

The Role of Job Crafting Behaviors in the Relationship between Job Resources and Low Back Pain: A Proposed Framework

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ABSTRACT

The purpose of this paper is to propose a framework for understanding job crafting behaviors (JCBs) as a proactive behavioral treatment in the relationship between job resources and low back pain (LBP). Though the relationship between job resources and LBP is well-established in the ergonomics literature, studies on the role of proactive behaviors are neglected. More so, while a few studies have examined behavioral treatment and its role in to job resources - LBP relationship, none has examined JCBs in relation to job resources - LBP relationship. Hence, this paper discusses JCBs as a moderator of the job resources (staffing adequacy, social support, job control) - LBP relationships. A conceptual model supported by Job Demands-Resources (JD-R) theory is thus proposed for future empirical studies and for expanding the JCBs and ergonomics literature.

Keywords : Job Crafting Behaviors (JCBs), Low Back Pain (LBP), Staffing Adequacy, Social Support, Job Control.

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I. INTRODUCTION

LBP is a global health problem (Vos et al., 2017), whereas reported on the Global Burden of Diseases, Injuries, and Risk Factors study (GBD) (2017) LBP in the top five causes of Years Lived with Disability (YLDs) in all Socio-Demographic Index (SDI) countries and territories in 2016 (Vos et al., 2017). In addition, LBP has an enormous impact on individuals, families, community's governments and businesses throughout the world (Hoy, Brooks, Blyth & Buchbinder, 2010). Moreover, back pain is a costly health problem worldwide and treatments are often unsuccessful (Bakker, Verhagen, Van Trijffel, Lucas & Koes, 2009).

Case definition of LBP varied in term of temporality (i.e. 'current' or 'past' LBP) and topography (i.e. the anatomical location of the painful area) (Hoy et al., 2010). For example, Karahan, Kav, Abbasoglu and Dogan (2009) defined LBP as discomfort in the spinal area. Likewise, Lee, Wilbur, Kim and Miller (2008) defined LBP as symptoms produced at least moderate pain. Generally, Edwards, Hayden, Asbridge, Gregoire and Magee (2017) categorized LBP definitions as 'broad' by using a general definition of 'back pain' or 'narrow' if they use the definition of 'low back pain'. Similarly, a systematic review by Sherehiy, Karwowski and Marek (2004) highlighted that some studies investigated any occupational back pain (without differentiating between different parts of the back) experienced by subjects. However, LBP was classified as a symptom rather than a disease, and such as other symptoms (i.e. headache and dizziness) (Maher, Underwood & Buchbinder, 2016). Moreover, LBP is known as low back discomfort, which is defined as pain, aching, stiffness, burning, tingling or numbness for their low back (Habibi, Pourabdian, Atabaki & Hoseini, 2012).

Several studies in healthcare facilities showed high rates of occupational injury (McCaughey et al., 2016; Lee & Hassim, 2005; Nordin, Leonard & Thye, 2011) including WRMSDs (Centre for Disease Control and Prevention [CDC], 2001). LBP is a common and costly occupational injury among health care professionals (Mohseni-Bandpei et al., 2011). For example, WRMSDs including LBP among healthcare workers and among nursing staffs in particular, are of major concern worldwide (Attar, 2014; Azma, Rusli, Noah, Oxley & Quek, 2016; Choobineh, Movahed, Tabatabaie & Kumashiro, 2010; Davis & Kotowski, 2015.; Simon et al., 2008; Stolt, Suhonen, Virolainen & Leino-Kilpi, 2016). For instance, the prevalence rate of back pain in healthcare facilities ranged between 33% - 86% in developing and developed countries (Bos, Krol, Van der Star & Groothoff, 2007; De Castro, Cabrera, Gee, Fujishiro & Tagalog, 2009; Feng, Chen & Mao, 2007; Ghilan et al., 2013; Karahan et al., 2009; Landry, Raman, Sulway, Golightly & Hamdan, 2008; Lorusso, Bruno & L'abbate, 2007; Mohseni-Bandpei et al., 2006; Shawashi, Subih, Al Hadid & Abu Adas, 2014; Sikiru & Hanifa, 2010; Smith, Mihashi, Adachi, Koga & Ishitake, 2006).

LBP is common among nurses (Yip, 2003). According to health & safety survey of American Nurses Association (ANA) (2011), 4,614 nurses have LBP and this situation of health is affecting their decision to continue with their profession. Moreover, 56% of the nurses experiencing the musculoskeletal pain and this pain becomes worse during 1 year of their job, 80% of such nurses are frequently engaged in working with patients despite experiencing musculoskeletal pain (ANA, 2011). Nurses are not the only health care providers having experience with musculoskeletal pain including LBP (Wang, Liu, Lu & Koo, 2015), but they classified to have one of the highest rate of experience with it among other healthcare personnel, mostly back pain (Genevay et al., 2011; Nelson et al., 2006; Karahan et al., 2009; Wang et al., 2015; Harcombe, Herbison, McBride & Derrett, 2014).

Nurses spend most of their time with patients to offer appropriate health care services (Coulling, 2005; Lui, So & Fong, 2008). According to Nelson et al. (2006), providing health care services to patients is very risky task, because while on duty nurses have to lift the heavy weight of patients, sometimes they need to be in awkward position for long time. An empirical study of Humphreys (2007) reflects the weight lifted problem of nurses and stated that a nurse may have to lift 1.8 tons of load during the period of 8-hour duty. Thus, handling back pain risk faced by the nurses is highly importance to enhance a proper healthy and safe work for nurses. Since good psychological and physical health of nurses is a plus point for hospitals to provide good quality of services to their patients (Al-Hussami, Darawad, Saleh & Hayajneh, 2013).

There are many factors that may be related to an individual's risk of developing back pain (Karahan et al., 2009), these factors include the personal and environmental factors (Hoy et al., 2010). Some other researchers (Barzideh, Choobineh & Tabatabaie, 2014) discussed these factors in detail, for instance, workplace

practices of nursing profession include the heavy weight lifting, uncomfortable posture, monotonous tasks and psychological factors contribute to the LBP. Also, previous studies suggest that psychological and psychosocial factors not only increase the risk of developing LBP, but also have an adverse effect on the prognosis of LBP (Pinheiro et al., 2016). Moreover, several studies found a strong and statistically significant correlations between back pain and physical job demands (Barzideh et al., 2014; Choobineh, Rajaeefard & Neghab, 2006; Qin, Kurowski, Gore & Punnett, 2014; Smith et al., 2006). In general, jobs with greater physical demands commonly have a higher rate of reported low back injuries (Waddell & Burton, 2001). Additionally, jobs which are high in demands, low in control, and also low in social support at work carry the highest risk of illness (Karasek et al., 1998). Moreover, back pain is associated with insufficient staffing resources (Dhaini et al., 2015). This study will highlighted the importance of three main risk factors of LBP, namely: staffing adequacy, social support, and low job control.

Staffing Adequacy toward Low back pain

In the medical field, the majority of studies reported that back pain was associated with insufficient staff numbers and/or lower nurse to bed ratio (e.g. Abedini, Choobineh & Hasanzadeh, 2015; Smith et al., 2006; Dhaini et al., 2015; Lipscomb et al., 2002). For example, Smith et al. (2006) concluded that back pain was associated with insufficient staff numbers. Similarly, Dhaini et al. (2015) found that back pain was inversely associated with staffing adequacy. In the same line, Lipscomb et al. (2002) highlighted that staffing level is risk factors for MSDs of the back.

In contrast, June & Cho (2010) study concludes that MSDs injury rates were not related significantly to the nurse staffing ratio. Similarly, Yassi et al. (1995) concluded that inadequate staffing was given as the reason for just 13.8% of the injuries. Same conclusion come from Harber et al. (1994), where work descriptors did not demonstrate strong associations between staffing and back pain injury of nurses. These inconsistent findings in the previous studies show the importance to investigate the impact of staffing adequacy in the probability to have LBP within nursing population. Thus, this study will contribute to the body of knowledge by provide more insight into the relationship between staffing adequacy and the occurrence of LBP within Jordanian staff nurse.

According to JD-R proposition, job resources and job requirements determine the wellbeing of profession; moreover, job resources shield the individuals from strain of job requirements. Hence, ample job resources can reduce the strain of job requirements (Bakker & Demerouti, 2014). Based on the literature findings and the JD-R theory proposition, the relationship between the staffing adequacy and LBP in this study would be significant and negative.

Hypothesis 1: There is a significant and negative relationship between staffing adequacy and LBP among nurses in Jordanian hospitals

Social Support toward Low back pain

Social support is the support and social interaction at the workplace among workers, colleagues, and supervisors (Karasek, 1985). However, social support comprises two subscales: supervisor social support and coworker social support (Cheng, Luh & Guo, 2003; Pelfrene et al., 2001). In work contexts, social support refers to the care and consideration that individuals receive from other organization members (Mossholder, Settoon & Henagan, 2005). Low in social support at work carry the highest risk of illness (Habibi et al., 2012), while positive work environment, including high social support at work (Qin et al., 2014) was associated with a decrease in the rate of compensation claims for injuries (Dhaini et al., 2015).

The available studies that concerned the relationship between social support and the nurses' LBP were inconsistent. For instance, some studies reported a significant relation between the nurses' social support and their likelihood to have back pain (e.g. Ahlberg-Hulten, Theorell & Sigala, 1995; Feng et al., 2007; Habibi et al., 2012). On the contrary, other studies revealed an insignificant relationship between social support and the likelihood of the occurrence of LBP within the nursing population (e.g. Barzideh et al., 2014; Rahmah, Rozy, Halim, Jamsiah & Shamsul, 2008; Smith et al., 2006; Thon, Feng & Lian, 2016; Yip, 2004). These inconsistent findings in the previous studies show the importance to investigate the impact of social support in the probability to have LBP within nursing population. Thus, this study will contribute to the body of knowledge by provide more insight into the relationship between social support and the occurrence of LBP within Jordanian staff nurse.

JD-R theory proposes that job demands and job resources interact in predicting occupational wellbeing, where job resources buffer the impact of job demands on strain. Thus, job resources (i.e. social support) can mitigate the impact of job demands on strain (Bakker & Demerouti, 2014). In the same vein, Job Demands-Control-Support (JD-CS) model (Johnson & Hall, 1988) and JCQ (Karasek et al., 1998) highlighted that low social support increase job stress and may lead to adverse health consequences and injuries and carry the highest risk of illness, such as MSDs including LBP (Barzideh et al., 2014). Based on the literature findings and the JD-R theory proposition, the relationship between the social support and LBP in this study would be significant and negative.

Hypothesis 2: There is a negative and significant relationship between social support and LBP among nurses in Jordanian hospitals.

Job Control toward Low back pain

Job control (also referred to as decision latitude) (Hollmann et al., 2001; Kawakami, Kobayashi Araki, Haratani & Furui, 1995; Pelfrene et al., 2001), comprise two subscales: skill discretion and decision authority (Karasek & Theorell, 1990). In general, De Araujo and Karasek (2008) define Job control or decision latitude as "the ability to make decisions about one's work and the

possibility of being creative and using or developing new skills". However, the importance of addressing job control as determinant factor of LBP in this study was not just due to its direct effect but also because it's carry as well as an interactive effect in combination with job demands. While, jobs which are low in control, and also low in social support at work carry the highest risk of illness (Karasek, 1998), whereas, the combination of low social support, low job control may produce the greatest psychosocial job strain and also may result in the highest prevalence of low back problems (Devereux, Buckle & Vlachonikolis, 1999).

In the medical field, the available studies that concerned the relationship between job control and the nurses' LBP were inconsistent. For instance, some studies reported a significant relation between the nurses' job control and their likelihood to have LBP (e.g. Ahlberg-Hulten et al., 1995; Alexopoulos, Burdorf & Kalokerinou, 2003; Feng et al., 2007). On the contrary, other studies revealed an insignificant relationship between job control and the likelihood of the occurrence of LBP within the nursing population (e.g. Barzideh et al., 2014; Golabadi, Attarchi, Raeisi & Namvar, 2013; Habibi et al., 2012; Thon et al., 2016). These inconsistent findings in the previous studies show the importance to investigate the impact of job control in the probability to have LBP within nursing population. Thus, this study will contribute to the body of knowledge by provide more insight into the relationship between job control and the occurrence of LBP within Jordanian staff nurse.

According to JD-R theory, job resources and demands use together to predict the job wellbeing. Thus, job resources can mitigate the impact of job demands on strain (Bakker & Demerouti, 2014). In the same vein, Job Demands-Control (JDC) model (i.e. Job-Strain model) (Karasek, 1979), Job Demands-Control-Support (JD-CS) model (Johnson & Hall, 1988) and JCQ (Karasek et al., 1998) highlighted that low job control increase job stress and may lead to adverse health consequences and injuries and carry the highest risk of illness, such as MSDs including LBP (Barzideh et al., 2014). Based on the literature findings and the JD-R theory proposition, the relationship between the job control and LBP in this study would be significant and negative.

Hypothesis 3: There is a negative and significant relationship between job control and LBP among nurses in Jordanian hospitals.

Job Crafting Behaviors

According to the Foster et al. (2018), there are numerous practical guidelines published by the clinical sectors to prevent and treat the LBP. These guidelines include the use of bio-psychosocial framework to guide management with initial non-pharmacological treatment. For instance, these guidelines such as providing education about self-management, normal life activities and exercise as well psychological treatments for those with continuous symptoms. Also, these guidelines provide recommendations for the use of medicine, exercise and surgery, where the focus of these guidelines is treatment rather than the prevention (Foster et al., 2018).

Furthermore, systematic literature reviews that have been done by Dawson et al. (2007) and Van Hoof et al. (2018) investigate the effectiveness of intervention that plan to prevent back pain and injury in nursing profession. Both scholars conclude that there was no strong evidence regarding the efficacy of any interventions aiming to prevent back pain and injury in nurses. This is attributed to the fact that many of the nursing and management interventions to reduce LBP need more control over nursing working environment. Therefore, the usefulness of a new approach (i.e. non-pharmacological treatment) has been highlighted in this study in order to reduce/prevent back injuries and LBP among nurses, namely proactive behavioral treatment (i.e. JCBs) of LBP. This is justified via current global trend that greater emphasis is now placed on non-pharmacological therapy (i.e. self-management, psychological therapies, exercise therapy, cognitive behavioral therapy, spinal manipulation, massage, acupuncture, and yoga), rather than and pharmacological and surgical treatments (i.e. paracetamol, non-steroidal anti-inflammatory drugs, opioids, discectomy, laminectomy, and spinal fusion) (Foster et al., 2018). Whereas nowadays guidelines encourage active treatments that address psychosocial factors and focus on improvement in function (Foster et al., 2018). In addition, Al-Natour and Abdullah (2019) highlighted that theoretical and empirical studies neglect the role of JCBs as proactive behavioral in the treatment of LBP.

Demerouti and Bakker (2011) define the JCBs as a combination of cognitive and physical changes that an individual makes in response to their task relational boundaries. Where the physical changes indicate the change in scope or number of tasks performed and cognitive change indicate the perception of individuals towards their job. In simple words, JCBs means that how employees reshape, redesign and change their jobs. Moreover, Tims, Bakker and Derks (2012) stated that JCBs refers to the changes that employees make in response to the job resources. Thus, JCBs can be defined as a specific proactive behavior of individuals to initiate the changes in their job resources level (Tims & Bakker, 2010). In other words, JCBs enables the employees to adjust their jobs according to their professional skills, cognitive abilities and personal knowledge (Tims & Bakker, 2010). Hence, Wrzesniewski and Dutton (2001) claimed that, via JCBs activity, employees may involve in identifying the opportunities to develop their psychological resources as well as opportunities to increase their access to other sources. Therefore, JCBs can enhance the employees' well-being (Nielsen & Abildgaard, 2013; Taris, Leisink & Schaufeli, 2017).

Moreover, Bakker and Demerouti (2007) observed that generally job resources positively influence the employees' health. Also, JCBs positively influence the employees' health via changes employees doing to their tasks or relationships (Wrzesniewski & Dutton, 2001). Similarly, researchers such as Van den Heuvel, Demerouti and Peeters (2015) and Bakker & Demerouti (2017) stated that JCBs activities encouraged by short and simple interventions that involve showing workers ways of

crafting their job to make it healthier. Hence, this study wittingly designed to investigate the touch of JCBs on nurse's health (i.e. LBP).

In various fields, several studies found that JCBs were a good moderator (e.g. Petrou, Bakker & Van den Heuvel, 2016; Vogel et al., 2016). Thus, according to Baron and Kenny (1986), Frazier et al. (2004), Hair, Hult, Ringle and Sarstedt (2017) and Koo (2009) when the existing relationship between a predictor and a criterion variable are weak or inconsistent then moderator variables can be added to the model. So, this study will proposed JCBs as a moderator variable on the existing inconsistent relationship between the job resources determinants (staffing adequacy, social support, and job control) and the output strain (LBP). For instance, studies in LBP reported that the relationship between staffing adequacy and LBP was inconsistent. While some studies found a relationship between staffing adequacy and the likelihood of LBP to happen (e.g. Abedini et al., 2015; Smith et al., 2006; Dhaini et al., 2015; Lipscomb et al., 2002), other studies reported that the association between staffing adequacy and the likelihood of LBP to happen was not strong (June & Cho, 2010; Yassi et al., 1995; Harber et al., 1994). For this reason, the researcher will assess the moderating effect of JCBs on the link between the nurses' staffing adequacy and their LBP.

In addition, the available studies that concerned the relationship between social support and nurse' LBP reported that the relationship between these variables was inconsistent. For instance, some studies reported a significant relation between the nurses' social support and their likelihood to have LBP (e.g. Ahlberg-Hulten et al., 1995; Feng et al., 2007; Habibi et al., 2012). On the contrary, other studies revealed an insignificant relationship between social support and the likelihood of the occurrence of LBP in nursing population (e.g. Barzideh et al, 2014; Rahmah et al., 2008; Smith et al, 2006; Thon et al, 2016; Yip, 2004). Thus, assessing the effect of a moderator variable on the relationship between social support and LBP is important.

Finally, other studies in LBP reported that the relationship between job control and LBP within nursing populating was inconsistent. While some studies found a relationship between job control and the likelihood of LBP to happen (e.g. Ahlberg-Hulten et al., 1995; Alexopoulos et al., 2003; Feng et al., 2007), On the contrary, other studies revealed an insignificant relationship between job control and the likelihood of the occurrence of LBP within the nursing population (e.g. Barzideh et al., 2014; Golabadi et al., 2013; Habibi et al., 2012; Thon et al., 2016). For this reason, the researcher will assess the moderating effect of JCBs on the link between the nurses' job control and their LBP.

In conclusion, the moderating effect should be introduced on all relationships between the independent variables (staffing adequacy, social support, and job control) and the dependent variable (LBP), as shown in Figure 1. So, the researcher will investigate the effect of the JCBs as a moderator variable on all relations between the LBP determinants (staffing adequacy, social support, and

job control) and the LBP. Based on the above discussion the researcher hypothesizes the following:

Hypothesis 4: The negative relationship between staffing adequacy and low back pain will be stronger when consideration of job crafting behaviors is high.

Hypothesis 5: The negative relationship between social support and low back pain will be stronger when consideration of job crafting behaviors is high.

Hypothesis 6: The negative relationship between job control and low back pain will be stronger when consideration of job crafting behaviors is high

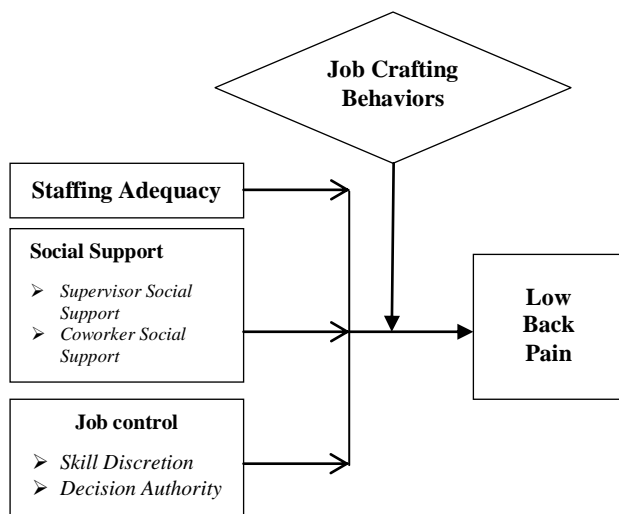


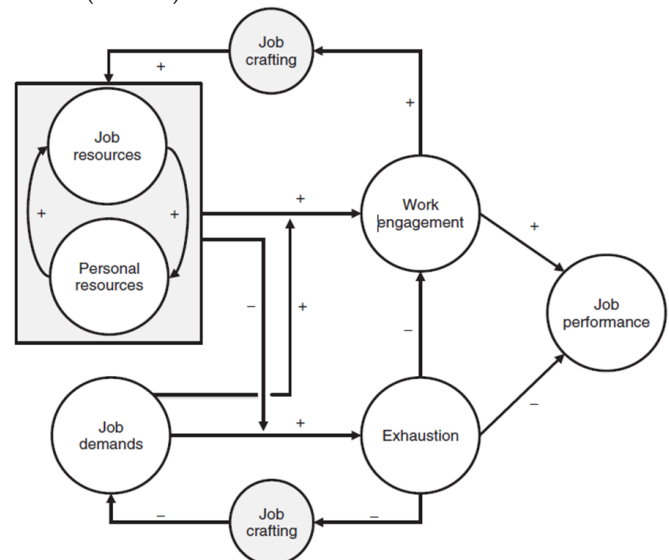
Figure 1 : Conceptual Framework of the Present Study

II. THEORETICAL SUPPORT

The current study is developed on the basis of (JD-R) theory (Bakker & Demerouti, 2014). According to JD-R proposition job resources influence the job strains and motivation in a unique ways. Hence, JD-R theory makes it easy for researchers to understand and to predict the employee wellbeing (i.e. health) and its effect on performance. Moreover, flexibility of JD-R theory allows all job characteristics and working environment to be modeled according to two categories job demands and job resources. Hence, JD-R theory is applicable to all types of work environment and can be customized to a specific profession. In JD-R theory job resources refer to those physical, social, organizational as well as psychological attributes of job which are: (a) practical functions in achieving the work objectives; (b) associated psychological and physiological costs and also decrease job demands; (c) encourage personal development, growth and learning (Bakker & Demerouti, 2007). In short, job resources are not only important for dealing with job demand, but these resources have their own importance and place in working environment.

As drawn in Figure 2, job resources and job demand used together to evaluate job wellbeing as well as job resources and job demands generate two independent processes of motivation and job impairment. Therefore, job resources considered as the crucial predictor of job wellbeing, engagement and motivation (Bakker & Demerouti, 2007). The explanations behind these interesting impacts are job resources satisfy fundamental psychological requirements, such as the requirements or needs for competence, relatedness, and autonomy (Deci & Ryan, 2000; Nahrgang, Morgeson & Hofmann, 2011)

Thus, grounded by JD-R theory, the independent variables (i.e. processes) of nurse’s social support, job control, and adequate staffing can be seen as job resources that generally work as predictors of work enjoyment, motivation, and engagement, and have a unique effects to fulfill basic psychological needs, like the needs for autonomy, relatedness, and competence which can work to reduce the health impairment processes such outcomes as health complaints (i.e. LBP). By JD-R theory, we can understand, explain, and make predictions about nurse’s health (i.e. LBP).



Source: Bakker and Demerouti (2014)

Figure 2 : The Job Demands-Resources Model.

Previous study of Tims et al., (2012), used JD-R as grounding theory to define JCBs as changes individuals may make related to their job resources. These researchers further stated that JCBs may have different forms of behaviors like, increase social work resources and increase in structural resources. An existing research (Tims, Bakker & Derks, 2013) proposed that JCBs can predict the future job-related resources and can influence the job satisfaction and engagement indirectly. Tims et al. (2013) claimed that individuals involved in JCBs reflect a positive increase in their social and structural resources. Accordingly, bottom-up job redesign adjustment of resources, in form of JCBs plays an important role as suggested by JD-R theory. In light of JD-R theory, the moderator variable (i.e. JCBs) can be work as a strong predictor of future job resources (i.e. staffing adequacy, social support, and job control) and have

indirect and positive effects on nurses' health (i.e. LBP). It's worth mentioning that the role of JCBs in the relationship between job demands and LBP have been pointed in previous work (Al-Natour & Abdullah, 2019), but the body of literature neglect to highlight the role of JCB in the relationship of job resources and LBP.

III. CONCLUSION AND FUTURE DIRECTION

The importance of worker behaviors is pointed in the existing hypothetical and experiential studies in safety literature. However, there are inadequate studies that clarify this association with LBP; this grounded the hypothetical development of this study that hypothetical and experiential studies neglect the role of the proactive behavioral treatment of LBP in form of JCBs. To the limited knowledge of researcher, there is no proposition in the past literature in the JCBs, LBP, job resources and safety literature, and more so that the proposed framework is underpinned and supported by JD-R theory. Thus, this study open the possibility for experiential studies and investigation in order to confirm the possibility to apply these in the context of work and /or demographic/social characteristics that suits the interests of the scholar.

IV. CONFLICT OF INTEREST

No conflicts of interest were reported for this study.

V. SOURCE OF FUNDING

This paper is a self-funding, and no financially supported for the current study.

VI. ETHICAL CLEARANCE

This is a conceptual article and no need for ethical clearance

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