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Abstract

Effort Reward Imbalance (ERI) occupational stress model assumes organizations with high job demands, low rewards and personal resources associated with reduced employees' well-being and performance. The present study used s cross-sectional survey study design to empirically test the Siegrist's (1996) ERI model to explicate efforts, rewards, over commitment (OC) and employees' well-being in the Ethiopian occupational settings. Full-time employees' (n=418) from Ethiopians government-owned manufacturing and public service sectors were participants of the study. Systematic random sampling technique was employed to choose study participants. Standardized and validated self-report measures adapted from psychosocial indicators of ERI and the general health questionnaires (GHQ-12) were used to collect the quantitative data. Descriptive and inferential statistics performed to analyze quantitative data. The results of the descriptive statistics demonstrated that Ethiopian workers are faced with excessive labor effort, low rewards, and associated over commitment. Effort-reward ratio result indicates that majority of respondents' spent a high amount of effort and received low amount of rewards at workplace. A one-way ANOVA showed that there is a significant mean difference in the measure of ERI workplace variables among Ethiopia's five occupational settings. Consequently, through Stepwise hierarchical regression statistical analysis, significant positive associations were found between: high workplace effort, low gain, high over commitment and employees' mental health distress. The findings of the current study provides theoretical and practical implications for the field of human resource management. Furthermore, it gives policy makers, companies, and worker advocates empirical data and insights on ERI workplace factors and its implications.

Keywords: Occupational Stress, Effort, Reward, Over Commitment, Effort Reward Imbalance, Mental Health

1. BACKGROUND OF THE STUDY

Occupational safety and health practice has expanded beyond its traditional scope to incorporate behavioural medicine, occupational health psychology and social wellbeing, thereby acknowledging employees' need to conduct a socially and economically productive life (Houtman et al 2007). The concept of workplace factors also evolved greatly from an almost exclusive focus on the physical work environment (address physical, chemical, biological and ergonomic factors). According to Joan Burton, (2010) the definition has expanded to include psychosocial elements including job structure, workplace culture, and community ties, all of which have a significant impact on employee health..

Globalization and technological progress have transformed the world of work, introducing new forms of work organization, working relations and employment patterns and contributing to the increase of work-related stress and its associated disorders. Researchers and decision-makers are paying more attention to the effects of psychosocial risks on workers' mental health (Wesseling et al, 1997). A large number of studies found that depression, free-floating anxiety, somatic anxiety and poor mental health.are associated with workload, low decision latitude, low support, effort-reward imbalance, job insecurity, and organizational restructuring anxiety and depression occurring (Cartwright & Cooper, 1997; Sparks and Coope, 1999, Blazer et al., 1987). A further study found that prolonged workplace stress associated with incidence of depression and reduced empathy, depersonalisation, emotional exhaustion, and lower personal accomplishment (Srivastava et al., 2018).

THEORETICAL ISSUES

Numerous theoretical models of occupational stress have been developed in an effort to reduce workplace psychosocial risk factors and mental health distress. Siegrist's Effort Reward Imbalance model is one of a well-recognized and leading comprehensive occupational stress model that to explain relationship between characteristics of the working environment and employee wellbeing. According to the ERI occupational stress model, work stress is defined as a perceived lack of reciprocity in terms of what an individual puts into the work and what is gained from it, i.e. the rewards the individual gets in return (Niedhammer, et al, 2004). Over the years, the ERI model has drawn considerable interest, mostly in the field of public health but also in occupational psychology (e.g. Dragano et al., 2017; Rugulieset et al., 2017).

The existing literature strongly supports the effort-reward imbalance hypothesis and its effects on employees psychological and physical health outcomes. ERI model suggests that all three components of the model (efforts, rewards and over commitment) will be individually associated with the work related stress outcomes. Job demands as work stressors that can have a negative effect on physiological and psychological heath (e.g. time pressures, workplace conflict or high emotional demands) (Demerouti et al., 2001). According to Siegrist et al. (2004) reward component may act to buffer or compensate for greater perceived effort, other forms may have minimal influence on the demand-strain relationship in the workplace (Siegrist, J. 2016). The rewards component of ERI model refers to money, esteem, and promotion prospects/job security. Furthermore, Kinman and Jones (2008) postulate that effort reward imbalance occurs more frequently in employees who are overcommitted to their work.

According to Siegrist (2001), between 10 and 40 percent of the workforce experience some degree of effort-reward imbalance. The Imbalance between effort and reward (ERR > 1) may lead to a state of 'active distress' by evoking strong negative emotions (Sigerist, 2001). Previous studies have confirmed the utility of the ERI model using outcomes such as general mental well-being (Weyers et al., 2006), depression (Dragano et al., 2008; Griffen et al., 2007) or psychological distress (Janzen et al., 2007). Van Vegchel et al. (2001) identified that a high effort- low reward indicator involving either physical or emotional demands was associated with job dissatisfaction. Many other study confirmed that the presence of an effort-reward imbalance appears to be highly detrimental for psychological conditions such as depression and anxiety. Wright & Bonett, (1997) found that Employees' with higher ERI showed higher self-rated reduced health and well-being.

SETTING CONTEXT FOR THE STUDY

Theoretical and empirical literatures evidenced that healthy workplace and employees' well-being are critical for the survival and development of any organizations around the world, however, the area remain neglected and still perceived as a luxury in developing countries (Nuwayhid, 2004). In developing countries work-related wellbeing's one of the areas which have not yet been quantified owing to lack of data on exposure or causality, important exposures and outcomes (Concha et.al, 2004).

Indeed, there is a wide variation in economic structures, occupational structures, working conditions, work environment, and the health status of workers in different regions of the world (WHO 1999). However, developing countries face challenges of dealing with the changing nature of work, such as the increasing fragmentation of the labour market, the demand for flexible contracts increased job insecurity, a high work pace, long and irregular working hours, low control over job content and process, low pay, together with new occupational hazards accompanying the new industries and technologies. Particularly in Ethiopia, there is a lack of scientifically verified evidence and consideration for workers' well-being. In addition to this, the

issue is made worse by inadequate legal protection and a lack of policy papers that address workers' rights.

Making physical and psychosocial working conditions safe and healthy is in the best interests of employees, researchers, employers, human resource and organisational development professionals, as well as the general public. It is believed that early detection and management of occupational stress will enhance work conditions, safeguard employees, and promote healthy work. The purpose of the current study was to empirically test Effort Reward Imbalance (ERI) occupational stress theoretical model in the Ethiopian occupational setting. The goals of the study were to assess how the ERI model workplace factors prevalent in the sample and what type of association existed between employees' well-being and workplace efforts, rewards, and over commitment (OC).

2. METHOD AND INSTRUMENTS

A quantitative cross-sectional survey research design was employed to systematically investigate the ERI theoretical model that explicate efforts, rewards, over commitment (OC) and employees' well-being in the Ethiopian occupational settings. The study participants were 418 employees' who are full-time among purposely selected government-owned public service (Education, Bank, Telecommunication, and security) and manufacturing industries (Amhara Pipe factory, Bahirdar Textile factory and Amhara metal engineering and technology development factory) sectors. Systematic random sampling techniques was employed to choose study participants in which the human resource department personnel in the above five sectors assist in recruiting 418 participant based on employees' registration order.

Measure of Psychosocial Work Place Factors

Siegrets' ERI model psychosocial workplace factor questionnaire was used to measure effort with six items, and reward with 11 Items (consisting of four items esteem, two items job security, and four items job promotion), Responses to the items of 'effort' and 'reward' were scored on a 4-point scale where a value of 1 indicates no respective stressful experience, and a value of 4 indicates a highly stressful experience (Siegrist, J., 2012). The 'over commitment' measured with six items scored on a 4-point scale (1 = full disagreement, 4= full agreement with the respective statement). Cronbach's alpha coefficients for effort, reward, and over-commitment were .72, .83, and .79, respectively (Wege, et al, 2017).

Measure of Employees' Mental Health Distress

General Health Questionnaire GHQ-12 adopted from Daradkeh et al. (2001) was used for assessment of the mental health distress and detection of non-psychotic psychiatric problems among respondents. Rrespondents' are expected to score using a Likert type scale (from 0-always to 3-Never). For the current study Graetz's et al (1991) a three factor structure applied

studied in Australia. Factor I called Anxiety, factor II is Social dysfunction and factor III is Loss of confidence. The internal reliability of the GHQ-12 was assessed using the Cronbach's alpha coefficient and showed the satisfactory results with Cronbach's alpha was .81 (Daradkeh et al., 2001).

Pilot study: Prior to gathering entire of the data for the actual study, instruments were translated into Amharic, the local language of Ethiopia, and then back into English by language experts. A pilot test was then carried out with thirty participants from a specific service provider companies (Commercial Bank of Ethiopia). The objective of the pilot study was to systematically evaluate the psychometric properties of quantitative data collection instruments. The current study's Cronbach's alpha coefficients for GHQ-12 and ERI scales were .86 and.79, respectively. According to the findings of Diamantopoulos & Siguaw (2000), measuring instruments have strong internal reliability.

DATA ANALYSIS

Descriptive statistics such as frequency, percentile, standard deviation and mean were calculated to assess the prevalence rate of workplace factors and mental health outcomes among respondents'. To assess the internal reliability of each measuring instrument Cronbach alpha value generated. One way analysis of variance (ANOVA) was performed to compare ERI psychosocial work environment factors across occupational settings. In addition to this, Stepwise hierarchical regression statistical techniques utilized to calculate predictive powers of psychometric variables on respondents' mental health condition. SPSS-V27 data analysis software utilized for quantitative data analysis.

3. RESULT

Descriptive Data for the ERI Psychosocial Work Environment Factors and Mental Health Distress

According to descriptive statistics of ERI workplace characteristics for the current study, the majority of respondents (58.1%) reported high levels of psychological and physical working demands at their places of employment. The remaining 41.9% of participants believed that the level of effort was lower than the average (M = 16.61). Descriptive data show that the majority of respondents (83.0%) believed their job offered little reward. Just 17.0% of workers thought their rewards were good at work. The mean score for reward workplace factor was score 4.09. Further, respondents' experiencing higher level of over commitment at workplace. The descriptive statistics show that 67.2% of study participants respond high level over commitment and the rest 32.8 % of them experiencing lower level of over commitment at work.

Based on ERI pre-defined algorithm values beyond 1.0 indicate a high amount of effort spent that is not met by the rewards received. Table 1.1 shows that the respondents' mean score (M=1.4) was higher than 1.0. Consequently, the majority of workers (74.4%) report having

unfavourable working conditions. Merely 25.6% of the participants reported having favourable working conditions. This result indicates that majority of respondents' spent a high amount of effort and received low amount of rewards at workplace.

The descriptive data in Table 1.1 shown that the mental health distress mean score was M=17.86 and participants reported varying degrees of work-related mental health distress symptoms, ranging from moderate (16.7%) to minimal (81.1%). In the current study, complaints of mental health distress include social dysfunction, loss of confidence and anxiety symptoms.

Table 1.1.

Descriptive data of the work environment factors and mental health distress

Work environment factors	Dimensions	N	M	SD	Low %	High %
Effort	Unidimensional	418	16.61	4.24	41.9	58.1
Rewards	Multidimensional	418	24.01	6.06	83.0	17.0
Over Commitment	Unidimensional	418	15.29	3.85	32.8	67.2
Effort Reward Imbalance	-	418	1.40	.576	25.6	74.4
Mental Health Distress	Multidimensional	418	17.86	5.925	81.1	16.7

Comparisons of ERI Psychosocial Work Environment Factors across Occupational Settings

A one-way ANOVA utilized to see how psychosocial work environment characteristics differed across security, education, bank, manufacturing and telecommunication occupational settings. According to the ANOVA results, there is a statistically significant mean difference in workplace effort, rewards, and over commitment amongst the five occupational settings ($F(4) = 4.362$, $p<.05$, $F(4) = 9.13$, $p<.05$, and $F(4) = 5.96$, $p<.05$, respectively). *Scheffé's post hoc analysis* were performed to identify exactly whether there is significant differences exist across five occupational settings. The analyses revealed that security sector (*M*=18.02, *SD*=3.55) show significantly difference *with education (M*=16.20, *SD*=4.42), and *manufacturing* sectors (*M*=15.76, *SD*=4.28), $p < 0.05$ in the level of job demand. Report in the Post Hoc analyses further revealed that security sector (*M*=21.50, *SD*=5.66), show significant mean difference with bank (*M*=27.32, *SD*=6.42), manufacturing, (*M*=24.93, *SD*=5.77), and telecommunication sector (*M*=29.70, *SD*=5.12), $p < 0.05$ in the level of perceived rewards at workplace. There is also significant mean difference in perceived reward between manufacturing (*M*=24.93, *SD*=5.77), and telecommunication sector (*M*=29.70, *SD*=5.12), $p < 0.05$. In addition to this education sector show significant mean difference with bank sector (*M*=27.32, *SD*=6.42), manufacturing sector (*M*=24.93, *SD*=5.77), telecommunication sector (*M*=29.70, *SD*=5.12) $p < 0.05$ in perceived reward. From one way AOVA analysis security sector (*M*=6.62, *SD*=3.32) shows significant different mean in measures of over commitment with education1 *(M*=14.68, *SD*=4.32), *and* manufacturing (M=14.77, SD=3.92), $p<0.05$.

Table 1.2

One way ANOVA for Psychosocial work environment factors across five occupational settings

Test variable	Occupational Settings											
	Security		Education		Bank		Manufacturing		Telecom.			
	M	SD	M	SD	M	SD	M	SD	M	SD	F	P-value
Effort	18.02	3.55	16.20	4.42	16.75	3.41	15.76	4.28	16.97	5.32	4.362	.002
Rewards	21.50	5.66	22.56	5.15	27.32	6.42	24.93	5.77	29.70	5.12	19.40	<,001
Over Commitment	16.62	3.32	14.68	4.32	16.00	3.01	14.77	3.92	14.80	2.96	4.86	<,001

** The mean difference is significant at the p≤0.05 level (two-tailed), df=4*

Association between Employees' Mental Health and Workplace Effort, Rewards and Over Commitment

The correlation coefficient indicate that there are statistically moderate and significant positive relationships between the score of mental health distress and measures of workplace Effort r= .519, $p< 0.01$ and over commitment r=.522, $p< 0.01$. Mental health also show statistically moderate and significant negative relationships with measures of perceived rewards r=-.495, $p< 0.01$. Furthermore, Stepwise hierarchical regression statistical analysis results in the table 1.2 show that three components of ERI workplace effort, Perceived rewards, and over commitment independently explained 26.9%, 9% and 3.9% for the variance of employees' mental health respectively. These ERI psychosocial work environment variables significantly predict mental health F change test, perceived effort $F\ (1,415)$ = 153.01, $p < .001$, perceived rewards $F\ (1,414)$ = 63.30, $p < .001$ and over commitment $F\ (1,413)$ = 26.88, $p < .001$. The beta coefficient result of perceived effort, (B= $.51,\ t = 12.36,\ p < 0.01$), perceived rewards, (B= $-.34,\ t = -7.95,\ p < 0.01$) and over commitment (B= $.24,\ t = 5.18,\ p < 0.01$) are statistically significant predictors of respondents mental health.

Table 1.3: Hierarchical regression to measure predictive power of work environment factors on respondents mental health status

Model		Unstandardized coefficient		standardized coefficient				
	Variable entered	B	Std. Error	Beta	r	R^2	$\triangle R^2$	$F(\triangle R^2)$
1	Effort	.725	.059	.519	.519	.269	.269	153.003
2	Effort	.531	.060	.380				
	Rewards	-.333	.042	-.341	-.495	.366	.097	63.302
3	Effort	.367	.066	.263				
	Rewards	-.273	.042	-.280	.522	.405	.039	26.883
	Over Commitment	.384	.074	.249				

4. DISCUSSION

Perceived Effort in Workplace

Work related effort or demands elements such as "too much work", "pressure" and "ambitious deadlines" ranked the highest of all occupational stressors (Ohly & Fritz, 2010). Siegrist, (2001) identified effort as main components of the work environment factor in ERI model that affect wellbeing's of employees'. In the present study effort as workplace stressor measured and mean scores result were (M = 16.61). This indicates that majority of respondents' (58.1%) experiencing high level of job demand at workplace. In line with the current finding, survey study conducted by Jimmieson, Tucker, & Bordia, (2016) 80% of workers reported high levels of cognitive demand of job and 24% of workers reported high levels of emotional demand. In conclusion, employees' are to confronting with emotionally taxing, upsetting, or disturbing situation and individual engaged in cognitive monitoring and attentiveness demands of job.

Perceived Reward in Workplace

Rewards in the ERI model are represented by a combination of tangible and intangible rewards that may have differential effects on employee outcomes. The ERI questionnaire developed for research assesses three distinct reward indicators: esteem rewards, financial rewards, and promotion prospects/job security (Siegrist et al., 2004). The present study revealed that participants' shown low level of reward (score M = 4.09). Descriptive statistics evident that majority (83.0%) respondents received low level of rewards at workplace. Among respondents only 17.0% workers perceived they are receiving high level of reward at work. According to the results of Jimmieson and Colugues' (2016) poll, 11% of employees said they received little praise and recognition. In contrast to the research findings, the participants in the current investigation had a very low perceived reward level.

Respondents' Over Commitment in Workplace

Over commitment has been described as a trait-like coping variable that represents those cognitive, emotional, and motivational components of Type A suspected of triggering enhanced arousal to the demands and rewards of work (Appels et al 1997; Siegrist, et al 2009). ERI model considers over commitment component an independent predictor of employee outcomes as well as a moderator of people's reactions to effort-reward imbalance at work. The current research found that mean score of over commitment was high (M= 15.29). Which means large number of respondents' (67.2%) experiencing high level of over commitment at workplace to cope with effort-reward imbalance condition. According to Vegchel et al. (2005), over commitment considered as the inability to psychologically withdraw from work during non-work time. The inability to psychologically withdraw from work obligations hinders the taxed psychobiological systems to recover from the drain at work. In the current study, over commitment is hypothesized to moderate and exacerbate the effects of high effort-low reward conditions on job stress related outcomes (Siegrist et al., 1982).

Effort Reward Imbalance in Workplace

According Siegrist (2001) between 10 and 40 percent of the workforce experience some degree of effort-reward imbalance. Based on Equity theory arguments it is hoped that cost-gain imbalances in either direction should result in stressful experience at workplace. Siegrist et al. (2004) high strain jobs are high effort- low reward conditions, while relatively low amounts of strain are represented in the opposite condition. In the current research effort reward ratio applied to measure participants' effort reward perception in workplace. According to ERI theory a ratio greater than one, represents an inequitable relationship in which the employee is unfairly disadvantaged, while a ratio of one or less than one indicates that there is either a balance between inputs and outputs or a condition that benefits the employee (Bosma, et al., 1998). The present research found that the ERI mean score of M=1.4, which was beyond 1.0. Majority of respondents' (74.4%) of worker experiencing unfavourable work condition. This figure indicates that majority of respondents' spent a high amount of effort and received low amount of rewards at workplace. Only 25.6% of respondents' working in relatively balanced and favourable work condition.

Respondents' Mental Health Complaints

The workplace has been identified as a substantial influencing factor in individual mental health (Cooper & Cartwright, 1994; Keegel et al., 2010). In the current research GHQ12 used to assess the participants mental health complaints. Descriptive result show that the mean score for GHQ12 was (M= 17.86). Among participants 81.1% reported low level of mental health distress and the rest 16.7% shown moderate level of metal health problems. The current study also looked at the three mental health complaints of the participants, and the findings showed that the individuals had low to high levels of mental health complaints, including anxiety, social dysfunction, and confidence loss. It was anticipated that participants' mental health issues linked

to stressors at work. Previous studies also examined workplace mental health i.e. Weyers et al., (2006) assessed general mental well-being at workplace, depression at workplace studied by Dragano et al., (2008) and Griffen et al., (2007). Survey study conducted by Jimmieson et al., (2016) result showed that the majority of workers (57%) reported low levels of psychological strain and just 4% of workers were classified as having high levels of psychological strain.

Comparisons of ERI Psychosocial Work Environment Factors across Occupational Settings

In the current study, the five occupational settings—security, education, banking, manufacturing, and telecommunication showed substantial mean differences in measures of work effort, incentives, and over commitment. The one wat AOVA finding demonstrated that the work conditions in the security and education sectors were unfavorable and employees' had a significant effort-reward imbalance when compared to other occupations. Study conducted by Johnson et al., (2005) and Liberman et al., (2002), found that police work has been identified as a demanding and stressful occupation. Furthermore, study showed that education professionals had the highest cognitive demand. Jimmieson et al. (2016) also found that education & training workers had the highest role overload compared with social assistance workers.

Association between workplace Effort, Rewards and over commitment with Employees Mental health

The current study assessed association between the three psychosocial workplace factors of the ERI model (i.e. efforts, rewards and over-commitment) and the outcome variable mental health complaints. The correlation statistics demonstrated that mental health distress shows statistically significant and positive relationships with measures of perceived effort and over commitment. Rewards component a significant and negative correlation with mental health. Study conducted by Srivastava et al., (2007) and Deckard et al., (1994) workplace stress correlated with insomnia, headaches, anxiety, panic attacks, and depression.

The existing literature strongly supports the effort-reward imbalance hypothesis and job stress related outcomes. Research finding evidenced that depression, anxiety, and poor mental health are associated with workload, effort-reward imbalance, job insecurity, and organizational restructuring anxiety and depression occurring (Cartwright & Cooper, 1997; Sparks and Coope, 1999, Blazer et al., 1987; Faravelli & Pallanti, 1989). The regression beta coefficient result in present study revealed workplace effort and over commitment has a significant positive effect on mental health distress such as anxiety, social dysfunction and loss of self-esteem. Reward factor show significant negative effect on employees' mental health. Respondents who reported higher efforts, lower rewards and greater over-commitment reported higher levels of mental health complaints. The ERI model asserted that a perceived imbalance between the efforts that employees' they put into their jobs and the rewards that they receive associated with job strain (Siegrist, 1996). The results of the present investigation are in line with those of (Bromet. et al., 1988). They found that work-related stress linked to adverse health outcomes, such as anxiety and related risk factors.

CONCLUSION

In this study, Siegrets' ERI model used to measure participants' perceptions of effort, reward, and over commitment, along with their associations with mental health. According to the survey, the majority of workers are faced with excessive labor effort, low rewards, and associated over commitment. Effort-reward ratio result indicates that majority of respondents' spent a high amount of effort and received low amount of rewards at workplace. The measure of ERI workplace variables demonstrated a substantial mean variation across Ethiopia's five occupational settings. Consequently, significant positive associations were found between: high workplace effort, low gain, high over commitment and employees' mental health distress.

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