The Effort Reward Imbalance model and work related stress in 3-5 Star hotels in Zimbabwe

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Abstract

The issue of work related stress is a global problem that is affecting the hospitality industry. This study sought to test the applicability of the effort reward imbalance model as a measure of work related stress in 3 to 5 Star Hotels in Zimbabwe. Quantitative methods and a descriptive questionnaire survey design were employed on a random sample of 233 respondents from four purposively selected 3-5 star hotels. The study yielded 195 usable responses. Data was analysed using SPSS version 20 and Amos 20. From the results of the study it emerged that the ERI model was a fairly good fit for the Zimbabwean hotel employee population. The exploratory factor analysis yielded a four factor solution and confirmatory factor analysis a clear factorial structure similar to the original structure, though factor loadings were less significant. Goodness of fit indices showed there was a fairly good fit of the ERI model. The study concluded that the ERI model was applicable to Zimbabwean hotel employees. Recommendations included remodelling the ERI model by removing certain scale items to ensure the model is a better fit.

Keywords: Work related stress, Effort Reward Imbalance, Hotels, Hospitality, Zimbabwe

Introduction

A number of studies have been conducted on work related stress in hotel settings (Hui, Hu and Cheng 2010, O'Neil and Davis 2011, Hwang *et al* 2013, Sampson and Akyeampong 2014). Despite studies having been conducted in this area, hospitality employee stress is still not a fully understood concept and research concerning stress in the hospitality industry remains an understudied topic (O'Neil and Davis, 2011). Most studies on work related stress were limited in terms of measures of job stress (Kim *et al* 2009, Hui *et al* 2010). A number of models have been developed that seek to measure stress in the workplace and these include the Job Demands - Control model (Karasek, 1979), Job Characteristics Model (Hackman and Oldham, 1980) and the Effort Reward Imbalance (ERI) Model (Siegrist, 1996). Of note is the Effort Reward Imbalance Model by Siegrist (1996) which postulates that an imbalance between the effort exerted by an employee and the reward awarded for work done results in work related stress and various other health outcomes.

Very few studies have been conducted on the ERI model in hotels and those that have been conducted were limited in scope, mainly focusing on a single department. A study by Krause *et al* (2010) looked at the relationship between Effort Reward Imbalance (ERI) and self-rated health in 941 employees working in the housekeeping departments in Las Vegas hotels. Logistic regression models were used in data analysis adjusting for workload, heath

behaviour and age. It emerged that 50% of the respondents had ERI and 60% reported poor or fair overall health with significant associations being found between ERI and health measures. Krause et al however noted that the cross—sectional design applied in the study limited the interpretation of results of the study. Recommendations included prioritising interventions for reducing ERI and improving general health in housekeeping attendants.

Burgel *et al* (2010) also applied the ERI model to measure psychosocial work factors and shoulder pain in hotel cleaners working in five Las Vegas casino hotels. The study found that room cleaners with effort reward imbalance were three times more likely to report shoulder pain resulting from ERI due to the highly physical nature of their jobs. It was concluded that ERI was independently associated with shoulder pain in employees working in the housekeeping section. Several interventions were suggested and these included the design of healthier workplaces.

Most studies on the ERI model have however been conducted in developed countries such as Western Europe (Van Vegchel *et al.*, 2005) where working conditions are far better than those in developing countries. This study therefore sought to unearth the effects of work related stress on Zimbabwean hotel employees by applying the Effort Reward Imbalance Model.

Zimbabwe has been facing severe economic challenges over the past decade and the economy is slowly recovering from the hyperinflationary period (Hove *et al*, 2013) that only ended with the introduction of a multi- currency regime. However, the country continues to struggle economically due to several internal and external pressures. Zimbabwe's economy remains very fragile with high external debt, deindustrialisation, informalisation, liquidity challenges and structural bottlenecks (Monyau and Bandara, 2014).

As with many other industries, the hospitality industry in the country has been affected by this economic downturn. The prevailing economic conditions coupled with uncertainty about the future have left employees with very little options in terms of job choice and most workers find themselves still going to work not because they want to, but because there is no other option available for them on the job market. The hospitality industry globally is notorious for being one of the lowest paying industries around despite the labour intensive nature of the work involved. This is worse so in Zimbabwe, given the current economic hardships facing the country. According to Wisikoti *et al* (2012) hotels in Zimbabwe are facing numerous human resources related challenges that include poor working conditions, low remuneration, a high rate of employee turnover, numerous cases of labour court disputes, a lack of well-defined career structures and lack of professionalism amongst others. This in itself leads to a stressful work environment that can often result in job stress.

This paper aims to investigate the psychometric properties of the ERI questionnaire on a population of Zimbabwean hotel employees by examining the internal consistency, factorial structure of its scales and testing model fit.

Literature Review

Work related stress

Work related stress has been referred to as job stress, occupational stress, organisational stress and numerous other terms in literature. According to Sampson and Akyeampong (2014:1) work related stress is "a pattern of emotional, cognitive, behavioural and physiological reactions to adverse and noxious aspects of work content, work organisation and work environment". This definition is quite broad, encompassing the physical and psychological nature of stress. Sampson and Akyeampong's definition also places emphasis

on the origins of stress in the workplace. These can be the work content itself, how the work is organised and the working environment.

When it comes to work related stress, it is not a case of job demands being physical or mental that's important, but the ability of an employee to cope as a failure to handle the demands is what leads to an adverse emotional reaction (Bridger et al, 2013). Thus stress becomes hinged on an employee's response to particular work scenarios. Work related stress can therefore be defined as the positive or negative resultant physical condition and emotions aroused by conflict in the interplay between an employee, the physical workplace and fellows employees and supervisors. According to Siegrist (1996) the core prediction of the ERI model is that employees who are persistently exposed to high effort (costs) and low rewards (gains) conditions at work will suffer from detrimental psychosocial effects characterized by low reciprocity possibly leading to emotional strain and stress-related physiological reactions.

The ERI Model is based on the proposition that benefits that an employee derives from work are dependent upon a communal relationship between effort exerted and rewards gained at work (Van Vegchel, *et al* 2005). Thus there is a correlation between the effort exerted by an employee and the reward they expect to gain from the work engagement. "The model of effort-reward imbalance (ERI) claims that failed reciprocity in terms of high efforts spent and low rewards received in turn is likely to elicit recurrent negative emotions and sustained stress responses in exposed people" (Siegrist 2012: 2). An imbalance in the form of high effort and low reward will ultimately result in stress. The model was developed initially to explain the onset of cardiovascular related outcomes in medicine (Van Vegchel *et al*, 2005). It has become a key model in explaining workplace stress resulting from highly strenuous working environments.

Siegrist's model suggests that there are two different kinds of effort. The physical extrinsic effort an employee puts into their work due to physical demands and the more internal intrinsic effort that is termed over-commitment.

Kinman and Jones (2008) postulate that effort reward imbalance occurs more frequently in employees who are overcommitted to their work. Those employees who care much about their work are more likely to experience ERI than those employees showing very little or no commitment towards their job. About 10 and 40 per cent of the labour force experience some amount of effort-reward imbalance (Siegrist, 2001). This is a very significant portion of the workforce thus if unchecked ERI can have very significant detrimental effects on the employees and the organisations that they work for.

Siegrist (1996) postulates that rewards are distributed to employees as money, esteem and job security. Money includes financial and non-financial benefits an employee may be awarded as part of their salary. Esteem involves the respect and support awarded the employee at their workplace and security encompasses job security and career opportunities like promotion. Rewards are perceived to be a key work stressor in the ERI model (Juarez-Garcıa, 2015).

ERI in hotel employees

Numerous studies have been conducted to date on the ERI model in a wide variety of work settings such as Nursing (Bakker et al, 2000), General health Calnan *et al*, 2000), Industrial employees (Kivimaki, 2002), Coronary heart disease (Kuper *et al*, 2002) and many others. Not many studies however, have been conducted on the ERI model in hotel employees.

Those studies that have been conducted in hotel settings have focused more on general health of hotel employees as opposed work related stress. Most of these studies have also

focused on hotel employees with physically demanding jobs such as hotel room cleaners (Krause *et al*, 2010, Burgel *et al,* 2010).

Krause *et al* (2010) investigated the relationship between ERI and health in hotel room cleaners in Las Vegas. Findings of the study indicated that there was a significant relationship between effort reward imbalance and the general health of these employees. Krause *et al*'s study however was limited by the use of a cross sectional design, thus reverse causation could not be ruled out (Krause *et al,* 2010). It is also possible that poor health could have resulted in ERI though there was no substantial evidence from the findings of the study to validate this possibility. Burgel *et al* (2010) also applied the ERI model to measure psychosocial work factors and shoulder pain in hotel cleaners. The study found that room cleaners with effort reward imbalance were three times more likely to report shoulder pain. Thus apart from work related stress, ERI can also result in certain physical health problems. The occurrence of these health problems is however largely due to work related stress in an individual.

In hotel room cleaners an ERI is also probable as cleaning jobs are perceived as being highly demanding requiring much physical effort and therefore also possibly resulting in muscle strain (Hagner and Hagberg, 1989). Thus effort reward imbalance has been proven in hotel cleaning staff. Krause *et al* (2005) argue that this could be because of the nature of such jobs which includes monotonous physical labour, low control, pressure, low wages, and very few opportunities for advancement. These characteristics are also common to generally most hotel jobs thus it is highly probable that the ERI model could be applicable to almost all hotel jobs. Further evidence for ERI in the hospitality industry is provided by Chiang *et al* (2014) who concluded that improving rewards as part of the job context resources and support would moderate the negative effects of high job demand and lead to employee satisfaction. The study however was hinged on the JDCS model by Karasek (1979), which states the joint effects of high job demands and low job control result in job strain and ultimately job dissatisfaction in employees. Modest to strong correlations were found between the demand and effort scales (Siegrist, 2012). Thus these two models are not totally unrelated and high job demand can be associated with high efforts.

Tromp and Blomme (2012) investigated the effect of effort expenditure in the hospitality industry. They however utilised Meijman and Mulder (1998)'s model termed the effort recovery model. The Effort-Recovery model posits that effort expenditure is associated with short-term psychological and physiological costs (Meijman and Mulder, 1998). This model is slightly similar to the ERI model in that effort expenditure in a workplace setting can be one of the underlying causes of stress related health concerns in employees, however in this case it is sorely effort that leads to work related stress. Thus the incurred costs can simply be reversed by taking a break from work which leads to recovery. Thus the negative effects of high workloads will be moderated when an employee takes time off from work to rest and recover (Tromp and Blomme, 2012). Tromp and Bloome's study found that employees working in the hospitality industry worked very long hours with more overtime inferring a high effort work scenario. Cartwright and Cooper (1997) suggest that rewards act as coping resources for employees improving work adaptability and thereby alleviating the effect of stressors that are associated with high job demands. This indicates a clear relationship between efforts which can also be termed job demands, rewards and work related stress.

Methodology

This study adopted a descriptive questionnaire survey research design. A structured questionnaire consisting of closed questions and a few open questions was used to collect data. The population for the study consisted of all the employees working in 4 purposively selected 3 to 5 star hotels in Harare. Simple random sampling was used to select a sample of 233 employees. Data was analysed using SPSS version 20 and Amos 20.

Questionnaire

The study adopted the short version of the effort reward imbalance questionnaire to measure occupational stress. Scales from the effort-reward imbalance (ERI) questionnaire developed by Siegrist (1996) were used to measure both extrinsic and intrinsic effort, rewards and work related stress. The short version of the ERI questionnaire comprises two scales and 16 items that assess extrinsic aspects of 'effort' (three Likert scale items) and 'reward' (7 Likert scale items with three subscales 'esteem', 'salary and promotion prospects' and 'job security') and one scale measuring its intrinsic component 'over-commitment' with six Likert scale items (Siegrist, 2002).

Statistical analysis

Internal consistency of the scales was determined through Cronbach's Alpha Coefficient. Exploratory factor analysis was conducted using the maximum likelihood method to examine the factorial structure and validate the construct validity of the ERI instrument. Suitability of factor analysis on the current data was first determined using Kaiser-Meyer-Olkin (KMO) and Bartlett's test of sphericity. The varimax rotation method was used and only those factors that had eigenvalues greater than 1.0 were retained and factor loadings equal to or larger than 0.4 were accepted as sufficient. Confirmatory factor analysis was used to test the applicability of the ERI model. CFA was performed to test the dimension structure of the theoretical model (Siegrist *et al.*, 2004, Weyers *et al.*, 2006, Juarez-Garcıa *et al* 2015). The goodness of fit index, adjusted goodness of fit index and root mean square residuals tested model fit. Statistical analysis was conducted using SPSS version 20 and Amos 20.

Results

Sociodemographic information

Of the targeted 233 respondents, 195 responded yielding a response rate of 84%. Of the 195 who participated in the study, one hundred and seventeen (60 %) were female and one hundred and fourteen (58.5%) were married, forty three (22.1) were widowed or divorced and thirty eight (19.5%) were single as shown in table 4.1.

The greater proportion of respondents 32% were between the ages of 26 to 30 and 29% were in the 31 to 35 year category. Only 1% was in the 50 plus age group. 27.7% of the respondents were from the housekeeping department with 15.9% being from the restaurant, 14.9% from the front office, 13.8% from the kitchen, 11.8% maintenance, 6.7% accounts and 3.1% marketing. In terms of level of education 27.2% were educated up to the ordinary level, 24.1 certificate level, 21% diploma level, 16.4% degree level and 8.7% Advanced level.

Table 4.1 Characteristics of study population (n=195)

Variable		Frequency	Percent
Gender	Male	78	40.0
	Female	117	60.0
	Total	195	100

Age	<25	38	19.5
	26-30	62	31.8
	31-35	57	29.2
	36-40	15	7.7
	41-45	14	7.2
	46-50	6	3.1
	>50	3	1.5
	Total	195	100
	Single	38	19.5
	Married	114	58.5
	Divorced/Widowed	43	22.1
Level of Education	O Level	53	27.2
	A Level	17	8.7
	Certificate	47	24.1
	Diploma	41	21.0
	Degree	32	16.4
	Other	5	2.6
	Total	195	100
No. of Years working at the hotel	Less Than One Year	42	21.5
	1-2 years	95	48.7
	3 Years+	58	29.8
	Total	195	100
Department	Restaurant	31	15.9
	Kitchen	27	13.8
	Front Office	29	14.9
	House keeping	54	27.7
	Maintenance	23	11.8
	Accounts	13	6.7
	Marketing	6	3.1
	Total	195	100

Internal consistency of ERI scale

Cronbach's Alpha reliability coefficient was measured for the ERI scale to ensure construct validity. The study yielded a Cronbach's Alpha of 0.716. This indicates an acceptable level of internal consistency for the instrument. Weyers *et al* (2006) suggests that Cronbach's Alpha must be at least 0.70 for items on a questionnaire to be regarded as a scale. Siegrist, Li and Montano (2014) contend that most published studies on ERI have indicated acceptable Cronbach Alphas ($\alpha > 0.70$). Thus this study is within the minimum acceptable alpha for the ERI questionnaire, indicating that the instrument was internally consistent and thus reliable for this particular set of respondents (Tavakol and Dennick, 2011), in this case hotel employees.

Factorial validity

Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity were used to test the appropriateness of Factor analysis for the sample size and for this data. Table 4.2 shows that P was significant at $p<0.05$. The KMO value was 0.799 which is suitable for data analysis. Williams *et al* (2010) contend that KMO should be at least 0.5 and that The Bartlett's Test of Sphericity should be significant at $p< 0.05$ for factor analysis to be considered a suitable data analysis technique.

Table 4.2 KMO and Bartlett's test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.799
Bartlett's Test of Sphericity	Approx. Chi-Square	1190.263
	Df	120
	Sig.	.000

The scree plot indicated that the slope of the curve levelled out after four factors. This tallied with the number of factors extracted as shown on the rotated factor matrix (table 4.3)

Table 4.3 Rotated factor matrix

	Factor			
	1	2	3	4
Cronbach's Alpha	**0.787**	**0.926**	**0.675**	**0.634**
OC6	.755			
OC3	.649			
OC2	.622			
OC5	.584			
OC1	.570			
OC4	.546			
ERI3		.913		
ERI1		.852		
ERI2		.845		
ERI10			.599	
ERI7			.589	
ERI8			.584	
ERI4	.401		.533	
ERI9			.479	
ERI5				.801
ERI6				.444

Extraction Method: Maximum Likelihood.
 Rotation Method: Varimax with Kaiser Normalization.

Confirmatory factor analysis

In the confirmatory factor analysis the Chi-Square statistic was significant with a p value of $p<0.000$. A significant Chi Square shows that the model is not a good fit for the data. However Byrne (2001) argues that Chi Square is affected by sample size with larger sample sizes usually resulting in significant *p* values. Thus Chi-square might not give a true indication of the model goodness of fit. Other indices were examined to validate the results.

The factorial structure of the ERI model showed high factor loadings on the effort scale. The factor loading for ERI and the effort scale was 0.93 which was very high indicating the reward scale was a good measure. The reward and over commitment scales had lower factor loadings -0.37 and 0.42 respectively. Of the two scales, the reward scales had the lowest loadings an indication that the scale was not a good fit to the population under study. Inter item correlations for each item on the ERI scale were relatively low with most values falling below 0.3.

Goodness of fit indices

Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), Root mean square residuals (RMR) and Goodness of Fit Index (GFI) were used to test model fit. RMSEA was 0.093 indicating a moderate fit for the model with a reasonable error of approximation. The comparative Fit Index (CFI) of the ERI factorial model was 0.853, implying that the model fit might be permissible. The RFI (relative fit index) and NFI (normed fit index) are 0.745 and 0.785 indicating a fair fit.

Root Mean Square Residuals (RMR) had a value of 0.062 suggesting a good fit. Root mean square residuals, based on analysis of residuals, are considered acceptable if they vary between 0 and 0.10 (Kelloway, 1998) with an RMR=0 being a perfect fit. Goodness of Fit Index (GFI) was 0.848 and Adjusted Goodness of Fit Index (AGFI) was 0.796. GFI gives a statistic between 0 and 1, with 1 indicating perfect-fit, The AGFI takes into account the degrees of freedom available for testing the model.

The goodness of fit indices indicated a fairly good fit of the ERI model. Hence the alternative hypothesis is accepted in favour of the null hypothesis. The null hypothesis (H0) an imbalance between effort exerted and reward awarded at work is not associated with work related stress in hotel employees in Zimbabwe was therefore rejected.

Discussion

Findings for the exploratory factor analysis were similar to those of Chor *et al* (2008) who tested the model in a Brazillian context and also extracted four factors, with items on the over commitment scale loading on factor one and resulting in the highest most theoretically consistent factor loadings. However in Chor's study, most of the items from the extrinsic effort scale were retained in one single factor (factor 3), items measuring time pressure and interruptions loaded on a separate factor similar result was observed regarding the reward scale: most of the items were retained in factor 2, whereas two items loaded on a separate factor (factor 4).

The factorial structure of the scales measuring effort and over-commitment was replicated satisfactorily in exploratory factor analysis. The reward scale had the highest variance from the original factor loadings with ERI 4 (I receive the respect I deserve from superiors or a superior relevant person. loading on factor 1 on which the over-commitment scale loaded with the lowest factor loading of 0.401. Such an inconsistent result might be an indication that respect from superiors might not be as significant a reward to Zimbabwean hotel employees as it is to employees from other sectors and those from other countries. Ortiz (2010) also found that there was no clear distinction on three components of the reward subscale and that the entire reward subscale seemed to be evaluating a single reward.

ERI 5 (My job promotion prospects are poor) and ERI6 (I have experienced or expect to experience an undesirable change in my work situation) load in factor 4 with ERI5 having a very high factor loading of 0.801 and ERI6 having a loading of 0.444. Both of these deal with issues of job security. Results from the exploratory factor analysis suggest that it might be feasible to use the ERI to measure work stress in hotel employees in developing countries such as Zimbabwe.

These results of the confirmatory factor analysis were consistent with those obtained on the exploratory factor analysis. The effort scale was found to be the most applicable of the three scales in the model. In a study by Juarez-Garcia *et al* (2015) confirmatory factor analyses was used to test the ERI model and the results confirmed the theoretical structure of the ERI, with the reward scale being partially invariant whereas the effort and over-commitment scales were invariant across the six countries that were studied. Perception of reward is

possibly a construct that is affected by culture and other socioeconomic variables and thus differs from one country to another. Over-commitment is not a highly prevalent phenomenon and is thus found in few individuals within a population. This would explain the low factor loadings found in the study.

A study by Ortiz (2010) had results that gave a clear factorial pattern confirming the original ERI model thus showing good concurrent and predictive validity. The factorial pattern obtained in the study concurs with that found by Ortiz (2010) as well as Leineweber *et al* (2010) who tested the short version of the ERI construct. Leineweber successfully reproduced the factorial structure of the ERI model with the three factor structure of the reward scale. Factor loadings were significantly high on all three scales.

Difficulties in the assessment of psychosocial factors such as work related stress stems from the fact that the ERI theoretical models and instruments were developed primarily in English and German and applied in highly economically developed countries (Ortiz 2010). Ortiz (2010) asserts that due to the varying levels of cultural and socio-economic development in the countries in which the model has been applied, challenges can be expected in applying ERI to employee populations from countries that differ from the ones in which it has proved to be pertinent. This is particularly true for Zimbabwe where social, cultural and economic conditions are far removed from those found in Europe. Such differences have the power to affect the perceptions and values of employees as what is stressful for one person in a particular country may not be as stressful for a different individual in another country.

From findings of the study, it emerged that the model was a moderately good fit showing satisfactory factorial validity for the ERI scales. However minor modifications might be needed to ensure that the model becomes a better fit. The results of the CFA goodness of fit tests tallied with those found by numerous authors who found ERI to be a good fit within their study samples (Siegrist *et al*, 2014).

Conclusion

The ERI model is an acceptable measure of work related stress in hotel employees. Results of the study were acceptable and comparable to those found in other studies though the studies were on employees from a range of disciplines and not necessarily the hotel sector. The study concluded that the Effort-Reward Imbalance model has shown itself to be a satisfactory measure of work related stress in hotel employees. The goodness of fit of the ERI model though acceptable is very weak. The model would do well with some minor adjustments to ensure it becomes a better fit measure for work stress in hotel employees in Zimbabwe. There is therefore need for hoteliers to develop interventions for the reduction of ERI and thus stress in hotel employees. This is of critical importance as numerous studies have shown that ERI predicts several health concerns.

In order to increase the level of fit of the model, the following recommendations can be addressed. An adapted version of the ERI model can be built to better suit the context of developing countries such as Zimbabwe and hotel employees. The Reward scale can be restructured so that it becomes a better measure for low rewards in the workplace. Other non- monetary rewards that add value to the employee, such as employment benefits like medical aid, housing allowances, transport allowances and funeral covers can be added to the scale.

The scale item ERI4 (I receive the respect I deserve from my superiors) might need to be removed from the instrument as it had a double loading on factors 1 and 3 on the exploratory factor analysis. Removing this item might lead to a better model fit. Chor *et al* (2008) who tested the ERI model in Brazil suggested that double loading scale items could be removed from the scale to increase level of fit.

The present study had however a number of limitations. The research adopted a questionnaire survey research design and thus relied mostly on self-reported data as opposed to direct observation. Such data relies heavily on respondent's honesty and memory making it highly subjective and prone to bias. The study was also limited in scope as it did not include other measures of stress such as the demand control model and the person environment fit model that are complementary to the ERI model. The sample size was rather small thus results can only be generalised with caution.

Future researchers could utilise a larger sample and conduct the study on a wider scale in order to produce results that can be generalizable to the whole Zimbabwean hotel employee population as well as repeat the study in other developing countries. Similar studies can also be done in resort hotels where work stressors might be different from those in city hotels. A qualitative study can also be conducted to provide a more detailed analysis of the factors underlying work related stress in hotel employees. This study applied the ERI model as a measure of work related stress in Zimbabwean hotel employees. Studies can also be conducted on the applicability of other work stress models such as the Demand Control Support Model which is closely related to the ERI model and a comparative study on these two models might produce a better measure for work stress in hotel employees.

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