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KEY FACTORS OF HEALTH EMPLOYEE MOTIVATION IN JORDAN. EVIDENCE FROM DUAL-FACTOR THEORY BASED ON STRUCTURAL EQUATION MODELS

Abstract. The aim of this study is to highlight the key factors on work motivation and to empirically test the validity of Herzberg theory based on an adapted model using a sample of 325 employees from six hospitals in Jordan. In order to do that, the structural equation modelling (SEM) approach based on the confirmatory factor analysis (CFA) technique has been applied.
The findings of the study uphold the Two-Factor Theory, revealing that both hygiene and growth motivation factors manifest a positive impact on the overall degree of motivation. From the hygiene factors, the rewards and wage level had a higher impact on motivation while, from growth factors the most important are knowledge and information.
The findings support the Herzberg theory of work motivation, revealing that both hygiene and growth motivation factors manifest a positive impact on the overall degree of motivation highlighting that employees give value to non-financial incentives, underlying that not only the financial stimulus would increase the level of motivation and thus mangers need to be focused on this kind of incentives combined with the financial ones.
Keywords: Motivation, Herzberg theory, Structural equation modeling, hospital employees, Jordan.

JEL Classification: J28, O15, C35, C83, C87

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I. Introduction

Hospital performance is deeply influenced by the quality of human resources, and can be directly influenced by the improvement of employees' skills, and indirectly by increasing employee motivation.

The lack of motivation of health personnel constitutes a main preoccupation of health system in Jordan and there are a lot of national studies who investigated the influential factors of the retention mainly for nurses. The studies of AbuAlRub and Al-Zaru (2008), AbuAlRub(2007) pointed out the improving of working conditions and the recognition of the performance for nurses could be a solution for increasing the intention to stay.

The paper aims to identify the key factors in explaining the process of employee motivation in Jordanian hospitals using an adapted version of the hygiene-growth factor theory of Herzberg based on structural equation models. In order to do that, the sample taken into consideration within the study was composed by 325 employees from six public and private Jordanian hospitals, the data being collected in 2015.

According to Franco et al.(2002), it is critical to have a clearer understanding of the various factors affecting worker motivation from different points of view before projecting reforms expected to improve health employee motivation.

Within the study there have been investigated the opinions of hospital employees regarding the factors that affected job satisfaction. Unlike the majority of nationals studies who are focused on nurses as a particular category of health personnel, the present study have the advantage of taking into consideration several categories of employees-doctors, nurses, administrative and support staff- in order to reveal potential differences in opinions related to work motivation factors.

Revealing the most important motivational factors will allow a better understanding and a better enhancing that contribute to the increase of health employee motivation, which ultimately will determine an improvement in patient satisfaction, and from this win-win relation will benefit also the organization.

II. LITERATURE REVIEW

Although this topic have been intensively approached in the literature, at national level there is a relatively small number of studies treating this topic of work motivation and its potential determinants and even a smaller number of studies approaching the topic for several categories of health employees, due to the fact that the majority of the studies treats mostly nurses' satisfaction.

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To our knowledge, this study could represent one of the first attempts of testing the validity of Herzberg theory applied to employees in Jordanian hospitals. The Herzberg theory of motivation has been empirically verified using the structural equation approach.

The studies of Franco et al.(2000a, 2000b, 2002, 2004) highlighted information of the determinants of health worker motivation in Jordan and also has compared the determinants of health worker motivation in the hospitals of the two countries Jordan and Georgia and the empirical results revealed that there was a positive opinion regarding the respect and reliability of co-workers and also about their intrinsic motivation. Also, the results of research pointed out more negative perceptions of nurses comparative with other categories of employees in hospitals.

Amarneh and Al-Rub (2009) proved the positive impact of social-support from co-workers on job performance of nurses from Jordanian hospitals, while AbuAlRub, El-Jardali, Jamal and Al-Rub(2016) pointed out that the level of job satisfaction and work environment impact significantly the level of retention.

Analyzing the impact of social support from co-workers on job performance for Jordanian nurses, Amarneh and Al-Rub (2009) confirmed the positive effect.

It is worth to mention the studies of Mrayyan(2005, 2008, 2009), Mrayyan and AlFaouri (2008), AbuAlRub, Omari, and Al-Zaru (2009) analyzing job satisfaction and job performance of Jordanian nurses.

Mrayyan (2007) analysed the nurses' satisfaction level in non-teaching vs. teaching Jordanian hospitals, based on a sample of 433 nurses revealing that the degree of satisfaction in non-teaching hospitals was greater than the one in teaching hospitals.

Regarding the level of job satisfaction of nurses in public-private hospitals, AbuAlRub, Omari and Al-Zaru (2009) emphasized that nurses from private hospitals reported a higher level of satisfaction comparative with those from public hospitals.
Mrayyan and AlFaouri (2008) demonstrated using the information of 640 nurses, that there are not significant differences regarding the career commitment of nurses in different types of hospitals in Jordan.
Despite the fact that the financial incentives play an important role in the process of motivation of employees in general, non-financial instruments have their place well established in increasing the level of motivation and also the intention to stay.

Ion Dobre, Adriana Anamaria Davidescu, Marji Tania ISSA EID

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III. METHODOLOGY AND DATA

In this paper, we decided to analyze the motivation of Jordanian employees from the perspective of one of the commonly used content theory-who deals with "what" motivates people highlighting individual needs and goals- Herzberg theory-.
Herzberg (1971) and Herzberg, Mausner, & Bloch Snyderman (2005) stated that there are two sets of needs and the factors of motivation satisfies or dissatisfies the needs.
The first set refers to hygiene (dissatisfaction) factors which include company policy-reward system, salary, and interpersonal relations. The second set of needs is growth needs(satisfaction factors), which includes factors related to the work itself, -recognition, achievement, responsibility, advancement and work itself.

The Herzberg theory has been applied in different contexts by Parsons and Broadbride's (2006) studding the work motivation in a retail setting, DeShields, Kara, and Kaynak (2005), studying the determinants of business student satisfaction and retention and also the study of Balmer and Baum's (1993) in analyzing guest satisfaction in the accommodation environment.

The starting point of this paper was the adapted version of Herzberg Theory provided by Lundberg et al.(2009) who takes into account 3 hygiene factors(wage, rewards and interpersonal relations) and 4 growth factors(responsibility, recognition, knowledge and information) and motivation determined using 19 items measured on a 5-point Likert-type scale format, ranging from '1=very dissatisfied' to 'very satisfied".

The hygiene factors are quantified using 1 item each while the four growth factors are determined as follows: responsibility (2 items), recognition (3 items), knowledge (4 items) and information (3 items), motivation (4 items).

In the analysis, there was used a sample of 325 employees from six Jordanian hospitals: King Abdullah, Al-Shona public and Princess Basma public hospitals and Amman, Irbid and Ibn Al-Nafees private hospitals. The data was collected in period July-September 2015.

As methods in our study, we can mention descriptive statistics (mean and standard deviation), Cronbach alpha (c-alpha) coefficient to estimate the internal consistency of items, structural equation modelling (SEM[2]) approach, confirmatory

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[2] In Structural equations modeling (SEM), all statistical tests and indicators are used to determine how well the model fits to the data, by analyzing the discrepancy between expected and observed covariance matrices. The estimation of the parameters is based on the maximum likelihood (ML) method.
CFA is considered to be the first step in assessing the proposed measurement model in a structural equation model. Both SEM and CFA are similar regarding the guidance of assessment the model, the main difference between them relying in that CFA does not implies

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factor analysis (CFA) technique to test the consistency of the latent construct and t-test, ANOVA analysis and non-parametric tests of Mann-Whitney and Kruskal-Wallis to analyze the discrepancies within demographic factors.

STATA software version 13 was used to build, estimate and test the structural equation model and the validity of the theory and SPSS software version 18 was used to analyze the differences among demographic variables and the key factors of work motivation.

IV.EMPIRICAL RESULTS

4.1. Sample profile

Analyzing the distribution of employees by several demographic and employment characteristics, it is worth to mention that:

- o The majority of hospital employees interviewed are engaged in public hospitals (66.5%), most of them coming from Princess Basma Hospital (33%);
- o Most of them are men (52.9%);
- o About half of them belongs to the age group (25-35 years)(51.4%);
- o The majority have a bachelor degree in science (43.3%);
- o About 40% of them have a work experience of 10 years in the hospital and most of them (51.5%) work in the therapeutic area.
- o Regarding the distribution of employees by category, the majority (36%) are nurses, while the proportion of doctors is only 19% from all respondents.

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direct arrows between latent factors(the measurement model), while the relations between latent variables(direct arrows) composed the structural model. In order to validate the model, we need to take into account the following indicators:

-the value of chi-squared test need to be closer to zero indicating a better fit together with a high probability.

-the root mean square error of approximation (RMSEA) ranges from 0 to 1, smaller values indicates better model fit.

-the value of standardized root mean square residual (SRMR) of .08 or less is indicative of an acceptable model.

-the coefficient of determination CD range between 0 and 1, and a value of over .9 indicates acceptable model fit.

-the relative fit indices- non-normed fit index TLI and comparative fit index (CFI) should range between 0 and 1, with a cutoff of .90 or greater indicating a good model fit.

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o   About 62.5% of respondents declared to have more than 20 patients per day.

4.2. Key factors of employee motivation in Jordanian hospitals
Analyzing the mean score of motivation, we can mention that on average individuals are somewhat motivated in general. From growth factors, the most motivating factor is responsibility (3.58) followed by knowledge/training (3.36), while rewards (2.77) and wage (2.86) are the most demotivating factors.

Table 1. Mean scores and standard deviation of items

The value of Cronbach coefficient alpha (c-alpha) of 0.662 revealed an acceptable level of internal consistency of items.
To validate the new measures and also to verify the validity, a measurement model was estimated with a confirmatory factor analysis. The standardized factor loading for all items was positive, ranging from 0.52 to 1.00. The standardized factor loadings for each dimension are: wage 0.80, rewards 0.86, interpersonal relations 0.58, responsibility 0.63, recognition 0.57, knowledge 0.77 and information 0.76.

Theoretical dimensions	Constructs	Mean	Std. Deviation
Hygiene factors	Wage level (1item)	2.86	1.190
	Rewards (1item)	2.77	1.162
	Interpersonal relations (1item)	3.17	1.078
Growth factors	Responsibility (2 items)	3.5815	.89940
	Recognition/feedback (3 items)	3.0944	.89119
	Knowledge/training (4 items)	3.3677	.79918
	Information (3 items)	3.2913	.87720
Motivation	Motivation(4 items)	3.0292	.90753

Table 2. Results of confirmatory factor analysis

Theoretical dimensions	Constructs	Standardized factor loadings
Hygiene factors	Wage level	0.80
	Rewards	0.86
	Interpersonal relations	0.58

Key Factors of Health Employee Motivation in Jordan. Evidence from
Dual-Factor Theory Based on Structural Equation Models

Growth factors	Responsibility	0.63
	Recognition/feedback	0.57
	Knowledge/training	0.77
	Information	0.76
Motivation	Motivation	
	Do you feel that you are motivated by management?	0.71
	Do you feel that you are motivated by your line manager?	0.78
	Do you feel that you are motivated by your co-workers?	0.52
	Do you feel that you are motivated by performing your job (i.e. the job itself)?	0.66

Note: chi2(42) = 50.78, Prob > chi2 = 0.1661, RMSEA=0.025, Pclose=0.968, Comparative fit index CFI=0.992, Tucker-Lewis index TLI=0.989, SRMR=0.037, CD=0.807.

The total fit of the model is relatively high. The test of the overall model fit registered a value of 50.78 with 42 degrees of freedom and a p-value of more than 0.10. The value of RMSEA is very small and the probability is very high indicating a better model fit.

The value of standardized root mean square residual (SRMR) of 0.037 is indicative of an acceptable model. The goodness-of-fit coefficient of 0.807 and the values of two fit indices revealed an acceptable fit of the model.

Analyzing the correlations between motivation and their components, it was highlighted the high correlation between hygiene factors (wage and rewards (0.69), wage and interpersonal relations (0.44) and interpersonal relations and rewards (0.49)). There were also significantly correlations between growth factors (responsibility, recognition, knowledge and information). There is a medium relationship between overall motivation and growth factors (knowledge, information, recognition, responsibility).

Table 3. Correlations between hygiene-growth factors of Herzberg theory

	WAGE	REWARDS	INTER_~L	RESP	RECOG	KNOW	INFO	MOTIV
WAGE	1.0000							
REWARDS	0.6923	1.0000						
INTER_REL	0.4462	0.4949	1.0000					
RESP	0.0381	-0.0155	0.0415	1.0000				
RECOG	0.0147	-0.0648	-0.0550	0.4226	1.0000			
KNOW	-0.0885	-0.1015	-0.0537	0.4734	0.4218	1.0000		
INFO	0.0139	-0.0179	-0.0263	0.4665	0.4264	0.6024	1.0000	
MOTIV	0.0715	0.0154	-0.0493	0.3610	0.5153	0.4979	0.5281	1.0000

Ion Dobre, Adriana Anamaria Davidescu, Marji Tania ISSA EID
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In order to test empirically the validity of Herzberg theory on hospital employees a structural equation model was applied. The empirical results of standardized coefficients are presented in the table 4. All four growth factors and three hygiene factors are statistically significant in terms of t-test, having the probability less than 1%.

It is important to mention that both classes of factors are positive and statistically significant, growth factors at the level of 8%, while hygiene factors at the level of 1%. The coefficient of hygiene factors is 0.56 while the coefficient of growth factors is only 0.11, revealing a higher impact of hygiene factors on the overall level of work motivation.

Analyzing the standardized coefficients of both growth and hygiene factors of employee motivation it can be revealed the fact that *rewards and wage* are hygiene factors with the highest impact on employee motivation. From the category of growth factors, *knowledge and information* have the highest impact on employee motivation.

The empirical results of goodness-of-fit indices, based on which we can decide about the model fit suggested that all fit indices exceeded their acceptance level (chi2(41) = 46.98, Prob > chi2 = 0.241 RMSEA=0.021, Pclose=0.9980, Comparative fit index CFI=0.994, Tucker-Lewis index TLI=0.992, SRMR=0.034, CD=0.970).

The total fit of the model is very good. The test of the overall model fit registered a value of 46.98 with 41 degrees of freedom and a p-value of more than 0.10. The value of RMSEA is very small and the probability is very high indicating a better model fit.

The goodness-of-fit coefficient of 0.970 and the values of two fit indices revealed a excellent fit of the model.

Key Factors of Health Employee Motivation in Jordan. Evidence from
Dual-Factor Theory Based on Structural Equation Models
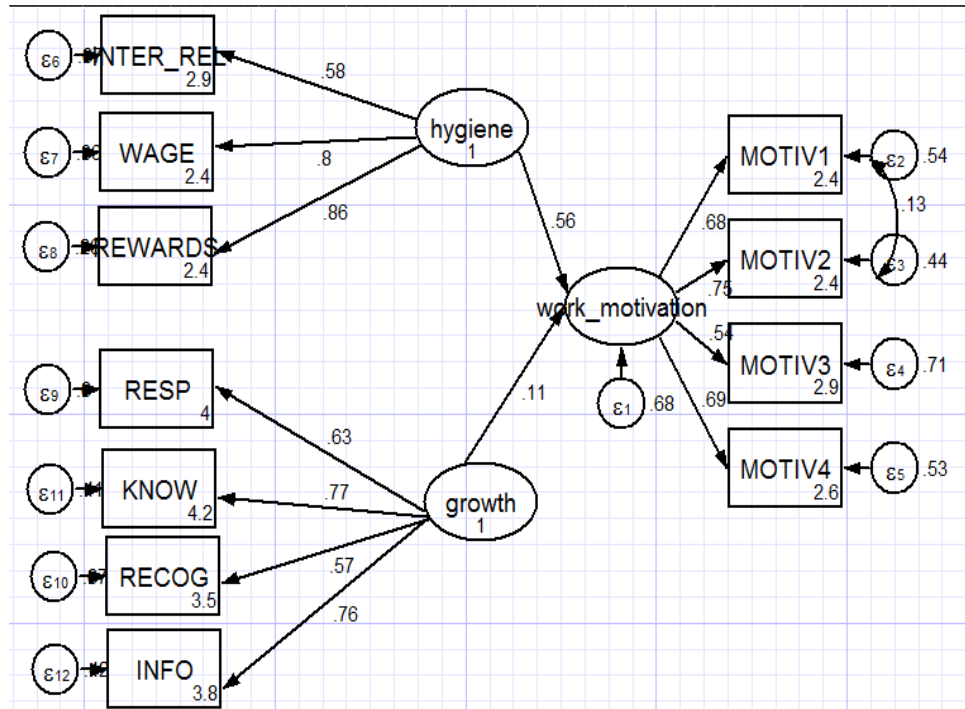
Note: chi2(41) = 46.98, Prob > chi2 = 0.241 RMSEA=0.021, Pclose=0.9980,
Comparative fit index CFI=0.994, Tucker-Lewis index TLI=0.992, SRMR=0.034, CD=0.970.

Figure 1. The empirical results of structural model of health employee motivation in Jordanian hospitals

4.3. Comparisons between demographic characteristics and hygiene-growth factors of Herzberg theory

Analyzing the differences between work motivation and hygiene-growth factors by demographic variables, we can mention the following:

The empirical results of statistical tests do not support any statistical differences on work motivation and hygiene-growth factors by hospital type, age and marital status.

By gender, there is a statistical difference between males and females on rewards as hygiene factors and information as growth factors (Sig.<10%), stating that females are more satisfied than males regarding these factors.

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By graduation degree, the results of Kruskal-Wallis test revealed that for doctors in philosophy the rewards are the most important hygiene factor. Concerning growth factors and overall motivation level, there were no statistically significant differences by graduation degree.

Regarding the working experience in the hospital, the most satisfied with rewards are the people with less than 1 year experience.

There is a statistical difference between the overall motivation and the importance of information by the experience in the same position, stating that the highest level of motivation is owned by those with less than 1 year experience in the same position.

The empirical results revealed that there are statistical differences regarding the growth factors by the position of employees, stating that while the administrative staff exhibits the highest level of motivation on recognition, the support staff registered the highest level of motivation on knowledge and information. On the overall level of motivation, there is not any statistical difference by type of employees.

Regarding the area of work, there are statistical differences both on work motivation on growth factors, claiming that employees from the managerial area have the highest level of motivation on recognition and overall motivation, while employees from the diagnostic area have the highest level of motivation on knowledge and information

The fact that people have or not managerial position influence only the motivation on rewards. Employees from horizontal structure have the highest overall level of motivation and also on growth factors.

Key Factors of Health Employee Motivation in Jordan. Evidence from
Dual-Factor Theory Based on Structural Equation Models

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Table 4. Socio-demographic differences on employee motivation factors

		HYGIENE FACTORS	GROWTH FACTORS		MOTIVATION
		REWARDS	KNOWLEDGE	INFORMATION	
		Mean	Mean	Mean	Mean
Type of hospital	Sig(Mann-Whitney test)	0.664			
	Sig(t-test)		0.79	0.832	0.622
Gender	Sig(Mann-Whitney test)	0.097***			
	Sig(t-test)		0.51	0.061***	0.374
Age	Sig(Kruskal-Wallis test)	0.455			
	Sig(Anova)		0.688	0.741	0.408
Graduation degree	Sig(Kruskal-Wallis test)	0.068***			
	Sig(Anova)		0.895	0.714	0.504
Time working in hospital	Sig(Kruskal-Wallis test)	0.074***			
	Sig(Anova)		0.608	0.231	0.439
Years in the same position	Sig(Kruskal-Wallis test)	0.248			

	Sig(Anova)		0.277	0.00*	0.012**
Marital status	Sig(Kruskal-Wallis test)	0.269			
	Sig(Anova)		0.68	0.208	0.412
Position	Sig(Kruskal-Wallis test)	0.346			
	Sig(Anova)		0.10***	0.016**	0.205
Area of work	Sig(Kruskal-Wallis test)	0.214			
	Sig(Anova)		0.084**	0.01*	0.01*
Management position	Sig(Mann-Whitney test)	0.066***			
	Sig(t-test)		0.904	0.778	0.542
Organization structure	Sig(Kruskal-Wallis test)	0.481			
	Sig(Anova)		0.00*	0.00*	000*

Note: * means significance at 1% level; ** means significance at 5% level and *** means significance at 10% level.

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V. Conclusions

The main purpose of the study was to empirically test the two factor theory of motivation based on an adapted version of the Herzberg model provided by Lundberg et al.(2009) and to highlight the key factors influencing the level of employee motivation in Jordanian hospitals.

The main conclusion that can be drawn analyzing the responses of Jordanian employees was that most likely they are moderately motivated considering responsibility and knowledge/training important factors that could improve their level of motivation, while they mentioned the financial component (wage and rewards) as the main demotivating determinant.

The findings support the Two-Factor Theory of work motivation, revealing that both hygiene and growth motivation factors manifest a positive impact on the overall degree of motivation, attesting the superiority of hygiene factors over growth ones for motivating health workers.

The empirical results of the study emphasized the importance of financial incentives (wage) and rewards, as the main drivers of any system geared towards motivating employees in hospitals.

The research also stated that women granted a higher level of importance to previous motivational factors than men; the doctors considered the rewards a very important motivational factor.

Also, there is empirical evidence for perception differences for employee position; while the administrative staff exhibited the highest level of motivation on recognition; the support staff registered the highest level of motivation on knowledge and information. The study reported also that while employees from the managerial area had the highest level of motivation on recognition, employees from the diagnostic area have the highest level of motivation on knowledge and information.

It was shown that hygiene factors more precisely rewards and wage were very important for the general satisfaction of the workers and hospital managers need to focus on that in order to increase the retention level.

But the focus should be also on non-financial incentives like knowledge and information in order to improve motivation of employees.

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*** SPSS software version18

*** STATA software version 13.