary, low promotion rates when job satisfaction counts low (Daniel & Metcalf, 2005).

Compensation is what one receives in exchange for his or her services (Rao, 2000). In this paper, emphasis is given on the basic salary i.e. rates of job. Salary can be varied according to skill required, grading of jobs, company policies, union and government frameworks, and also market scenario i.e. external and internal equity (Dessler, 2004). Monetary incentives stimulate the efforts and encourage one to do more work (Park, 2010). Herzberg (1959) suggested basic salary as hygiene factor that may not motivate the employees but can demotivate them.

Job security is one of most important factors of motivation as it removes the employee's anxiety for future (Senol, 2011). When one's job is secure, it gives confidence to the employee and it increases the performance (Zhang and Wu, 2004, Yamamoto, 2013). Job security can be flipped as two sides of a coin, when an employee feels his or her job is secure, he may invest more efforts in organisation of long-term commitments. On another side, employee may take undue advantage and perform little work because of their job security (William, 2009). In this paper, only positive side of job security is evaluated.

Management support plays a constructive role in motivation. Superior – subordinate relation is very important element to remove the negativity at work place (Senol, 2011). Employee who gets the attention from the management works more voluntary than others. Management support can go beyond the workplace to tea breaks, organising events like birthday or anniversary etc. (Sabuncuoglu & Tuz, 1998)

Good working environment and conditions results in job satisfaction and commitment (Jung & Kim, 2012). Organisations are required to develop a work environment to enhance the performance of an employee, productivity and profits of the organisation (Chandrasekar, 2011). Good working conditions are also directly linked to psychological and physical health (Cheng et.al., 2013). When interpersonal relations are harmonised, outcomes are beneficial at various individual and organisational levels (Patricia, 2015). Studies shows the mix effects of relationships at work, relations may fulfil the need of belongingness (Baumeister & Leary, 1995) but due to momentary nature may not develop desired enthusiasm in these relations (Heaphy and Dutton, 2008).

When an employee feels that he is contributing significantly and his skills and efforts are being utilised meaningfully, there are more chances to put more efforts by employee (Eby et al., 1999). Roles in which his skills are best fit can boost the interest of the employee and can engage the employees in work (Mauno et al., 2007; Tracy H, 2015). Employees' desire to get the authority and leadership in organisation may lead to increase in level of performance at personal and organisational level (Miner et al., 1995; Ng et al., 2005). Appreciation is an immaterial incentive, which motivates as much as the materialistic incentives (Kingira and Mescib, 2010).

HA₁: There is a significant difference between the job motivation among male and female employees.

HA₂: There is positive association between the recognition at work and job motivation.

HA₃: There is positive association between the salary and job motivation.

HA₄: There is positive association between the security of job and motivation.

HA₅: There is positive association between the bonding with peers at work and job motivation.

HA₆: There is positive association between the management support at work and job motivation.

HA₇: There is positive association between the good working environment at work and job motivation.

HA₈: There is positive association between the skill utilisation at work and job motivation.

HA₉: There is positive association between the feel good at work and job motivation.

HA₁₀: There is positive association between the authority given at work and job motivation.

Methodology

Sample and Procedure

Data was collected from the employees of administrative departments of mid-sized hospitals in Jaipur. Total eight hospitals were contacted to participate in the survey, out of which five had given permission. Typical size of administrative staff was 16-25 in selected hospitals. An online questionnaire was floated through the emails to 107 administrative staff to get response. Total 75 filled questionnaire were received and administered for analysis. Out of total, 64 per cent of respondent were male and 36 percent were female; name of the employees were not asked to get unbiased responses.

Measure

Responses were collected on the five-point Likert scale. Scale containing job related variables which leads to satisfaction of job was adopted from scale developed by Macdonald & MacIntyre (1997). For each, construct statement was asked from respondents. To measure the motivation, statement "I feel motivated to perform & contribute more in my organisation" was put before the respondent on which they must answer on a five-point Likert scale.

Analysis

Mann-Whitney U test was performed to find out the difference in mean ranks for motivation level and its variables for male and female employees. Mann-Whitney test is useful when the samples are not normally distributed and alternate (Nachar, 2008).

Test statistics show that for recognition, salary, authority, work environment, skill utilisation the difference is not significant. Overall job motivation is also found nearly same as per mean rank for male (38.39) and female (37.34) which describes that both male and female employees are equally motivated in hospitals.

Table II shows that significance for the management support is 0.042, which is slightly less than 0.05. ($p < 0.05$). So it is concluded that there is a significant difference between the management support for male and female employees. Table I shows that mean rank for management support is higher (41.74) than female (31.71) and has the significant difference.

Table I - Ranks

	Gender	N	Mean Rank	Sum of Ranks
Recognition	Male	47	37.65	1769.5
	Female	28	38.59	1080.5
Peer Bonding	Male	47	40.14	1886.5
	Female	28	34.41	963.5
Feel good	Male	47	36.27	1704.5
	Female	28	40.91	1145.5
Job Security	Male	47	38.52	1810.5
	Female	28	37.13	1039.5
Management Support	Male	47	41.74	1962
	Female	28	31.71	888
Working Environment	Male	47	38.96	1831
	Female	28	36.39	1019
Salary / Wages	Male	47	40.06	1883
	Female	28	34.54	967
Skill Utilisation	Male	47	40.39	1898.5
	Female	28	33.98	951.5
Authority	Male	47	40.61	1908.5
	Female	28	33.63	941.5
Overall Job Satisfaction	Male	47	38.39	1804.5
	Female	28	37.34	1045.5
	Total	75		

Table II - Test Statistics^a

Recognition	Peer Bonding	Feel good	Security	Management Support	Working Environment	Salary / Wages	Skill Utilization	Supervision	Job Motivation	
Mann-Whitney U	641.5	557.5	576.5	633.5	482	613	561	545.5	535.5	639.5
Wilcoxon W	1769.5	963.5	1704.5	1039.5	888	1019	967	951.5	941.5	1045.5
Z	-0.197	-1.22	-0.992	-0.283	-2.035	-0.535	-1.117	-1.336	-1.431	-0.214
Asymp. (2-tailed) Sig.	0.844	0.222	0.321	0.777	0.042	0.592	0.264	0.182	0.153	0.831

a. Grouping Variable: Gender

Assessment of Motivational Factors

Association between variables e.g. Recognition, Peer Bonding, feel good at work, Security, Management Support, Working Environment, Salary / Wages, Skill utilisation, Authority and motivation level at work measured by the Spearman Rank Correlation was carried out. When one or both variables are measured on the ordinal scale and data is not normally distributed, spearman rank correlation is more appropriate than Pearsons correlation.

Table III displays the correlation between job variable and motivation. For the variable recognition at work, there is a positive correlation ($r_s = 0.665$, $p < 0.01$) which rejects the null hypothesis. It indicates that when there is more recognition at work, employees are more motivated. Mutual bonding with peers at the workplace also motivates the employees, correlation coefficient ($r_s = 0.373$, $p < 0.01$), indicating moderate effect. Association between feel good at work place and motivation is not strong and not significant ($r_s = 0.096$, $p > 0.01$). Spearman rank coefficient indicates the strong association between the security and motivation ($r_s = 0.775$, $p < 0.01$) which means employees who feel more secure at workplace are more motivated.

Support from the management also has a positive relation with the motivation. Correlation coefficient ($r_s = 0.550$, $p < 0.01$) is significant, so, null hypothesis is rejected. Working environment at work place also has positive association with motivation, (Correlation coefficient being $r_s = 0.455$, $p < 0.01$).

Salary is associated positively with the motivation, correlation coefficient ($r_s = 0.571$, $p < 0.01$). However, the strength of association of salary is less than recognition, security and skill utilization, which justify the Maslow and Herzberg theories of motivation. There is strong positive association between the skill utilization and motivation. Correlation coefficient ($r_s = 0.603$, $p < 0.01$) indicates that when employee feel that his or her skills are utilized properly, they are more motivated. For the association of factor, authority and motivation, correlation coefficient is ($r_s = 0.723$, $p < 0.01$), indicating employees are more motivated when they are given more authority to take decision.

Table III - Correlations

	Recognition	Peer Bonding	Feel good	Security	Management Support	Working Environment	Salary/Wages	Skill Utilization	Authority	Overall Job Motivation
Spearman's rho	Correlation Coefficient	1.000								
	Sig. (2-tailed)									
	Peer Bonding	.359**	1.000							
	Sig. (2-tailed)	0.002								
	Feel good	0.049	-0.036	1.000						
	Sig. (2-tailed)	0.677	0.762							
	Security	.626**	.326**	0.108	1.000					
	Sig. (2-tailed)	0.000	0.004	0.358						
	Management Support	.620**	.555**	0.077	.659**	1.000				
	Sig. (2-tailed)	0.000	0.000	0.512	0.000					
	Working Environment	.355**	.774**	-0.085	.293*	.550**	1.000			
	Sig. (2-tailed)	0.002	0.000	0.466	0.011	0.000				
	Salary / Wages	.458**	.540**	0.161	.498**	.650**	.528**	1.000		
	Sig. (2-tailed)	0.000	0.000	0.168	0.000	0.000	0.000			
Skill Utilization	.401**	.483**	0.202	.547**	.686**	.535**	.631**	1.000		
Sig. (2-tailed)	0.000	0.000	0.083	0.000	0.000	0.000	0.000			
Authority	.644**	.493**	0.056	.691**	.600**	.374**	.476**	.522**	1.000	
Sig. (2-tailed)	0.000	0.000	0.634	0.000	0.000	0.001	0.000	0.000		
Overall Job Motivation	.665**	.373**	0.096	.755**	.550**	.455**	.571**	.603**	.723**	1.000
Sig. (2-tailed)	0.000	0.001	0.414	0.000	0.000	0.000	0.000	0.000	0.000	

**Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed).

Conclusion

One of the important tasks of a manager is to keep his employees moving. Job Security, authority to take decision, recognition and skill utilization are strongly associated with the motivation. If an employee perceives that his job is secure, it results in increase in level of performance spontaneously (Yamamoto, 2013). Data (Table III) reveals the fact that factor of security of job and authority to take decision at job have correlation ($r_s = 0.775$. and $r_s = 0.723$) to motivate a person on the job. Appreciation and recognition are immaterial incentives at work (Kingira and Mescib, 2010) and are the elements which keep employee motivated beyond material incentive (Mahazril et al., 2012). The study found recognition has a strong correlation with motivation ($r_s = 0.665$. $p < 0.01$) that encourages a person to work more. Employee at the right place and position, where he /she can utilize the skills are more satisfied and motivated. So the skill utilisation stands at fourth influencing variable.

Monetary incentives create a positive environment (Beretti et al. 2013). Salary, one of the important parts of employment is not so motivating factor as authority and recognition. Similarly, management support also has similar effects on motivation, or can be said that it supports the two-factor theory and produces similar results of study conducted by Panagiotakopoulos (2013), where financial rewards are considered as least to motivate employees over other factors. Coefficient for the peer bonding ($r_s = .373$. $p < 0.01$) at work is positive but not so strong, may be in modern times employees are to engage in work to build social relation or this factor may be more relevant for family and friends which are not included in this study.

Every study has its own limitations. The study gives insights of various job motivators, but the study revolves around a limited factor, intrinsic motivation factors such as personal interests or hobby is one of the important factor that can motivate an employee to do more (Dysvik and Kuvaas, 2010). Further studies including in-depth interviews can disclose more motivational factors for individuals. Studies show that intrinsic motivation plays an important role in performance creativity, and development (Di Domenico, 2017). An analysis combining both extrinsic and intrinsic motivation will provide a more realistic picture to develop motivational strategies.

References

- Achieve Global (2003). *Giving Recognition*. Achieve Global Facilitator Guide. Tampa Florida, USA: Achieve Global Corporate Headquarters
- Aguinis, H., Joo, H., & Gottfredson, R. K. (2013). What monetary rewards can and cannot do: How to show employees the money. *Business Horizons*, 56(2), 241–249.
- Armstrong, M. (2008). *Strategic Human Resource Management: A Guide to Action*. Philadelphia: Kogan Page Publishers.
- Ashmos, D. P., & Duchon, D. (2000). Spirituality at work: A conceptualization and measure. *Journal of Management Inquiry*, 9(2), 134–145.
- Bansal R. N, Malhotra M. (2016). A Case Study of Motivational Levels among Personnel Working in A Government Teaching Hospital of Punjab. *Biomedical and Pharmacology Journal*, 9(2), 585-591.
- Bao, Connie, Nizam, Ismail. (2015). The Impact of Motivation on Employee Performance in the Electronics Industry in China. *International Journal of Accounting and Business Management*, 3, 29-45. 10.24924/ijabm/2015.11/v3.iss2/29.45.
- Baumeister, R. M., Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117, 497-529.

- Beretti, A., Figuières, C., & Grolleau, G. (2013). Using money to motivate both 'saints' and 'sinners': A field experiment on motivational crowding-out. *Kyklos*, 66(1), 63–77.
- Campbell, J. (2007). *Motivation, Attitudes, Goal Setting, Performance and Interactive Effects of Pay for Performance*. Minneapolis, MN: Capella University.
- Chandrasekar, K. (2011). Workplace Environment and Its Impact Organizational Performance in Public Sector organizations. *International Journal of Enterprise Computing and Business Systems*, 1(1). Retrieved from www.ijecbs.com/January2011/N4Jan2011.pdf
- Cheng, Y., Chen, I-S., Chen, C.-J., Burr, H., & Hasselhorn, H. M. (2013). The influence of age on the distribution of self-rated health, burnout and their associations with psychosocial work conditions. *Journal of Psychosomatic Research*, 74(3), 213–220.
- Daniel, T.; Metcalf, G. (2005). *Employee Recognition: Selling, Implementing and Communicating the Program*. American Society for Training and Development HR White Papers.
- Den, H. D. N., & Verburg, R. M. (2004). High performance work systems, organizational culture and firm performance. *Human Resource Management Journal*, 14, 55–78.
- DeNisi A. S. and Griffins R. W. (2008). *Human Resources Management*. Boston, New York: Houghton Miffling Company.
- Dessler, G. (2008). *Human Resource Management*. Upper Saddle River, NJ: Pearson/Prentice Hall.
- Di Domenico, S. I., & Ryan, R. M. (2017). The Emerging Neuroscience of Intrinsic Motivation: A New Frontier in Self-Determination Research. *Frontiers in Human Neuroscience*, 11, 145.
- Dysvik, A.; Kuvaas, B. (2010). Exploring the relative and combined influence of mastery-approach goals and work intrinsic motivation on employee turnover intention. *Personnel Review*, 39(5), 622–638.
- Elton, C.; Gostick, A. (2006). Don T Hold Your Applause. June Carrot Culture Newsletter: OC Tanner Recognition Company.
- Fagerland, Morten & Sandvik, Leiv. (2009). The Wilcoxon-Mann-Whitney test under scrutiny. *Statistics in medicine*, 28, 1487-97.
- Heaphy, E. D. and Dutton, J. E. (2008). Positive social interactions and the human body at work: Linking organizations and physiology. *Academy of Management Review*, 33, 137-162.
- Herzberg, F., Mausner, B., Snyderman, B. B. (1959). *The Motivation to Work (2nd Ed.)*. New York: John Wiley.
- Hondeghem A, Wise LR. (2010). Revisiting the Motivational Bases of Public Service: Twenty Years of Research and an Agenda for the Future. *Public Administration Review*, 70, 681–90.
- Jex, S.M. & Britt, T.W. (2008) *Organizational Psychology*. Hoboken, New Jersey: John Wiley and Sons, Inc.
- Jung, J., & Kim, Y. (2012). Causes of newspaper firm employee burnout in Korea and its impact on organizational commitment and turnover intention. *International Journal of Human Resource Management*, 23(17), 3636–3651.
- Kingira, M. (2010). Factors that affect hotel employees motivation the case of bodrum. *Serbian Journal of Management*, 5(1), 59–76
- Lambrou, P., Kontodimopoulos, N. & Niakas, D. (2010). Motivation and job satisfaction among medical and nursing staff in a Cyprus public general hospital. *Human Resources for Health*, 8:26.

- Macdonald, S., & MacIntyre, P. (1997). The generic job satisfaction scale: Scale development and its correlates. *Employee Assistance Quarterly*, 13(2), 1-16.
- Mahazril, A. Y., Zuraini, Y. Z., Hafizah, H. A. K., Aminuddin, A., Zakaria, Z., & Noordin, N., et al. (2012). Work motivation among Malaysian public servants. *Asian Social Science*, 8(12), 238-242.
- Maslow, A.H. (1943). A theory of human motivation. *Psychological Review*. 50(4), 370-96.
- Nachar, N. (2008). The Mann-Whitney U: A Test for Assessing Whether Two Independent Samples Come from the Same Distribution. *Tutorials in Quantitative Methods for Psychology*, 4(1), 13-20.
- Ornstein, P., & Lyhagen, J. (2016) Asymptotic Properties of Spearman's Rank Correlation for Variables with Finite Support. *PLoS ONE* 11(1): e0145595. doi.org/10.1371/journal.pone.0145595
- Panagiotakopoulos, A. (2013). The impact of employee learning on staff motivation in Greek small firms: The employees' perspective. *Development and Learning in Organisations*, 27(2), 13-15.
- Park, S. M. (2010). The effects of personnel reform systems on Georgia state employees' attitudes: An empirical analysis from a principal-agent theoretical perspective. *Public Management Review*, 12(3), 403-437.
- Patricia, O. (2015) Improving Interpersonal Relationship in Workplaces, IOSR Journal of Research & Method in Education (IOSR-JRME), 5(6), 115-125.
- Popper, M. and Maysless, O. (2007), The building blocks of leader development: a psychological conceptual framework. *Leadership and Organizational Development Journal*, 28(7), 664-684.
- Porter, T.H., Riesenmy, K.D., Fields, D. (2016) Work environment and employee motivation to lead: Moderating effects of personal characteristics, *American Journal of Business*, 31(2), 66-84.
- Rao, V.S.P (2000). *Human Resource Management*, New Delhi: Excel Books.
- Reich, T. & Hershcovis, S. (2011). Interpersonal relationships at work. In Zedeck, S. Agwinis,H., Cascio, W., Gelfand,M., Leung,K., Parker, S. & Zhou, J. (eds.) *Handbook of Industrial and Organizational Psychology* (pp.223-248). US:APA.
- Robbins, S. P., & Judge, T. (2013). *Organizational behavior (15th ed.)*. Boston: Pearson.
- Sedgwick, P. (2014). Spearman's rank correlation coefficient. *BMJ (online)*, 349, g7327. 10.1136/bmj.g7327.
- Senol, F. (2011) The Effect of Job Security on the Perception of External Motivational Tools: A Study in Hotel Businesses. *Journal of Economic and Social Studies*, 1(2). Retrieved from www.questia.com/library/journal/IP3-3021211011/the-effect-of-job-security-on-the-perception-of-external
- Vuori, V., & Okkonen, J. (2012). Knowledge sharing motivational factors of using an intra-organizational social media platform. *Journal of Knowledge Management*, 16(4), 592-603.
- Yamamoto, H. (2013). The relationship between employees' perceptions of human resource management and their retention: From the viewpoint of attitudes toward job specialties. *International Journal of Human Resource Management*, 24(4), 747-767.
- Yang, Y.-F., & Islam, M. (2012). The influence of transformational leadership on job satisfaction: The balanced scorecard perspective. *Journal of Accounting and Organizational Change*, 8(3), 386-402.
- Zhang, H. Q., & Wu, E. (2004). Human resources issues facing the hotel and travel industry in China. *International Journal of Contemporary Hospitality Management*, 16(7), 424-428.

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