INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES

Vol 14, Issue 12, (2024) E-ISSN: 2222-6990

Impact of Effort-Reward Imbalance on Job Stress and Job Performance

Farhana Nazir, Dr. Hamrila A. Latif
Faculty of Economics & Business, Universiti Malaysia Sarawak
Email: Farhana.nazir109@gmail.com, alhamrila@unimas.my

To Link this Article: http://dx.doi.org/10.6007/IJARBSS/v14-i12/23656 DOI:10.6007/IJARBSS/v14-i12/23656

Published Date: 19 December 2024

Abstract

The reciprocity concept is the foundation of many significant social contracts, including employment agreements. A trustworthy social exchange and individual well-being depend on a fair distribution of the expenses and benefits of participating in cooperative activities. In contrast, failure to reciprocate when there is a large cost and little reward results in significant negative feelings and related stress reactions. The effort-reward imbalance model was created with a specific emphasis on the workplace in order to pinpoint instances of failed reciprocity in social contracts. Job stress has been found to have a considerable negative influence on both employee performance and the standard of care provided to patients. Research on the ERI model in Pakistan revealed a paucity of literature, but many other nations are now concentrating on resolving the problems employees have with the effort-reward balance. Therefore, this study aims to investigate the impacts of effort-reward imbalance (ERI) on job stress and work performance, the influence of job stress on work performance, and the direct and indirect effects of ERI on work performance through job stress in the healthcare sector of Sindh Pakistan. This study is quantitative and employs a cross-study design with an analytical observational study. Total, 400 healthcare professionals (medical, nursing, and non-medical) that participated in the survey were the respondents. The data was analyzed using path analysis and the Chi-square test. The findings indicated that job satisfaction and productivity were significantly correlated with ERI.

Keywords: Effort-Reward Imbalance, Job Stress, Job Performance, Productivity, Healthcare

Introduction

Human resource management is becoming more widely accepted in Pakistan, and employers as well as staff members have become increasingly conscious of their responsibilities. Pakistan's service sector has only recently begun to expand. Due to growing job expectations, employees are unable to balance work and other commitments (Nadeem & Abbas, 2009).

ERI is a theoretical paradigm that focuses on the misalignment of efforts and incentives, as well as the context of psychosocial work and a healthy life (Ren, Li, Yao, Pi, & Qi, 2019). Employees who encounter (i.e., put in a lot of work for little in return) are more prone to have

persistent negative emotions and protracted stress reactions. People in this unbalanced state are more inclined to engage in unproductive workplace behaviors (Siegrist, Wege, Pühlhofer, & Wahrendorf, 2009).

Research on the ERI model in Pakistan revealed a paucity of literature, but many other nations are now concentrating on resolving the problems employees have with the effort-reward balance. According to research on the education sector, instructors put in more work than they receive in return from their institutions (Hussain et al., 2016).

Depression may result from conditions of effort-reward mismatch. An overwhelming sense of pain, deprived self-perception of health, and illness-related absence are all possible causes of strain reactions. Possessing a difficult but uncertain profession and functioning at a high level Those who have not been afforded any opportunity for advancement are examples because of a stressful imbalance (Van Vegchel, De Jonge, Bosma, & Schaufeli, 2005). Human services professionals, particularly those in the medical field, are at increased risk for affective and stress-related disorders, with nurses among those at greatest risk (Wieclaw, Agerbo, Mortensen, & Bonde, 2006). Burnout is quite common among doctors and nurses (Dyrbye et al., 2017), which can have negative effects on patient care (such as increased risk of medical mistakes (Angerer & Weigl, 2015) or inadequate satisfaction with work (López-López et al., 2019). In light of this, it's crucial to pay attention to worker wellbeing.
Recently, ERI has been used to examine the effects on employee wellbeing. It has been effective. been useful in a number of work situations, especially with the globalization of business in the modern world (Van Vegchel, De Jonge, Meijer, & Hamers, 2001).

Literature Review

The Effort-Reward Imbalance (ERI)

An additional method of job stress which is getting gradually more prominent in the area of professional psychology was established by a medicinal sociologist (Siegrist, 1996) This method is known as Effort Reward theory (ERI) and emphasis on exertions and recompenses of a task, alternatively demands and controls. The ultimate feature of this approach is societal exchange, i.e. a continuous stability amid effort and reward (Siegrist, 1996). Corresponding to the ERI approach, stress should not only arise from worker exertion, like job demand or workload, rather than observed disparity between expectation from a worker (effort) and the incentive they obtain, such as, admiration, income and professional prospects. But, the idea of remuneration does not mention for only quantifiable but have collective and representative facets, like gratitude and connotation allocated to the exertion, respectively. The ERI approach regulates level of observed worker discomfort as a consequence of exertion and remuneration disparity and precede to adverse feelings and stress.

(Siegrist, 1996), a medical sociologist, created another method to job stress that has become widely common in the area of occupational psychology. The effort reward model (ERI) is referred as the interactional method which emphasizes on job activities and incentives, rather than on demand and controls. Internal exchange that is perpetual balance of activities and incentives is the central feature of paradigm (Siegrist, 1996; Siegrist & Li, 2016). According to the model, job stress is not necessarily the product of worker exertion, such as amount of work or task demands, but rather the professed discrepancy between what is required from a worker (effort) and the compensation they earn, like money, respect, and professional

growth. The definition of compensation does not only apply to tangible type of reward but also have societal or emblematic characteristics like appreciation and significance attributed to exertion. As a consequence of commitment and incentive inequity, the ERI model measures the degree of professed worker dissatisfaction and it is inequity that can contribute to adverse reactions and pressures.

Overview

The foundation of ERI model is based upon social exchange that is why it is significant to mention it when discussing the model. Social exchange theory was derived by (Blau, 1964), (Gouldner, 1960), (Homans, 1958), and (March & Simon, 1993). They explored the idea from various perspectives such as psychology to economics. The end result was composed in a single theory. The present evolvement of occupational relationship is largely dependent upon the ideas derived from reciprocity and social exchange theory, which are widely practiced (Shore & Coyle-Shapiro, 2003).

Social behavior is, an interchange between intangible and tangible merchandises and services where people balance their association by regulating both worth and the amount of resources exchanged, explained by principle of social exchange (Homans, 1958). This interchange has often been characterized as a compromise between enticements and assistances, which results in an appropriate ratio among whatever the organization provides (incentives) and the value that the workers contribute in the field of jobs. The roots of this notion are embedded in the desire to balance transactions (Gouldner, 1960), since this need or duty to reciprocate is motivated by feelings of indebtedness, and the interchange among two groups is therefore called reciprocity (Coyle-Shapiro & Conway, 2004).

Several elements, such as' responsibilities, belief, personal association, or loyalty to particul ar exchange partners, have characterized as social interaction (Emerson, 1981). This is partially because the theory of interchange mainly depends on the social exchange relationship's trust to offset a specific exchange possibility that does not necessarily contribute to a reimbursed gain or exchange (Cotterell, Eisenberger, & Speicher, 1992). In the occupational market, the principle of reciprocity is broadly present. Employee-organization partnerships are described here as key word for the continuum of employee experience and behavioral dynamics, whereby both parties have standards that is essential be fulfilled reciprocally (Coyle-Shapiro & Shore, 2007). In the employee-organizational association, one-sided sacrifices and benefits are the greatest obstacles, as confidence may be broken and exchange become unequal (Coyle-Shapiro, Shore, Taylor, & Tetrick, 2004). This, in particular, will direct to tension in the association, leading to unfavorable follow-up on both sides (Coyle-Shapiro et al., 2004). (Taylor, 1991) addressed this negative aspect of the interaction as mention ‘undesirable experiences tend to mobilize emotional, affective, perceptual, and to a greater extent than positive or unbiased acts those forms of social capital”. The propositioned idea that harmful incidents and partnerships are an especially significant topic of inquiry is resonant in this quotation, since they affect results even better than stable partnerships (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001). This has remained assumed because of persistent and enduring pattern of negative emotions, judgments, motives, and attitudes that define negative associations that have permanent effects (Labianca & Brass, 2006).

The ERI model is founded on the concepts of social exchange philosophy (Siegrist, 2000), as a theoretical model, which (Peter & Siegrist, 1997) have evolved and established through mutual contact between the worker and an organization, where it is assumed to any activity which is performed will be followed by reward. In the ERI model, the idea of reciprocity is safe to conclude when benefits that are less in value than intended are either not returned or shared by investments. This unfavorable influence contributes to a variety of detrimental feelings, like fear, anxiety, tension or dejection, among other things (Siegrist & Theorell, 2006). Though, the result shown as progressive by means of optimistic results and attitudes, including pleasure, feeling of well-being, or satisfaction, both of which are helpful to the health and well-being of workers, in the event of balance between an employee's contribution and the benefits given to them in exchange by the company (Siegrist, 1996). As the principle of reciprocity is compared to the ERI formula, where a nominator is the commitment factor and a denominator is the reward factor, the expense to profit in the work is known to be a ratio that may so be quantified mathematically. This formula will also be utilized to quantify or determine cut-off values, with any value greater than 1.0 representing an ideal cost-benefit situation (compensation surpasses or equivalents exertion), while a value below 1.0 (stress surpasses compensation) implies the reverse – that is, a dangerous job situation with unfavorable consequences (Peter et al., 1998).

Depending on the viewpoint, the exertion inside the ERI system is distinguished into two groups: extrinsic and intrinsic. It is used to define more realistic work criteria, and the degree to which the employee is inspired and senses a desire for influence respectively. Remuneration may contain both material remuneration and also have societal or emblematic characteristics. Overall, the incentives were intended to cover three factors: a) monetary advances; b) respect (i.e. acknowledgement and encouragement form coworkers and managers); c) status control (career uncertainty or loss of advancement forecasts) (Siegrist, 1996; Siegrist & Li, 2016). Although both benefits and appreciation have been seen to be negatively linked to the burden of work (AbuAlRub & AL-ZARU, 2008; Gelsema, Van Der Doef, Maes, Akerboom, & Verhoeven, 2005), it has been demonstrated that emotional fatigue adversely relates to recognition. Generally, following three aspects under which a discrepancy is maintained between high commitment and low remuneration listed by (Siegrist, 2012), Unclear job agreements with relatively few alternative job opportunities to pick from (e.g. due to poor ability standards, insecure labor markets, lack of flexibility). Worker tolerance to present adverse circumstances of potential return imbalance (this approach is selected specifically to boost future employment chances by protective funds. Workers exhibiting over-commitment or interpersonal arrays of managing demands characterized by disproportionate participation is more likely than its less dedicated peers to understand a high price / low profit. It is believed that extra effort contributes to visual alteration that impedes male and female workers from calculating cost-gain relationship equally. Moreover, male and female staff suffer from unsuitable expectation of pressures and from their own tools of handling, from which outcome will be more job stress and unwanted health issues.

Generally, there is proof showing that a reliable measure of worker health and well-being is coincidence of high commitment and low compensation metrics, although its correlation with factors like work satisfaction and desire to terminate remains less evident. In addition, there is some existing data that leads to the connection between high effort and worker health, and it is concerning that there is relatively little study on this relationship.

Rationality and Theoretic Criticism

These three assumptions helps in the measurement and establishment of understanding and observation model of personnel by self-sufficient expression of ERI approach (De Jonge, Van Der Linden, Schaufeli, Peter, & Siegrist, 2008; Feldt et al., 2013; Rantanen, Feldt, Hyvönen, Kinnunen, & Mäkikangas, 2013). According to (Siegrist, 2012), as a way of assessing relationships, this self-reporting questionnaire has culminated in the ERI model becoming a systematic process (Siegrist, 2012). Of note, the notion tends to explicitly apply to the principle of measurement and to support it (Bohle, Quinlan, McNamara, Pitts, & Willaby, 2015; Formazin et al., 2014; Hoven, Wahrendorf, & Siegrist, 2015; Siegrist et al., 2014). The effect of the model on workplaces and its effects on social and psychological aspects of the health and welfare of workers is studied in the literature of ERI and mental well-being (Tsutsumi et al., 2008; Tsutsumi et al., 2009).

ERI model is an example of understanding different mental and psychological health outcomes in different occupational context (Siegrist & Li, 2016; Siegrist et al., 2009; Silva & Barreto, 2010). The model also demonstrates many physical and psychological disorders under different situations (Backé, Seidler, Latza, Rossnagel, & Schumann, 2012; Nieuwenhuijsen, Bruinvels, & Frings-Dresen, 2010). These two are illustrations of the ERI model becoming more applicable (Montano, Li, & Siegrist, 2016; Siegrist, 2012; Tsutsumi & Kawakami, 2004).

Between 1986 and 2003, around 45 studies are revealed on effort reward theory (Van Vegchel et al., 2005) determines theory of external initiative is accepted and maintained. Moreover, according to (Ostry, Kelly, Demers, Mustard, & Hertzman, 2003), for reducing related method variance, it is recommended that without explaining intrinsic efforts the ERI model should be used. The commitment and compensation variables are compatible with an assortment of various dimensional objects (Van Vegchel et al., 2005), and this is considered another possible flaw of effort reward theory. This justification demonstrates a highly universal assessment methodology which may neglect the relevance of different styles of initiatives and awards unique to those fields of work.

In general, it was generally agreed that the sense of "imbalance" was the divergence from the equilibrium between initiative and compensation. As a result, the proportional ratio of the two was often used to calculate absence of interchange and thus the impact on the welfare and wellness of workers. Although there are substantial data for an efficient method of assessing risk to diseases within populations (Kivimäki, Vahtera, Elovainio, Virtanen, & Siegrist, 2007; Peter et al., 1998) from previous researches that established the ERI proportion that is reward/ compensation, there are some authors who challenge the operationalization of a relation between effort and reward in terms of ratios (Preckel, Meinel, Kudielka, Haug, & Fischer, 2007). Others contend, in the detection of major results, that additive models or multiplicity words (e.g. rewarding efforts) are much effective (Preckel et al., 2007; Van Vegchel et al., 2005). The criticism that a ratio cannot accurately reflect the work environment in research intended to determine the model fit with the subset of the population is of special concern (nurses, the police, etc.). The explanation is that the suggested cut-offs are not ideal for all as classifications of risk of disease (Lehr, Koch, & Hillert, 2010).

In addition, researchers affirm that there might be difference among statistical juggling activities and what an employee views as balance. Other researchers used the distributional approach to run ERI, and determined cut-offs, in order to deal with this issue, by forwarding data to tertiles, which are high-risk types of the top tertiles whereas low risk classes are created from lower tertiles (Pikhart et al., 2004). In comparison to a binary sample split, tertiles will enhance the detection of dose-response effects in the health impact ratio. But, the downside of the process can lead to paradoxical conditions (Lehr et al., 2010). For e.g., many more will have strain in a low-risk group in a tertiary cut off for a high-risk population, many of them getting severe stress. This demonstrates the reduced responsiveness tertile limit strategy's potential. One method of approaching these problems could be to first look at the independent contribution of factors of effort and compensation before analyzing experiences. This could lead to provide more knowledge on the significance of imbalance in particular as complex samples are used.

The incentive aspect is another area for developing the ERI model. Very little recent work focused on multiple pay dimensions for the different effects on strains of workers (Van Vegchel, de Jonge, Bakker, & Schaufeli, 2002). An extension of examined target variables will then be an additional development on the model. To date, the study has centered primarily on the relationship between the theory for external ERI and the physical and psychological well-beings (Tsutsumi & Kawakami, 2004; Van Vegchel et al., 2005) and the study into interaction of ERI and behavioral effects (Kouvonen et al., 2005).

The recommendations listed above are suggestions to increase or expand a broader understanding of the workload and particularly the ERI model. This study is focused on the effort reward theory and analyses the model's function in determining the health and behavioral measures of the employee strain of a historically recognized workforce (humanitarian workers) and determines the differential components of the model's relative relevance (exertion, recompense, over engaged).

Variations in Gender

While there are rare investigations that expressly concentrate on the gender relationship among the healthcare and wellbeing model and the ERI, Some studies suggested that the model could be more accurate in predicting outcomes for women than the DCS model (Tsutsumi et al., 2009). They claim that the balance / imbalance between cost and income rather than the need for work management is more likely to be stressed by women's employers.

Summary of ERI Model

In a nutshell, the ERI (Siegrist, 1996; Siegrist & Li, 2016) is based on the idea of a balance among observed commitment and work incentives and the assumption that any deviation from this equilibrium may have detrimental effects on employees' health. The DCS model and other earlier stress models can be substituted with this one. The model effort reward includes certain differential scales, which allows the shortcomings of the DCS model to be discussed (Calnan, Wainwright, & Almond, 2000). From the perspective of the ERI, an economic transaction and a social transaction are different. As the ERI paradigm reflects on the communal interaction mechanism on job, some detractors may be discussed to work-oriented tension theories. This is achieved by integrating social and emotional mechanisms in

the workplace by taking the shape of a cognitive motivational pattern (called over-engagement) into account various human variations. A research on the analytical framework for assessing the disparity between therapeutic working and particular health and behavioral interventions offers the division between economic and social transactions in this study.

The ERI model was also hypothesized to estimate stress for caregivers and other job providers better than DCS (Calnan, Wadsworth, May, Smith, & Wainwright, 2004; Marmot & Wilkinson, 2005; Tsutsumi & Kawakami, 2004). The biggest factor was the fork over dedication or intrinsic initiative, which was seen in the first place as part of the effort. The results of the ERI model, which is employed and largely accepted, have produced conflicting results.

Although the majority of the cardiovascular disease ERI research (Bosma, Peter, Siegrist, & Marmot, 1998; Kivimäki et al., 2002; Siegrist, 1996) and related risk factors (Siegrist, 1996) have been released, some data suggests that the ERI model is consistent with musculoskeletal effects (Peter & Siegrist, 1997).

Moreover, although there has been recommendation career stress models could not be good indicators of sadness and anxiety or other implications for one's physical or mental health (Calnan et al., 2004), ERI and emotional consequences, such as mental fatigue, sleep trouble and self-reported tiredness had a substantial correlation (Peter et al., 1998; Van Vegchel et al., 2002), The significant support for the effort reward (Van Vegchel et al., 2005) was used by this research to explain psychical morbidities to humanitarian workers as a theoretical model. Also, ERI has been linked to high levels of alcohol intake (Siegrist & Rödel, 2006).

For a variety of factors, effort reward theory was chosen as one of the study's theoretical models. To begin with, the two of the 3 aspects of the incentive system reflect the evolving nature of the current working sector directly and including improvement opportunities, job stability and pay or wage rate (Godin, Kittel, Coppieters, & Siegrist, 2005). Next, effort reward theory is especially suitable for examining careers requiring encounters with people (Calnan et al., 2004; Marmot & Wilkinson, 2005). In the last analysis, effort reward theory allows the investigation and extent of a worker viewpoint, as well as an occupational environment (perceiving situational and contextual characteristics, since it incorporates both external (claims and accepted prizes) and intrinsic (compatible with demands, motivating risk) variables.

Job Stress

Hans Selye, a Canadian endocrinologist of Austrian and Hungarian descent, coined the term "stress" and pioneered stress research in 1936. Later on, author defined strain as the "body's general response to demands placed upon it " (Selye, 1946). Strain is multi-faceted and is studied in two expansionary classes (a) as building positive stress, or eustress; and (b) Negative stress, or suffering. Stress may have an impact on how motivated and enriched the actions of workers are. Distress may cause adverse effects on employees' well-being, which could lead to a drop in employee and managerial enactments (George & Zakkariya, 2015). Stress is defined by Lazarus (1966) as a person's inability to handle the expectations placed upon them. This occurs when a individual's current managing tools are insufficient in comparison to the demands that have been placed upon them (Mackay, Cox, Burrows, & Lazzerini, 1978), as well as when demand and available resources are not matched (Lazarus &

Folkman, 1984). Tension has been widely acknowledged as a multi-dimensional construct and an inevitable component of work and life (Cavanaugh et al., 2011).

According to (NIOSH, 2004), work stress is a condition that occurs when an employee's work capabilities or resources are out of sync with the demands of their position. Job strain is defined by the health and safety executive as the negative reaction workers display as a result of the demands of their jobs not aligning with their abilities or resources. While Comcare, Australia's regulatory body for injury prevention, security, as well as remuneration, describes stress as happening when a worker's requirements and obligations are greater than their capacity or management abilities.

Job Performance

For people who work in organizations and in research, work performance is essential. Work performance is crucial for businesses for two reasons (Gilboa, Shirom, Fried, & Cooper, 2008). First of all, good job performance increases production while improving the quality of customer service. A company with high performing employees can compete locally as well as globally. Employees who perform well are referred to as “lubricants” in the workplace. An employee who can work effectively in the organization can avoid and solve problems and help the organization in the manufacture of products or the provision of services, similar to the way lubricants are used in machines and devices that delay deterioration and lengthen their storage period. Employees could also serve as an incentive for their colleagues and act as good ambassadors for the company. For this reason, companies rightly value work performance and pay special attention to improving employee performance.

Second, an employee's performance within an organization is the outcome of their labor. Doing a job well and efficiently can demonstrate achievement, superiority, and determination (Van Scotter, Motowidlo, & Cross, 2000). Though poor job performance can result in unhappiness and be seen as an indication of failing, excellent job performance can bring about positive outcomes and earn the person praise. A successful work enactment often leads to future advancements and financial rewards as well as a positive perception of the employee. Therefore, it is not surprising that organizations and people strive to improve their own effectiveness (Van Scotter et al., 2000).

Organizational behavior research has concentrated on the consequences of job performance, the factors that affect both the definition of work performance and job performance itself (Cochrum-Nguyen, 2013; Gilboa et al., 2008; Kahya, 2007; Lee, 2012). To study job enactment, scholars have employed a range of measureable, qualitative, creative, and analytical methods. The early 1900s saw a significant expansion of the literature on job performance in relation to stress, behaviors, encouragement, personal qualities, job requirements, and job expectations thanks to a lot of experimental research using names like (Yerkes & Dodson, 1908).

For instance, John Dillingham Dodson and Robert Yerkes created the law in 1908 to define the connection among enactment and alertness (Yerkes & Dodson, 1908). They discovered that giving rats small electric shocks prompted them to leave a maze during an experiment with rats. Rats, on the other hand, avoided bumps if they were too intense by running in circles. This study demonstrated that rats' ability to focus improved with increasing levels of stress

and alertness, but only up to a certain shock threshold. Similar workplace observations revealed that an employee can complete the task as planned given a certain amount of work and a restricted period of time, but at some point, his or her capacity to handle stress may deteriorate or have a negative impact on performance. (Selye, 1946) asserts that the first step in managing stress is to recognize its severity and combat it with the knowledge and experience that are at one's disposal (Whitfield & Cachia, 2018). At some point, fatigue might well set in, and the person won't be able to handle it, forcing them to deal with its disastrous effects.

One of the first studies into the connection among behaviors and work performance was carried out by Hawthorne between the 1920s and the early 1930s (Wright & Cropanzano, 2004). In collaboration with the National Research Council, the experiment was carried out in 1924 at the Western Electric site in Chicago's Hawthorne neighborhood. Turner, a scientist from MIT, and Elton Mayo provided assistance, a sociologist from Australia, the business decided to carry out the experiment again in 1927. The experiment's goal was to ascertain the impact of physical factors on output. The investigation involved two teams of workers. While the test group received better lighting, the working conditions in the regulator assembly endured the same. It was discovered that employees who worked in areas with adequate lighting were more productive than those in a control group under similar circumstances. Later, the researchers altered the pay and incentives, the kind of care provided, and the working hours. Even after the lights were dimmed and the workspace was put back to its pre-experiment state, they discovered that with each modification, they found that productivity increased. Worker performance increased not only through higher pay, more free time, or other forms of surveillance, but also through the feeling that someone is monitoring and looking after their work and those around them. The term "the Hawthorne Effect" was coined as a result of studies and describes a change in behavior through observation.

Scientists have discussed the concept of work performance itself, as well as the consequences of numerous elements examined. In the following section, the definition of work performance is thoroughly explained.
RQ_1: Is there a relationship between ERI and employees' job stress?
RQ_2: Is there a relationship between ERI and how well workers perform on the job?
RQ_3: Is there any relationship between leadership styles and work performance involve job stress as a mediator?

Research Methodology
The study model monitors the positivist methodology. This study develops an explanatory approach to test and explain causal relations among the key research constructs. In doing so, this study not only focuses on the quantification of data collected and analyzed but also, theory testing by confirming or rejecting hypothesized associations through standard statistical procedures. Further, studies following quantitative research design choose between experimental and non-experimental research approaches [1] (Harwell, 2011).

[1] Experimental approach is a group of techniques deployed by researchers to manipulate the treatment conditions and control for extraneous forces while the non-experimental is comprised of techniques that measure a variable as it occurs naturally without manipulation. Non-experimental approaches to quantitative research design include survey research, causal-comparative research, and observational research (Mertler, 2015).

According to Creswell (2002), experiments and surveys are two popular traditions of inquiry in the realm of quantitative research.

Depending upon the model presented in earlier chapter the suggested research philosophy shall be positivism since the model and tentative respondents shall tend to bring conclusion close to positivism approach.

Research Approach

The strategy is deductive since the study's pattern is positivism. Moreover, the deterministic model is suggested hence the very idea of current work is to generalize the finding arrived at on basis of sample to entire representing population. The rationale behind suggesting deductive approach is based upon the nature of model (deterministic) and also the objective of current study.

Research Strategy

The survey form was used to collect data for that a well-structured questionnaire is adapted. The strategic rationale behind adaption is to modify the questionnaire (instrument) in order to bring it close to operationalized definition of constructs. This will enable researcher to precisely measure the concept and carry rest of analysis. The survey approach focused on the sampling of target population has predictive impact on the perceptions, patterns and views of the respondents. The time prospect of survey methodology involves cross sectional and longitudinal data collection of respondents by questionnaire forms. The approach is ideally adapted to generalizing observations from a section to the whole population (Babbie, 1990).

Target Population

This study's objective is to look at leadership behavior in Pakistan's medical industry. The medical industry is represented by the paramedical, nursing, and pharmaceutical industries. A population frame based on PMDC data and major cities in Sindh, Pakistan, was taken into account. Urban cities are part of study in order to cover majority of population since majority of medical setups are in urban cities.

Sampling Frame & Unit of Analysis

The study includes specific hospital employees from Sindh, Pakistan. Hospital employees are the unit of analysis from which the primary data has been gathered to adequately address the study's objectives. Hospital staff members provide the most accurate and pertinent information about the hospital environment. Convenient sampling technique is used to collect responses.

Sampling Method and Sample Size

(Cochran, 1954) proposed a statistical approach for determining appropriate sample size in order to properly validate statistical findings.

- 90% – Z Score = 1.645
- 95% – Z Score = 1.96
- 99% – Z Score = 2.326

Procedure =

$$n \circ= Z^2 \frac{Pq}{e^2}$$

((1.96) ² x .5(.5)) / (.05) ²

(3.8416 x .25) / .0025

.9604 / .0025 = 384.16

385 respondents.

Thus, a sample of 385 is created for statistical analysis using the method presented by (Kotrlik & Higgins, 2001; VanVoorhis & Morgan, 2007). The formula-derived sample size likewise fits the conditions of the first technique. The sample size of current study is 400.

Results and Findings

Demographic Profiling

In this study, demographic profiling served the purpose of summarizing data on personal and work-related characteristics of the sample subjects. The respondents' profile is as under:

Table 1

Personal Profile of Respondents

Personal Characteristics	**Number of Respondents (n = 400)**	**Valid Percentage (%)**
What category you fall?		
Medical Doctor	311	77.9
Para medical staff	50	12.5
Supporting staff	25	6.3
Other	14	3.3
What degree of formal education do you have the most?		
Secondary school certificate	9	2.3
An undergraduate degree	152	38.1
Postgraduate diploma or certificate	106	26.6
Postgraduate degree	132	33.1
What age range fall you into?		
Under 30 years	270	67.5
31-45 years	94	23.5
46-55 years	35	8.8
More than 65 years	1	0.3
Gender		
Male	199	49.8
Female	201	50.3
City of Residence		

Karachi North	159	39.8
Karachi South	120	30.0
Hyderabad	70	17.5
Sukkur	29	7.3
Others	22	5.5

This study was based on a sample of 400 male and female respondents, of which 49.8 were male respondents and 50.3 belonged to the female group. 67.5% of the sample belonged to the age group of under 30 years, 23.5% were between the ages of 31years to 45years, 8.8% were aged between 46 years and 55 years, and 0.3% were aged between 56 years to 65years while 0% were more than 65 years old. The mainstream of the defendants were medical doctors (77.9%). A reminder of the participants was para medical staff (12.5%), supporting staff (6.3%), and other (3.3%). Educational background information depicted that all the participants were well-education; thus, less likely to face issues in comprehending the survey questionnaire. 2.3% of the respondents had acquired 14 years of education (Secondary School certificate), 38.1% of had acquired 16 years of education (Under graduate degree), 26.6% had acquired 18 years of education (postgraduate diploma), 33.1 % had acquired over 18 years of education. More than 50% of those surveyed respondents were Karachi dwellers (69.8%). Others were residing in Hyderabad (17.5%), Sukkur (7.3%), and others (5.5%).

Table 2
Work-related Profile of Respondents

Work-related Characteristics	**Number of Respondents(n = 400)**	**Valid Percentage (%)**
How many employees does your organization have?		
21-50	92	23
51-100	63	15.8
101-200	51	12.8
201-250	194	48.5
Establishment of organization		
Less than 1 year ago	6	1.5
1 to 2 years ago	4	1.0
2 to 3 years ago	9	2.3
3 to 5 years ago	47	11.8
5 to 10 years ago	64	16.0
More than 10 years ago	270	67.5
Does your business have a Human Resource Management division?		
Yes	317	79.8
No	80	20.0
Exists a person in this organization whose major responsibility is human resource management and whose title contains one of the words below?		

There is no designated human resources manager	116	29
Industrial relations	8	2.0
Employee relations	33	8.3
Human Resource management	235	58.8
Others	8	2.0
Do you have a human resource information system (HRIS) at your company?		
Yes	217	54.3
No	173	43.3

Organization profiling showed that 23% of hospitals had 20-50 employees, 15.8% had 51-100 employees, 12.8% had 100-200 employees, and 48.5 had 201-250 employees. The majority of hospitals were founded more than ten years ago (67.5%), 16% were founded 5-10 years ago, 11.8% were founded 3-5 years ago, 2.3% were founded 2-3 years ago, 1% were founded 1-2 years ago, and 1.5% were founded recently. Human resource departments are present in 79.8% of organizations, while others do not. 29% of hospitals did not have a specialist manager for the HR department, 2% had an industrial relations manager as their HR manager, 8.3% had an employee relations manager, 58.8% had a human resource manager, and the remaining 2% had other managers assigned to this role. 43.3% of hospitals didn't have an HRIS department, whereas 54.3% did.

Descriptive Analysis

The variables utilized in this study's descriptive statistics (analyzed with SPSS v23) have been presented in Table. On a 5-point Likert scale, the mean score of the latent variable Job Stress mean score was 3.41 (SD= 0.55). The latent variable JP's mean score was 3.45 (SD=0.64). And finally, the latent variable ERI had a mean score of 2.84 with an SD of 1.45.

Table 3
Mean scores and SD

Variables	**M**	**SD**
Job Stress	3.4130	0.55836
Job Performance	3.4549	0.64109
ERI	2.8466	1.45008

Construct Reliability

In the absence of systematic error, reliability is equal to the squared correlation between the true construct and the true value (Jorg Henseler, 2017). ADANCO software provides three reliability factors for reflective constructions with numerous indicators. Furthermore, the composite reliability methods Jöreskog's rhoC, rhoA, and cronbach's alpha are computed. Cronbach's alpha, in particular, generally underestimates genuine reliability and should thus only be used as a lower constraint on reliability (Sijtsma, 2009).

Cronbach's Alpha

For a reflecting measurement model, Cronbach's alpha is a precise threshold estimation of the consistency of the total scores. All of the study's variables' Cronbach's alpha values are more than 0.07, therefore they are regarded as acceptable.

Table 4
Construct Reliability

Construct	Cronbach's alpha	Composite reliability (rhoa)	Composite reliability (rhoc)
Beta	0.974	0.977	0.977
ERI	0.969	0.989	0.973
js	0.708	0.711	0.836
p	0.808	0.812	0.862

The table above illustrates the reliabilities of the constructs considered in this research. All of the Dijkstra-rhoA, Henseler's Jöreskog's rhoC, and Cronbach's Alpha values are more than 0.07, indicating that the instrument employed in this work is extremely dependable. The reliability for Job Stress reliability statistics turns out to be (rho_A=0.711, $rho_{c=}$ 0.836, and α=0.708), Job Performance turns out to be (rho_A=0.812, $rho_{c=}$ 0.862, and α=0.808) displays the Cronbach's Alpha of survey questions and demonstrates that the review questions endorse the consistency test as all values are more than 0.7, indicating strong internal consistency (Šerbetar & Sedlar, 2016). The reliability assessment effects shown in the table demonstrate that the variable marks are acceptable. According to (Sekaran & Bougie, 2016), the instrument can be used for research when the alpha value is 0.7 or above.

Validity

The validities of the constructs were also analyzed through convergent and discriminant validity. Average variance extracted (AVE) is the most popular convergent validity indicator. Moreover, two criterions for discriminant validity have been devised. i.e. (Fornell & Larcker, 1981) measure and Hetro-trait mono-trait criterion (HTMT) proposed by (Dijkstra & Henseler, 2015). The tests are shown in the subsequent sections.

Average Variance Extracted (AVE)

It represents the average indicator dependability and has a value between zero and one. The AVE is commonly described as a indicator of uni-dimensionality. If the AVE of a reflective construct reaches 0.5, it is thought to be adequately one-dimensional (Fornell & Larcker, 1981). All variables have values that are substantially over the 0.5 benchmark. The convergent validity of all constructs employed in this investigation is represented in the table below.

Table 5
Convergent Validity

Construct	Average variance extracted (AVE)
Beta	0.809
ERI	0.763
js	0.63
p	0.51

The following table indicates that the convergent validity of each construct surpasses the standard value, 0.05, indicating that the constructs utilized in the study are reliable. The (AVE) for job Performance and job stress, and ERI are 0.51, 0.63, and o763 respectively.

Heterotrait-Monotrait Ratio of Correlations (HTMT)

The heterotrait-monotrait ratio of correlations (HTMT) is a method for evaluating the discriminant validity of variables. Henseler et al. (2015) recommended it for usage since it frequently outperforms comparable techniques. The lesser a pair of constructs' HTMT, the more likely they are to be distinctive. HTMT levels must be lower than 0.9, preferably less than 0.85 (Henseler, Ringle, & Sarstedt, 2015). The table below displays the HTMT values.

Table 6
Heterotrait-Monotrait Ratio of Correlations (HTMT)

	Beta	ERI	js	p
ERI	0.052			
js	0.041	0.175		
p	0.197	0.295	0.517	

ERI and Job Stress have a Substantial Association

According to this theory, occupational stress and effort-reward imbalance (ERI) are positively correlated. The outcome of structural equation modelling shows a positive and substantial structural relationship between ERI and occupational stress (=0.159 t=4.066, p=0.000). This finding suggests that there is a significant association between ERI and job stress.

ERI and Work Performance are Significantly Correlated

According to this theory, work performance and effort-reward imbalance (ERI) are positively correlated. According to the findings of structural equation modelling, there was a positive and significant structural relationship between ERI and work performance (=0.059 t=3.345, p=0.001). This finding suggests that ERI and job performance are strongly correlated.

Does the association between ERI and work performance involve job stress as a mediator? The findings show that the effort reward imbalance has a substantial indirect impact on work performance (=0.059, t=3.345, p=0.001). This leads to the conclusion that Job stress mediates the link between the imbalance in effort rewards and job performance. This supports the theory.

Constructs	**Original sample (β)**	**Sample mean (M)**	**Standard deviation (STDEV)**	**T**	**P values**	**Remarks**
ERI -> js	0.159	0.168	0.039	4.066	0.000	Supported
ERI -> p	0.059	0.063	0.018	3.345	0.001	Supported
ERI -> js -> p	0.059	0.063	0.018	3.345	0.001	Supported

Keys:β=coefficient paths, T=T statistics

Discussion

In the present research, we explored potential relationships among stressful situations and work performance. According to this theoretical perspective, employees are more likely to experience emotional distress if the costs and benefits are not mutually exclusive at work, such as high "efforts" like stress from ongoing high time pressure, interruptions, and growing job expectations, and low "rewards" such unstable employment, slim chances for promotion, low pay, and low regard from superiors or coworkers. (Van Yperen, 1996) made the theoretical claim that a professed imbalance among expenses and benefits causes stress by exhausting psychological reserves of a person.

We then proposed the hypothesis that job stress caused by high expenses and little advantages (also known as effort reward) would reduce work enactment. Research shows that effort reward imbalance influences physical symptoms and illnesses, as well as a person's perceived mental well-being (such as exhaustion and anxiety), and health behaviors (such as smoking and drinking), for reviews, see (Siegrist et al., 2004; Tsutsumi & Kawakami, 2004; Van Vegchel et al., 2005). From a business perspective, it's critical to comprehend how workplaces effect productivity outcomes as well as the health and subjective wellbeing of employees. In addition to being harmful to a person's health and wellbeing, absence of professed tradeoff between expenses and increases may also encourage negative organizational outcomes like absenteeism or turnover intents (Derycke et al., 2010; Kinman & Jones, 2008).

Considering the above, we hypothesized that ERI might negatively affect how well a work is done. This relationship may be caused by one of two mechanisms: First, a sequence of demanding workplace circumstances (like high ERI) may lead to decreased health and well-being, which could impair employees' capacity for performance (Wright & Bonett, 1997). Second, under conditions of high ERI, workers might not want to perform. The second motivational theory assumes that people won't just passively stay in a situation where there are high costs and low rewards (Adams, 1965). Additionally, hospital managers may not recognize the need to improve working conditions if they are unaware of their staff members' need for incentives and are unable to accurately judge their own behavior (i.e., rewarding staff members) (Heming et al., 2023). Employees may adjust their work enactment to reflect this imbalance if they feel that their costs and benefits at work are not reciprocal. They may attempt to regain their sense of equilibrium or express their unhappiness through withdrawal behaviors, like poorer job performance.

Conclusion

The findings of this study are believed to be useful, as we know, no studies have yet examined the relationship between ERI and job performance. On the basis of the aforementioned theoretical arguments, we proposed that ERI would have a favorable association with work enactment. It is advised particularly in hospital HRM, for hospital management to conduct performance reviews on a regular basis, offer training and additional education in line with the scientific field of HR, and modify Effort-Reward Rewards with HR work so that people are happy in their jobs. The level of perceived job performance will increase as more modules of the job are in line with HR's preferences and expectations, which will enhance HR's ability to accomplish their duties.

References

AbuAlRub, R. F., & AL-Zaru, I. M. (2008). Job stress, recognition, job performance and intention to stay at work among Jordanian hospital nurses. *Journal of nursing management, 16*(3), 227-236.

Adams, J. S. (1965). Inequity in social exchange *Advances in experimental social psychology* (Vol. 2, pp. 267-299): Elsevier.

Angerer, P., & Weigl, M. (2015). Physicians' psychosocial work conditions and quality of care: a literature review. *Professions and Professionalism, 5*(1).

Babbie, E. (1990). The essential wisdom of sociology. *Teaching Sociology, 18*(4), 526-530.

Backé, E.-M., Seidler, A., Latza, U., Rossnagel, K., & Schumann, B. (2012). The role of psychosocial stress at work for the development of cardiovascular diseases: a systematic review. *International archives of occupational and environmental health, 85*(1), 67-79.

Baumeister, R. F., Bratslavsky, E., Finkenauer, C., & Vohs, K. D. (2001). Bad is stronger than good. *Review of general psychology, 5*(4), 323-370.

Blau, P. M. (1964). Exchange and power in social life. New York: John Wiley and Sons: Inc.

Bohle, P., Quinlan, M., McNamara, M., Pitts, C., & Willaby, H. (2015). Health and well-being of older workers: Comparing their associations with effort–reward imbalance and pressure, disorganisation and regulatory failure. *Work & Stress, 29*(2), 114-127.

Bosma, H., Peter, R., Siegrist, J., & Marmot, M. (1998). Two alternative job stress models and the risk of coronary heart disease. *American journal of public health, 88*(1), 68-74.

Calnan, M., Wadsworth, E., May, M., Smith, A., & Wainwright, D. (2004). Job strain, effort-reward imbalance, and stress at work: competing or complementary models? *Scandinavian journal of public health, 32*(2), 84-93.

Calnan, M., Wainwright, D., & Almond, S. (2000). Job strain, effort-reward imbalance and mental distress: a study of occupations in general medical practice. *Work & Stress, 14*(4), 297-311.

Cavanaugh, D. J., Chesler, A. T., Jackson, A. C., Sigal, Y. M., Yamanaka, H., Grant, R., . . . Julius, D. (2011). Trpv1 reporter mice reveal highly restricted brain distribution and functional expression in arteriolar smooth muscle cells. *Journal of Neuroscience, 31*(13), 5067-5077.

Cochran, W. G. (1954). The combination of estimates from different experiments. *Biometrics, 10*(1), 101-129.

Cochrum-Nguyen, F. (2013). Predicting job performance and job satisfaction: An examination of the Five-Factor Model of personality, polychronicity, and role overload. *Unpublished Master's thesis). San Diego State University, San Diego, CA*.

Cotterell, N., Eisenberger, R., & Speicher, H. (1992). Inhibiting effects of reciprocation wariness on interpersonal relationships. *Journal of personality and social psychology, 62*(4), 658.

Coyle-Shapiro, J. A., & Conway, N. (2004). The employment relationship through the lens of social exchange.

Coyle-Shapiro, J. A., Shore, L., Taylor, M. S., & Tetrick, L. (2004). *The employment relationship: examining psychological and contextual perspectives*: Oxford University Press.

Coyle-Shapiro, J. A., & Shore, L. M. (2007). The employee–organization relationship: Where do we go from here? *Human Resource Management Review, 17*(2), 166-179.

De Jonge, J., Van Der Linden, S., Schaufeli, W., Peter, R., & Siegrist, J. (2008). Factorial invariance and stability of the effort-reward imbalance scales: A longitudinal analysis

of two samples with different time lags. *International journal of behavioral medicine, 15*(1), 62.

Derycke, H., Vlerick, P., Burnay, N., Decleire, C., D'Hoore, W., Hasselhorn, H. M., & Braeckman, L. (2010). Impact of the effort–reward imbalance model on intent to leave among Belgian health care workers: A prospective study. *Journal of occupational and organizational psychology, 83*(4), 879-893.

Dijkstra, T. K., & Henseler, J. (2015). Consistent partial least squares path modeling. *MIS quarterly, 39*(2), 297-316.

Dyrbye, L. N., Shanafelt, T. D., Sinsky, C. A., Cipriano, P. F., Bhatt, J., Ommaya, A., . . . Meyers, D. (2017). Burnout among health care professionals: a call to explore and address this underrecognized threat to safe, high-quality care. *NAM perspectives*.

Emerson, R. M. (1981). Social exchange theory. S. 30-65 in: M. Rosenburg/S. Turner. *Social psychology. Sociological perspectives. New York: Basic Books*.

Feldt, T., Huhtala, M., Kinnunen, U., Hyvönen, K., Mäkikangas, A., & Sonnentag, S. (2013). Long-term patterns of effort-reward imbalance and over-commitment: Investigating occupational well-being and recovery experiences as outcomes. *Work & Stress, 27*(1), 64-87.

Formazin, M., Burr, H., Aagestad, C., Tynes, T., Thorsen, S. V., Perkio-Makela, M., . . . Vermeylen, G. (2014). Dimensional comparability of psychosocial working conditions as covered in European monitoring questionnaires. *BMC public health, 14*(1), 1251.

Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics: Sage Publications Sage CA: Los Angeles, CA.

Gelsema, T. I., Van Der Doef, M., Maes, S., Akerboom, S., & Verhoeven, C. (2005). Job Stress in the Nursing Profession: The Influence of Organizational and Environmental Conditions and Job Characteristics. *International Journal of Stress Management, 12*(3), 222.

George, E., & Zakkariya, K. (2015). Job related stress and job satisfaction: a comparative study among bank employees. *Journal of Management Development*.

Gilboa, S., Shirom, A., Fried, Y., & Cooper, C. (2008). A meta-analysis of work demand stressors and job performance: examining main and moderating effects. *Personnel psychology, 61*(2), 227-271.

Godin, I., Kittel, F., Coppieters, Y., & Siegrist, J. (2005). A prospective study of cumulative job stress in relation to mental health. *BMC public health, 5*(1), 67.

Gouldner, A. W. (1960). The norm of reciprocity: A preliminary statement. *American sociological review*, 161-178.

Heming, M., Siegrist, J., Erschens, R., Genrich, M., Hander, N. R., Junne, F., . . . Angerer, P. (2023). Managers perception of hospital employees' effort-reward imbalance. *Journal of Occupational Medicine and Toxicology, 18*(1), 8.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the academy of marketing science, 43*, 115-135.

Homans, G. C. (1958). Social behavior as exchange. *American journal of sociology, 63*(6), 597-606.

Hoven, H., Wahrendorf, M., & Siegrist, J. (2015). Occupational position, work stress and depressive symptoms: a pathway analysis of longitudinal SHARE data. *J Epidemiol Community Health, 69*(5), 447-452.

Hussain, S. N., Hameed, A., Shah, Z. A., & Aslam, M. M. (2016). Understanding relationship between effort-reward imbalance and job stress: An evidence from Pakistani Schools. *PONTE, 72*(4), 177-191.

Kahya, E. (2007). The effects of job characteristics and working conditions on job performance. *International journal of industrial ergonomics, 37*(6), 515-523.

Kinman, G., & Jones, F. (2008). Effort-reward imbalance and overcommitment: Predicting strain in academic employees in the United Kingdom. *International Journal of stress management, 15*(4), 381.

Kivimäki, M., Leino-Arjas, P., Luukkonen, R., Riihimäi, H., Vahtera, J., & Kirjonen, J. (2002). Work stress and risk of cardiovascular mortality: prospective cohort study of industrial employees. *Bmj, 325*(7369), 857.

Kivimäki, M., Vahtera, J., Elovainio, M., Virtanen, M., & Siegrist, J. (2007). Effort-reward imbalance, procedural injustice and relational injustice as psychosocial predictors of health: complementary or redundant models? *Occupational and environmental medicine, 64*(10), 659-665.

Kotrlik, J., & Higgins, C. (2001). Organizational research: Determining appropriate sample size in survey research appropriate sample size in survey research. *Information technology, learning, and performance journal, 19*(1), 43.

Kouvonen, A., Kivimäki, M., Cox, S. J., Poikolainen, K., Cox, T., & Vahtera, J. (2005). Job strain, effort–reward imbalance, and heavy drinking: a study in 40,851 employees. *Journal of Occupational and Environmental Medicine, 47*(5), 503-513.

Labianca, G., & Brass, D. J. (2006). Exploring the social ledger: Negative relationships and negative asymmetry in social networks in organizations. *Academy of management review, 31*(3), 596-614.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*: Springer publishing company.

Lee, A. (2012). *Multiple performance measures use and job-related tension in the Indonesian higher education sector: the effect of leadership orientations use and organizational culture.* Curtin University.

Lehr, D., Koch, S., & Hillert, A. (2010). Where is (im) balance? Necessity and construction of evaluated cut-off points for effort-reward imbalance and overcommitment. *Journal of occupational and organizational psychology, 83*(1), 251-261.

López-López, I. M., Gómez-Urquiza, J. L., Cañadas, G. R., De la Fuente, E. I., Albendín-García, L., & Cañadas-De la Fuente, G. A. (2019). Prevalence of burnout in mental health nurses and related factors: a systematic review and meta-analysis. *International journal of mental health nursing, 28*(5), 1035-1044.

Mackay, C., Cox, T., Burrows, G., & Lazzerini, T. (1978). An inventory for the measurement of self-reported stress and arousal. *British Journal of Social & Clinical Psychology*.

March, J. G., & Simon, H. A. (1993). Organizations revisited. *Industrial and Corporate Change, 2*(3), 299-316.

Marmot, M., & Wilkinson, R. (2005). *Social determinants of health*: OUP Oxford.

Montano, D., Li, J., & Siegrist, J. (2016). The measurement of Effort-Reward Imbalance (ERI) at work *Work stress and health in a globalized economy* (pp. 21-42): Springer.

Nadeem, M. S., & Abbas, Q. (2009). The impact of work life conflict on job satisfactions of employees in Pakistan. *International Journal of Business and Management, 4*(5), 63-83.

Nieuwenhuijsen, K., Bruinvels, D., & Frings-Dresen, M. (2010). Psychosocial work environment and stress-related disorders, a systematic review. *Occupational medicine, 60*(4), 277-286.

Ostry, A. S., Kelly, S., Demers, P. A., Mustard, C., & Hertzman, C. (2003). A comparison between the effort-reward imbalance and demand control models. *BMC public health, 3*(1), 10.

Peter, R., Alfredsson, L., Hammar, N., Siegrist, J., Theorell, T., & Westerholm, P. (1998). High effort, low reward, and cardiovascular risk factors in employed Swedish men and women: baseline results from the WOLF Study. *Journal of Epidemiology & Community Health, 52*(9), 540-547.

Peter, R., & Siegrist, J. (1997). Chronic work stress, sickness absence, and hypertension in middle managers: general or specific sociological explanations? *Social science & medicine, 45*(7), 1111-1120.

Pikhart, H., Bobak, M., Pajak, A., Malyutina, S., Kubinova, R., Topor, R., . . . Marmot, M. (2004). Psychosocial factors at work and depression in three countries of Central and Eastern Europe. *Social science & medicine, 58*(8), 1475-1482.

Preckel, D., Meinel, M., Kudielka, B. M., Haug, H. J., & Fischer, J. E. (2007). Effort-reward-imbalance, overcommitment and self-reported health: Is it the interaction that matters? *Journal of occupational and organizational psychology, 80*(1), 91-107.

Rantanen, J., Feldt, T., Hyvönen, K., Kinnunen, U., & Mäkikangas, A. (2013). Factorial validity of the effort–reward imbalance scale: evidence from multi-sample and three-wave follow-up studies. *International archives of occupational and environmental health, 86*(6), 645-656.

Ren, C., Li, X., Yao, X., Pi, Z., & Qi, S. (2019). Psychometric properties of the effort-reward imbalance questionnaire for teachers (Teacher ERIQ). *Frontiers in psychology, 10*, 2047.

Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill building approach*: john wiley & sons.

Selye, H. (1946). The general adaptation syndrome and the diseases of adaptation. *The journal of clinical endocrinology, 6*(2), 117-230.

Šerbetar, I., & Sedlar, I. (2016). Assessing reliability of a multi-dimensional scale by coefficient alpha. *Journal of Elementary Education, 9*(1/2), 189-196.

Shore, L. M., & Coyle-Shapiro, J. A. M. (2003). New developments in the employee–organization relationship. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior, 24*(5), 443-450.

Siegrist, J. (1996). Adverse health effects of high-effort/low-reward conditions. *Journal of occupational health psychology, 1*(1), 27.

Siegrist, J. (2000). Place, social exchange and health: proposed sociological framework. *Social science & medicine, 51*(9), 1283-1293.

Siegrist, J. (2012). Effort-reward imbalance at work: Theory, measurement and evidence. *Department of Medical Sociology, University Düsseldorf, Düsseldorf, 19*.

Siegrist, J., Dragano, N., Nyberg, S. T., Lunau, T., Alfredsson, L., Erbel, R., . . . Knutsson, A. (2014). Validating abbreviated measures of effort-reward imbalance at work in European cohort studies: the IPD-Work consortium. *International archives of occupational and environmental health, 87*(3), 249-256.

Siegrist, J., & Li, J. (2016). Associations of extrinsic and intrinsic components of work stress with health: a systematic review of evidence on the effort-reward imbalance model. *International journal of environmental research and public health, 13*(4), 432.

Siegrist, J., & Rödel, A. (2006). Work stress and health risk behavior. *Scandinavian journal of work, environment & health*, 473-481.

Siegrist, J., Starke, D., Chandola, T., Godin, I., Marmot, M., Niedhammer, I., & Peter, R. (2004). The measurement of effort–reward imbalance at work: European comparisons. *Social science & medicine, 58*(8), 1483-1499.

Siegrist, J., & Theorell, T. (2006). Socio-economic position and health: the role of work and employment. *Social inequalities in health: New evidence and policy implications*, 73-100.

Siegrist, J., Wege, N., Pühlhofer, F., & Wahrendorf, M. (2009). A short generic measure of work stress in the era of globalization: effort–reward imbalance. *International archives of occupational and environmental health, 82*(8), 1005.

Sijtsma, K. (2009). On the use, the misuse, and the very limited usefulness of Cronbach's alpha. *psychometrika, 74*, 107-120.

Silva, L. S., & Barreto, S. M. (2010). Transcultural adaptation into Brazilian Portuguese of the effort-reward imbalance scale: a study with bank workers. *Revista panamericana de salud publica= Pan American journal of public health, 27*(1), 32-36.

Taylor, S. E. (1991). Asymmetrical effects of positive and negative events: the mobilization-minimization hypothesis. *Psychological bulletin, 110*(1), 67.

Tsutsumi, A., Iwata, N., Wakita, T., Kumagai, R., Noguchi, H., & Kawakami, N. (2008). Improving the measurement accuracy of the effort-reward imbalance scales. *International journal of behavioral medicine, 15*(2), 109.

Tsutsumi, A., Iwata, N., Watanabe, N., De Jonge, J., Pikhart, H., Fernández-lópez, J. A., . . . Niedhammer, I. (2009). Application of item response theory to achieve cross-cultural comparability of occupational stress measurement. *International Journal of Methods in Psychiatric Research, 18*(1), 58-67.

Tsutsumi, A., & Kawakami, N. (2004). A review of empirical studies on the model of effort–reward imbalance at work: reducing occupational stress by implementing a new theory. *Social science & medicine, 59*(11), 2335-2359.

Van Scotter, J., Motowidlo, S. J., & Cross, T. C. (2000). Effects of task performance and contextual performance on systemic rewards. *Journal of applied psychology, 85*(4), 526.

Van Vegchel, N., de Jonge, J., Bakker, A., & Schaufeli, W. (2002). Testing global and specific indicators of rewards in the Effort-Reward Imbalance Model: Does it make any difference? *European Journal of Work and Organizational Psychology, 11*(4), 403-421.

Van Vegchel, N., De Jonge, J., Bosma, H., & Schaufeli, W. (2005). Reviewing the effort–reward imbalance model: drawing up the balance of 45 empirical studies. *Social science & medicine, 60*(5), 1117-1131.

Van Vegchel, N., De Jonge, J., Meijer, T., & Hamers, J. P. (2001). Different effort constructs and effort–reward imbalance: effects on employee well-being in ancillary health care workers. *Journal of advanced nursing, 34*(1), 128-136.

Van Yperen, N. W. (1996). Communal Orientation and the Burnout Syndrome Among Nurses: A Replication and Extension 1. *Journal of Applied Social Psychology, 26*(4), 338-354.

VanVoorhis, C. W., & Morgan, B. L. (2007). Understanding power and rules of thumb for determining sample sizes. *Tutorials in quantitative methods for psychology, 3*(2), 43-50.

Whitfield, M., & Cachia, M. (2018). How does workplace stress affect job performance? An employee's perspective. *New Vistas, 3*(2), 28-33.

Wieclaw, J., Agerbo, E., Mortensen, P. B., & Bonde, J. P. (2006). Risk of affective and stress related disorders among employees in human service professions. *Occupational and environmental medicine, 63*(5), 314-319.

Wright, T. A., & Bonett, D. G. (1997). The contribution of burnout to work performance. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior, 18*(5), 491-499.

Wright, T. A., & Cropanzano, R. (2004). The role of psychological well-being in job performance:: a fresh look at an age-old quest. *Organizational dynamics, 33*(4), 338-351.

Yerkes, R. M., & Dodson, J. D. (1908). The relation of strength of stimulus to rapidity of habit-formation.