Influence of Work Fatigue on Work Engagement Among Young Adults Working in the Service Sector

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Abstract: Fatigue is a far-reaching symptom and a subjective experience, thus making it difficult to define it. In literature, it is defined as "extreme and persistent tiredness, weakness or exhaustion either mental, physical or both" [Dittner et al 2004]. Fatigue at work is a normal daily experience. Work Engagement as defined by Schaufeli et al. (2001), is a positive, affective-motivational state of fulfilment that is characterised by vigour, dedication, and absorption. Critical long-term fatigue is linked to absenteeism and work dysfunction. The concept of job-related welfare is made up of both, being in a positive state, such as work engagement and also being low in negative states, such as the experience of fatigue. The study aimed to determine the influence of work fatigue on work engagement among young adults working in the service sector. The data was collected from 116 young Indian males and females between the age group 20-40 years working in the service sector using the Checklist Individual Strength Questionnaire and Utrecht Work Engagement Scale (UWES-9). A quantitative non-experimental factorial research design was planned, wherein two-way ANOVA analysis was used to determine if there is an interaction between the two independent variables, ie. Gender and Work Fatigue on Work Engagement. The findings indicated that the level of work fatigue significantly influenced employees' work engagement. However, there is no significant gender influence on work engagement. Further, the study also explored the effect of the interaction between gender and levels of work fatigue on employees' work engagement. It was concluded that there was no significant interaction effect influencing the employees' work engagement.

Index Terms: Work Fatigue, gender, work engagement, service sectors.

I.INTRODUCTION

Fatigue is a distressing symptom that contributes significantly to the poor health of many individuals with peripheral neuritis and other illnesses. As a result, fatigue is frequently overlooked and receives less attention in the target treatment process, as it appears to be irrelevant to the severity of the central disease processes (such as Multiple Sclerosis or Depression). Nonetheless, it's critical to remember that fatigue is widespread and can even be experienced in individuals who aren't clinically in a diseased state. Many studies have increasingly identified fatigue as a complex phenomenon and have come to a consensus and agree that it is a multifactorial disorder with physical and psychological dimensions. It is only in recent times that the systematic study of its prevalence and severity is gaining importance. A patient's self-reported questionnaire remains the centrepiece for diagnosing and measuring the severity of fatigue. Most often, a patient does not use the term "fatigued" but rather narrates a list of symptoms that indicate the prevalence of fatigue. However, as it is a subjective experience, the manner in which the symptoms are experienced varies. Thereby, fatigue is ill-defined, and there are only a few objective indicators and assessment tools available, stressing the need for high-quality research to produce a "gold standard" for measuring fatigue objectively.

Fatigue is the most typical complaint heard in a work environment. According to a survey, 20% of working people have symptoms that often fall under the umbrella term of fatigue [1]. Initially, in the field of occupational health, there did not exist a serious concern regarding the prevalence of fatigue among the working population. This was due to the fact that with work that must be done or is being done, some level of fatigue is expected, which is frequently compensated and made up for by some form of social or financial reward. Nevertheless, over time, interest in occupational health gradually increased as the negative outcomes of fatigued workers, including poor performance, decreased quality of services and products, and dropout rates came into awareness [1]. It is not unknown to the public and has been reported over and over in literature reviews that persistent feeling of fatigue may lead to a higher risk of depression, as well as cardiovascular and infectious disorders in an individual.

A sizable and expanding body of multidisciplinary literature demonstrates interest in the causes and effects of work fatigue. This interest has increased significantly as work fatigue has a cascading effect on a variety of organisational and personal outcomes, including workplace attitudes, attendance and turnover, poor performance, work injuries, and

also physical, mental, and behavioural health such as restlessness or inability to relax, loss of interest in hobbies. Winwood, Winefield, Dawson, and Lushington (2005) asserted that despite the theoretical significance and practical relevance of work fatigue, a suitable definition has not been produced, which has hampered the construction of reliable and valid measuring tools (Winwood et al., 2005, as cited in Frone & Tidwell [2]). These issues make it difficult to study work fatigue and come to conclusions that could inform and guide policymakers in formulating befitting and necessary employee well-being and welfare policies (Australian Safety and Compensation Council, 2006, as cited in Frone & Tidwell, [2]).

To determine the key characteristics of work fatigue, Frone & Tidwell for their study referred to past conceptual and empirical research on fatigue, irrespective of whether or not it was related to work. The first characteristic of work fatigue identified was that it included both reduced functional capacity and excessive exhaustion (i.e., lack of energy). The second characteristic of work fatigue identified was that the feeling of exhaustion and reduced functional capacity can occur with respect to each of the three categories of energetic resources—physical (that involves muscular movements), mental (activities involving cognitive processing), and emotional (covering expression and regulation of emotions). Work fatigue's third characteristic is that it is directly bounded to the workday. In other words, it is during the workday, that one experiences work fatigue [2]. In spite of the fact that work fatigue may result from non-work factors as well as attributional characteristics (e.g., personality; the presence of chronic illnesses) and demands stemming outside of the workplace that depletes energetic resources during the workday (e.g., dealing with chronic family problems at work). Work fatigue is expected to be the result of various job demands and resources. Based on their understanding of these characteristic features of work fatigue, Frone & Tidwell (2015) defined the term as "represents extreme tiredness and reduced functional capacity that is experienced during and at the end of the workday".

A term commonly and synonymously used and confused with fatigue is that of 'sleepiness'. It is important to recognise the difference between sleepiness and fatigue - as the etiology and treatment for both these conditions may differ (Hossain et al., 2005 [3]). Even though fatigue and sleepiness are independent symptoms, they however do share many aspects with each other. The difficulty in defining fatigue and the failure of healthcare professionals to treat fatigue as an isolated condition have both been influenced by this commonality. Although fatigue and sleepiness are both common and widespread in the general population, they are frequently confused, and many healthcare professionals do not view claims of fatigue alone as serious enough to require further evaluation or treatment (Pigeon et al., 2003 [4]). It has been challenging for patients and healthcare professionals to distinguish between fatigue and sleepiness because of the frequent use of terms like "I feel too tired", "I'm very exhausted", "I feel drained out and need to sleep" and "I'm worn-out" to describe these two ailments. Pigeon et al. (2003) advocated operationalising sleepiness as drowsiness, sleep inclination, and decreased alertness, and fatigue as weariness, weakness, and diminished energy in an effort to help differentiate between the two.

The prevalence rates for fatigue were marked in the range from 7% to 42% and this high rate of prevalence was reasoned as there is no agreed definition upon what makes up a fatigue case (Lewis and Wessely, 1992, as cited in Kennedy and Eparu, 2022 [5]). These high incidence percentages show that fatigue is a serious issue that needs to be addressed. Because fatigue symptoms/signs often go unrecognised or unreported, there is a scarcity of published literature on the epidemiology of fatigue among normal, health-seeking individuals in India. Given India's changing lifestyle, it's expected that the country's fatigue rate will be high. Individuals suffering from fatigue, which causes difficulty commencing activities or difficulties with concentration, thinking, and remembering, are thought to showcase more occurrences of low productivity and efficiency. A study by Kennedy and Eparu (2022) [5] recorded that the per cent prevalence of self-reported fatigue, calculated using the Chalder Fatigue Scale (CFS): bi-modal score, in the study population (n=1309) was 27.7 %. The study also concluded that gender was significantly associated with fatigue; with females having a higher susceptibility for fatigue as compared to males. The findings of this study show that generalised weariness is prevalent in a typical, healthy Indian metropolitan population.

Work Engagement is a promising concept for establishing foundations of occupational health psychology. Work engagement is an important factor to evaluate for an organisation as employees high in this measure tend to be proactive, have more likelihood of setting high goals, feel competent, showcase prosocial behaviour, and most importantly are often intrinsically motivated. The term 'Work Engagement' is defined as "a positive, fulfilling, work-related state of mind that is characterised by vigour (i.e. high levels of energy and mental resilience), dedication (i.e., exceptionally strong involvement in one's work), and absorption (i.e., being totally engrossed in one's work)", (Schaufeli et al. [6]). However, recent research suggests that the core of engagement behaviour constitutes only two, (ie. vigour and dedication) of the three components given in the definition. The component of 'absorption,' which refers to a short-term condition of optimal experience marked by focused, effortless attention and concentration, mind-body synchrony, perfect control, a contortion of time perception, and intrinsic satisfaction, appears to be related to the concept of flow.

The concept of work engagement is often considered antonymous to burnout. Burnout and work engagement are two separate but intertwined notions, ie. negatively correlated concepts. More notably, work engagement is characterised by a combination of high energy (vigour) and high identification (dedication), on the other hand, burnout is defined by

the opposite: a combination of low energy (exhaustion) and low identification (cynicism). As a result, work engagement and burnout are linked to two underlying psychological dimensions: energy and identity with one's work. On the subject of the link between work engagement and burnout, there are two schools of thinking. Maslach and Leiter (1997) take the first approach, assuming that engagement and burnout are opposite poles on a continuum of work-related well-being, with burnout being the negative pole and engagement representing the positive pole. Because Maslach and Leiter (1997) define burnout as a state of exhaustion, cynicism, and diminished professional efficacy; engagement is defined as a state of energy, involvement, and efficacy. In simpler terms, the three dimensions of engagement are, by definition, the polar opposites of the three comparable aspects of burnout; ie. Work Engagement is indicated by the opposite scoring pattern on the three factors of burnout as determined by the Maslach Burnout Inventory. Low ratings on the exhaustion and cynicism scales, as well as a high score on the MBI's professional efficacy measure, indicate involvement. The second school of thought as proposed by Schaufeli & Bakker (2001) categorises burnout and work engagement as two distinct concepts that should be assessed independently. Professional inefficacy, the polar opposite of the third feature of burnout, is not covered in the conceptual idea of work engagement. This is due to two factors: first, there is mounting evidence that exhaustion and cynicism are at the heart of burnout, while a lack of professional efficacy appears to play a lesser role (Maslach, Schaufeli & Leiter, 2001; Shirom, 2002, as cited in Schaufeli & Bakker [6]). Second, it has been clarified through interviews and discussions with employees and supervisors that, rather than efficacy, engagement is defined by being engaged and happily interested in one's work - a state referred to as absorption. As a result, absorption is a distinct feature of work engagement that should not be muddled with professional inefficacy.

It is crucial to understand certain major differences between the idea of work engagement and other notions of workers' well-being that already exist. The concept which is often overlapped with the understanding of work engagement is that of job satisfaction. Job satisfaction is often a more passive kind of employee well-being, whereas work engagement integrates an increased work pleasure (dedication) with substantial activation (vigour, absorption) (Bakker, 2011 [7]). The idea of "work-related flow" is also distinct from the concept of work engagement. While flow normally refers to a heightened or peak experience of pleasure and fulfilment, which may last barely for an hour or even less, work engagement generally refers to a lengthier performance episode (Bakker, 2011 [7]). Last but not least, work engagement differs from motivation in that it further includes cognitive (absorption) and affect (vigour) in addition to motivation (dedication) (Bakker, 2011 [7]). Therefore, it should come as no surprise that work engagement outperforms many earlier notions as a predictor of job performance.

Engaging workers is one of the top five management difficulties, according to a poll of 656 Chief Executive Officers (CEOs) from around the world (Was, 1999 as cited in Attridge, 2009 [8]). The majority of attempts to gauge employee engagement have been made at the individual worker level. To quantify engagement at the organisational or workgroup level, the individual scores are tallied together. The measurement of the construct of work engagement is slowly becoming more popular. Few organisations, like Ford, National City Bank, and Pitney Bowes, have started tracking various indicators of employee engagement. However, the majority of businesses continue to under-measure employee engagement at work. Nonetheless, it seems that the urge to do so is gradually growing. According to a Deloitte Touche-Tohmatsu survey (Hansen, 2007, as cited in Attridge, 2009 [8]), the majority of top senior executives feel pushed to measure non-financial metrics about their organisation more frequently, such as productivity and engagement.

According to recent studies by the Gallup Organization, 26% of US workers are deeply engaged, 54% are ambivalent about their work, and 20% are disengaged (Flying, Coffman & Harter, 2005, as cited in Attridge, 2009 [8]). Similar engagement profiles were discovered by Towers Perrin in a 2003 study, where they reported that 19% of US workers were classified as being disengaged, 54% as moderately involved, and only 17% as extremely engaged (Towers Perrin, 2003, as cited in Attridge, 2009 [8]). Employee disengagement at work affects workers all across the world, and is not just a phenomenon seen in the United States alone.

More than 50,000 employees from 59 international organisations participated in a survey on work engagement levels performed by the Corporate Leadership Council in 2002, as cited in Attridge, 2009 [8]. According to this report, 10% of workers worldwide are completely disengaged and not devoted to the mission of their organisations. More than 85,000 workers from 16 different nations provided information for the 2005 Towers Perrin study. According to this study, only 14% of workers worldwide were deemed to be highly engaged, while 62% of workers were regarded to be somewhat or moderately engaged. Additional discoveries from this study revealed that there was a large variation between geographic regions in the proportion of their workforce that was highly engaged, with Mexico (40%) and Brazil (31%) being on the higher end of the measure, Europe (11%) and Asia (7%) are at the lower end, followed by the United States (21%) and Canada (17%) in the middle. The vast variation in work engagement levels between nations shows that there is a room and scope for more research into how work engagement varies between cultures (Towers Perrin, 2006, as cited in Attridge, 2009 [8]).

Everyone, regardless of skill, knowledge, or training, is affected by fatigue. It has a direct impact on people's physical and mental capacities to execute even basic tasks. The most prevalent effects of fatigue include reduced task motivation, longer response time, decreased alertness, poorer concentration, poor psychometric coordination, memory and

information processing difficulties, and poor judgement (Sadeghniiat-Haghighi and Yazdi, 2015 [9]). In the United States, the cost incurred by fatigued workers is estimated to surpass more than 18 billion dollars per year (Sadeghniiat-Haghighi and Yazdi, 2015 [9]). Work-related well-being is now better appreciated, not just as the absence of strain like fatigue or burnout, but also as a truly positive condition, such as work engagement, thanks to the advent of positive psychology (Seligman and Csikszentmihalyi, 2000 as cited in Schaufeli and Bakker [6]).

Though the rapidly expanding service sector makes India stand out among developing nations, critics have expressed concerns about the quality and sustainability of this expansion and its consequences for economic development. In India, the service industry began at an exceptionally low level 15 years ago. However, since the percentage of services has only converged to the global average, it is unclear if it will continue to expand quickly. India has depended more on services than preceding countries, who expanded by exporting labour-intensive manufactured goods. India stands out for the dynamism of its service sector, despite the fact that there are other emerging markets where the proportion of services to GDP is higher than the proportion of manufacturing (Eichengreen & Gupta, 2011 [10]).

India's dynamic services sector has risen significantly over the last decade, accounting for about 72.4% of GDP growth in 2014-15. Unlike other emerging countries, India's growth has been driven by the services sector. India's Gross Value Added (GVA) was 54% accounted for by the services sector (GVA). Its growth rate slowed to 7.5% in 2018-19, down from 8.1% the previous year. Tourism, trade, hotels, broadcasting services, and many other industries experienced a slowdown. In 2018-19, In 2017-18, India received 10.6 million international visitors, up from 10.4 million the previous year. India's tourism-related foreign exchange profits were US$27.7 billion in 2018-19, down from US$28.7 billion in 2017-18 (as cited in indiabudget.gov). The categories of financial, real estate, and professional services accelerated. In 2018-19, many of the high-frequency indicators, including bank credit to the services sector, slowed (as cited in indiabudget.gov). With the onset of the COVID pandemic in 2019, slowing down of the global economy, there was a huge impact marked socially, economically and also on the mental health of employees. India is on track to recover quickly and restore to pre-COVID levels. With the increasing prospects of accelerated economic normalisation, the subject of employees' work and well-being has now become a pressing concern.

The current corporate climate is complicated by worries about employee engagement, difficulties with headhunting, turnovers, and countless other external dangers (Parzefall & Hakanen, 2010, as cited in , Jena, Bhattacharyya and Pradhan, 2017 [11]). The Fortune 500 companies are seen to have important characteristics that make them the best places to work, including work engagement (Markos & Sridevi, 2010, as cited in Jena, Bhattacharyya and Pradhan, 2017 [11]). Numerous empirical research confirms that work "engagement" and "commitment" provide businesses with a long-term competitive edge (Christian, Garza & Slaughter, 2011; Rich, Lepine & Crawford, 2010, as cited in Jena, Bhattacharyya and Pradhan, 2017 [11]). Work engagement has
been cited in studies as a potential precursor to organisational commitment (Posthuma, Campion, Masimova & Campion, 2013, as cited in Jena, Bhattacharyya and Pradhan, 2017 [11]).

Rationale of the Study

Fatigue is a workplace hazard that has been linked to a worker's safety and health. It has an impact on the employee's and also his or her coworkers' health and safety. With the surfacing of an unforeseen pandemic and now the dawn of the recovery phase, changes in organisational culture, working styles, skill demands, consumer behaviour, mundane and sedentary lifestyle all contribute to employee fatigue. On the one hand, essential service sector personnel had to risk their lives and labour despite their weariness, while non-essential service sector employees had to find ways to thrive and sustain themselves in the hostile environment. Regardless of whether fatigue is a precursor to burnout, which could be considered the polar end of the work engagement continuum or viewed as two distinct notions, an employee's work engagement is an important feature for an organisation to consider for its own benefit. Because the service sector is one of the key markets for our country's economic growth, it is critical that we evaluate its employee work and well-being. With the changing of societal gender norms, it's also important to remember that subjective feelings of experiences, such as fatigue, vary in both males and females. In light of these considerations, it is vital to assess the influence of gender and fatigue on work engagement in young adults working in the service sector.

Significance & Scope of the Present Study

Due to high demand employment, extended duty hours, disturbed sleep, and aggregated sleep debt, all of which are typical in many workplaces, worker fatigue is a serious concern in modern industry. Fatigue is the result of the interaction of several factors, including the amount of time spent awake, the time of day, and the amount of labour done. The arrival of the work-from-home lifestyle has rendered the office time statement obsolete. As a result, recognising the prevalence of workplace fatigue becomes increasingly critical for maintaining an organisation's optimal health and performance. For effective workplace fatigue management, a thorough understanding of the sleep cycle - circadian rhythm, the mechanics of acute and accumulated sleep loss, and recovery is required. This study can aid in further development and understanding of occupational sleep medicine, a new discipline of sleep medicine. The goal of

occupational sleep medicine is to keep workers as productive and safe as possible in the workplace. The fatigue risk management system (FRMS) is a comprehensive strategy in managing worker fatigue that is derived from the research findings on sleep knowledge (Sadeghniiat-Haghighi and Yazdi, 2015 [9]). This research would provide insight into the influence of fatigue in the workplace, with a focus on its association with work engagement, in order to significantly minimise errors and workplace risks in the Indian service sector.

Moreover, this study is determined to support the notion that health-related studies must not just focus on a disease's clinical symptoms and signs, but also on aspects that signify wellness and truly positive life quality, such as work engagement in this case. In practice, this study could also aid in the making of workplace interventions that reduce fatigue, burnout, and increase work engagement that may have an impact that extends beyond the office and improves employee overall well-being.

II.REVIEW OF LITERATURE

Theoretical Framework -

Theory of Human Fatigue

Workload and time have been linked to fatigue in numerous studies, although there is no functional relationship between the two. Shaheen Ahmed conducted a workplace study with sixteen participants to evaluate the workload-time-fatigue relationship for sedentary tasks. The findings show that fatigue is a hyperbolic function of workload and time for sedentary tasks, implying that there is an underlying interaction-only relationship between workload, time, and fatigue (Ahmed, Babski-Reeves, DuBien, and Webb, 2014 [12]). As a result, if the task is light, an individual can work for longer lengths of time, and vice versa. Time interacted strongly with the workload factor in the stepwise regression analysis, demonstrating that the time patterns in fatigue measures are dependent on other factors. (Ahmed, Babski-Reeves, DuBien, and Webb, 2014 [12]). Previous studies have also hypothesised there might be a probable hyperbolic relationship between time and workload (El Falou, et al., 2003; Jensen, 2003; stensvik, et al., 2009 as cited in Ahmed, 2014 [12]), similar to localised muscle fatigue curves (Rohmert's curves) (Edwards, 1981; Hill, Poole, & Smith, 2002; Monod & Scherrer, 1965 as cited in Ahmed, 2014 [12]) Furthermore, the specified weight restrictions for manual material handling in physical ergonomics provide an indicator of the hyperbolic relationship as proposed in this work (Snook, 1969, 1991 as cited in Ahmed, 2014 [12]). More interestingly, the asymptotes parallel to both axes show that if there was no workload, an individual would not report fatigue for a long time (Ahmed, Babski-Reeves, DuBien, and Webb, 2014 [12]). In contrast, if the workload was too heavy for that person, he or she would become fatigued in a short period of time. To conclude, "the higher the intensity of a workload, the faster it generates weariness, and vice versa," according to the observed hyperbolic relationship.

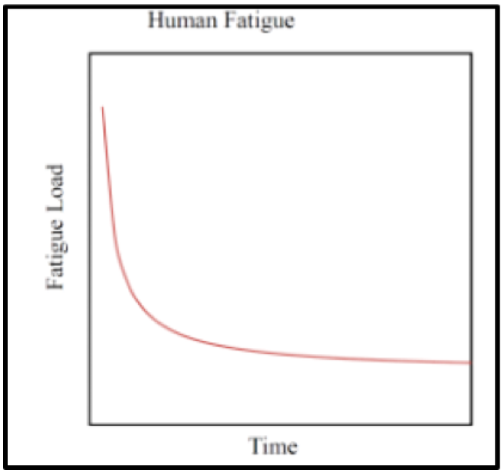

Figure2.1

The proposed hyperbolic relationship between the workload and time to explain fatigue.

Note. This graph was produced by Ahmed in 2014. From "A Proposed Relationship between Time and Load to Quantify Fatigue" by Ahmed, S., Babski-Reeves, K., and DuBien, J., and Webb, H. (2014). Proceedings of the 2014 International Annual meeting of Human Factors and Ergonomics Society. Copyright © 2022 Shaheen Ahmed.

The Job Demands-Resources Model

Work engagement is predicted by the Job-Demands Resources model to be related to job resources, personal resources, health, and outcomes. The Job Demands-Resources (JD-R) model is based on the assumption that, while each occupation may have its own set of risk factors for job stress, these factors can be classified into two broad categories: Job Demands and Job Resources, resulting in an overarching model that can be applied to a variety of occupational settings (Bakker and Demerouti, 2007 [13]). While job demands aren't necessarily negative, they might become stressful

if meeting them involves a significant amount of effort from which the individual hasn't fully recovered (Meijman and Mulder, 1998 as cited in Bakker, Demerouti, 2011 [14]). Job resources, on the other hand, are useful in and of themselves, not just for meeting job requirements.

Dual Processes

A second premise of the JD-R model is that the development of job strain and motivation is influenced by two distinct underlying psychological processes (see Fig. 2). The first process being, the health-impairing phase - poorly designed tasks or long-term job demands (e.g., work pressure, emotional expectations) drain employees' mental and physical resources, resulting in energy depletion (i.e., exhaustion) and health issues (e.g. Demerouti et al., 2000, 2001a, b; Leiter, 1993 as cited in Bakker, Demerouti, 2011 [14]). Under the effect of environmental demands, people are said to utilise performance-protection tactics (mobilisation of sympathetic activation and/or increased perceived effort). As a result, the higher the activation and/or effort, the higher the individual's physiological expenses. Compensatory expenses, strategy changes, and fatigue after-effects are examples of these. Such a compensatory method may deplete an individual's energy in the long run, eventually leading to a breakdown.

The model's second process is motivational in nature, in which workplace resources are thought to have motivating potential, resulting in strong work engagement, low cynicism, and outstanding performance. Job resources can either play an intrinsic motivational function by fostering employee growth, learning, and development, or they can play an extrinsic motivational role by assisting in the achievement of work objectives (Demerouti and Bakker, 2011 [14]). The presence of job resources leads to involvement in either scenario, whether through the satisfaction of basic needs or the achievement of work goals, but their lack elicits a cynical attitude toward work (see Fig. 2).

Interactions Between Job Demands and Resources

The interaction between job demands and job resources, according to the JD-R model, is critical for the development of job strain and motivation (Demerouti and Bakker, 2011 [14]). The Demand-Control Model by Karasek (1998) and the Effort-Reward Imbalance Model by Siegriest (1996) both support the buffering role of job resources. The JD-R model broadens existing models' perspectives by proposing that multiple forms of job demands and job resources may interact to predict job strain (Demerouti and Bakker, 2011 [14]).

Kahn and Byosiere (1992) make an assertion that the buffering or interaction effect can take place between any pair of variables in the stress-strain sequence, which is compatible with the buffer hypothesis. They suggest that aspects of the work environment, as well as personal traits, might buffer the impact of a stressor (Kahn & Byosiere, 1992, p. 622 as cited in Bakker, Demerouti, 2011 [14]).

The fourth and most current proposition of the JD-R model is that when job demands are high, job resources have a greater impact on motivation or work engagement (Demerouti and Bakker, 2011 [14]). This is the so-called coping hypothesis in action (Bakker, Hakanen, Demerouti & Xanthopoulou, 2007; Bakker, Van Veldhoven & Xanthopoulou 2010; Hakanen, Bakker, & Demerouti, 2005 as cited in Bakker, Demerouti, 2011 [14]). Bakker et al. (2007) discovered that job resources are most useful in maintaining work engagement when job demands are high. In other words, the coping hypothesis proposes that people will be more likely to use resources as a coping mechanism or stress-reduction behaviour when they are stressed (Demerouti and Bakker, 2011 [14]).

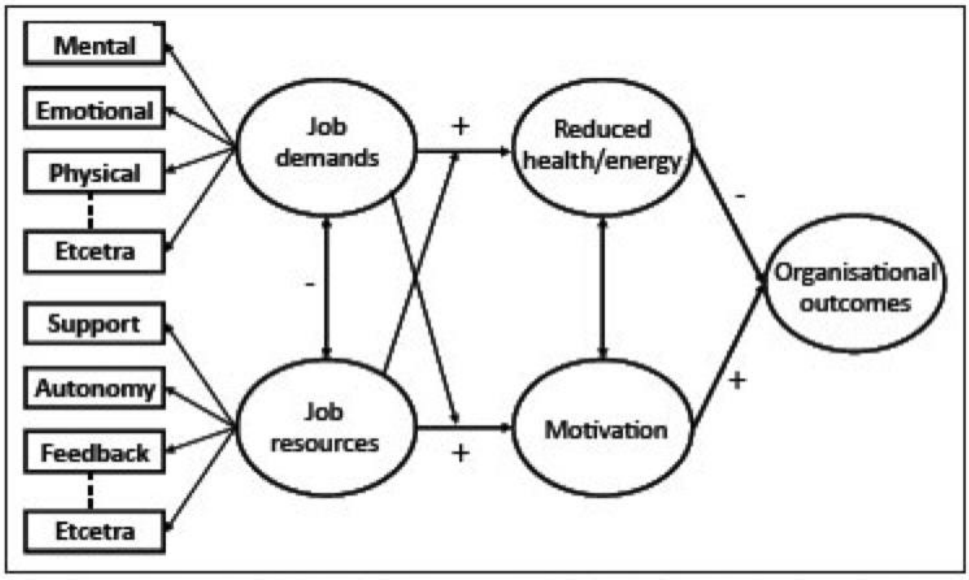

Figure2

Two different underlying psychological processes play a role in the development of job-related strain and motivation.

Note. This diagram was produced by Bakker & Demerouti in 2011. From "The Job Demands-Resources model: challenges for future research" by Evangelia Demerouti & Arnold B. Bakker. (2011). SA Journal of Industrial Psychology, 37(2), 01-09. Copyright licensed under a Creative Commons Attribution License.

Conceptual Framework

The below fig. 3 represents the conceptual framework proposed for this research study.

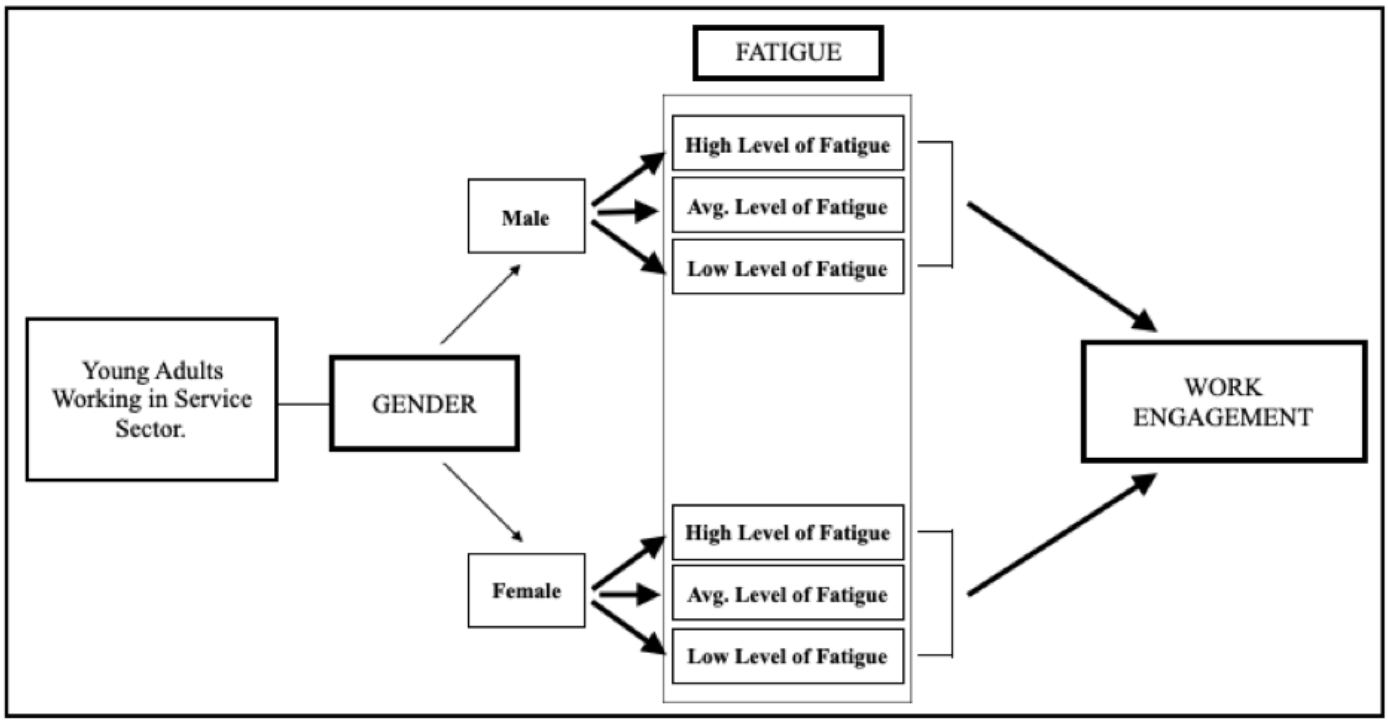

Figure 3
Proposed Conceptual Framework

Research Gap

An exhaustive overview of the literature on fatigue suggests that the general population underlines the need for further studies on the construct to better understand the physical, financial, emotional, and social effects of fatigue. The term fatigue, which is hard to define, is most often studied as a self-perceived concept that has been largely studied in the Western world. However, there is no denying of its prevalence in urbanising India and that multiple causal and effect factors are associated with this phenomenon. There is a scarcity of published studies that support the link between fatigue and work engagement, particularly in Indian work settings.

III.METHODOLOGY

Aim

To study the influence of gender and work fatigue on work engagement among young adults working in the service sector.

Hypotheses

H1: There is no significant influence of gender on work engagement among young adults working in the service sector.

H2: There is a significant influence of levels of fatigue on work engagement among young adults working in the service sector.

H3: There is no significant interaction between gender and fatigue on work engagement among young adults working in the service sector.

Research Design

The present research is a quantitative study with a non-experimental factorial research design planned, wherein two-way ANOVA analysis is used to determine if there is an interaction between the two independent variables or factors, ie. Gender and Work Fatigue on Work Engagement (dependent variable). Each factor is split into two levels. Therefore, the possible combinations of all the factors would be 2x3. It can then be used to establish how much the two independent variables interact to influence the dependent variable.

Sample

Male and female young adults between the age group 20-40 years working in the Indian service sector (associated with the same organisation for a minimum of 1 year and/or maximum of 12 years). The data collected - study was conducted in the year 2022.

The total sample consisted of 163 responses (73 responses through Google Forms and 90 through offline distribution of the questionnaires), out of which 116 were usable that fulfilled all the requirements of inclusion criteria. Of the final 116 responses, 57 were males and 59 were females; 60 were from essential service sectors and 56 from non-essential service sectors working in India. Out of the 116 respondents, 21 obtained a low score on Levels of Fatigue, 75 obtained an average score on Levels of Fatigue and 20 obtained a high score on Levels of Fatigue.

Inclusion criteria

1. Young adults within the age range of 20 to 40 years employed in India.
2. Young adults working in the service sectors (Banking & Finance, Tourism and Hospitality Sectors).
3. Young Adults who have been employed with the same organisation for a minimum of 1 year.
4. Young adult employees who are married and have one to three children only.
5. Young adults who are proficient in the English language.

Exclusion Criteria

1. Young adults who have less than 1 year or more than 12 years of work experience within the same organisation.
2. Young adults who are working part-time/self-employed.
3. Young adults who are currently posted overseas or onsite for work.
4. Young adult employees who are suffering from any neurological condition or muscular conditions.
5. Young adult employees who are undergoing therapy or are in long-term treatment for any health conditions.

Tools for Data Collection

A sociodemographic sheet was used to collect certain basic information to determine participants' eligibility.

The Checklist Individual Strength Questionnaire (CIS) - developed in 1994 by the Department of Medical Psychology at University Hospital Nijmegen in the Netherlands. It's a 20-item self-reported questionnaire in which a person rates how much a statement pertains to him or her on a seven-point scale. The statements are on fatigue that occurred in the past two weeks. CIS was created to assess a variety of characteristics and aspects of fatigue. It has four dimensions: the subjective experience of fatigue, reduction in motivation, reduction in activity, and reduction in concentration. A CIS total score can be obtained by summing the four dimensions score together. Higher the total suggests that one is more fatigued, has more concentration issues, is less motivated, and is less active.

Utrecht Work Engagement Scale (UWES): Wilmar Schaufeli and Arnold Bakker created the quantitative UWES estimating approach in the early 2000s in the Netherlands. The three dimensions of job engagement are examined by UWES scales: vigour, dedication, and absorption. All things in these three sub-dimensions were rated on a seven-point Likert scale, with 0 equaling "Never" and 6 equaling "Always."

IV. RESULTS & ANALYSIS

The frequencies were calculated for the socio-demographic variables, followed by descriptive statistics, along with measures of skewness and kurtosis to check the distribution of data. The data was thereafter subjected to inferential statistics to test the hypothesis proposed using the analysis technique of two-way ANOVA (Analysis of Variance) with the Statistical Package for Social Sciences (SPSS) software version 16.0 by IBM.

Table 1 shows the gender distribution in the current sample (N=116). Males make up 49.1% of the total responses, and females comprise 50.9%. The gender distribution is nearly fair and equal between the two genders.

Table 1 Frequency table showing gender distribution in the sample.

Gender Frequency		
Gender	**Frequency**	**Percent**
Male	57	49.1%
Female	59	50.9%
Total	116	100%

Table 2 shows the distribution of the service sector, ie. essential services and non-essential services in the current sample (N=116). The 'essential services' which included responses from employees working in the Banking and Finance Sectors comprised 51.72% of the total responses; the category of 'non-essential services' included responses from Tourism and Hospitality Sector comprising 48.28%. The responses collected were almost equal between the two sectors.

Table 2 Frequency table showing the distribution of essential and non-essential service sectors in the sample.

	Service Sector Frequency	
Service Sector	**Frequency**	**Percent**
Essential Service Sector	60	51.72%
Non-essential Service Sector	56	48.28%
Total	116	100%

As there were no norms present to determine the level of work fatigue in young Indian adult samples. Therefore for this study, the norms were established using the mean - standard deviation. The descriptive statistical run for work fatigue score showed that the mean score of work fatigue was 61.03, and the standard deviation was 19.382. Thus, as shown in Table 3, scores falling in the range between 42-80 were categorised as 'Average Level of Fatigue'; and scores equal and below to 42 were categorised as 'Low Level of Fatigue'; similarly scores equal to and above 81 were categorised as 'High Level of Fatigue'.

Table 3 Norms for Levels of Work Fatigue in Young Indian Adult Sample.

Levels of Work Fatigue	**Score Range**
High Level of Fatigue	81 & above
Average Level of Fatigue	42-80
Low Level of Fatigue	41 & below

Table 4 shows the distribution of levels of fatigue in the current sample (N=116). The presence of 'High Level of Fatigue' comprises 17.24%, and the presence of 'Low Level of Fatigue' comprises 18.10% of the total sample studied. It can be observed that a large majority, ie. 64.66% of the respondents fall under the 'Average Level of Fatigue' category.

Table 4 Frequency table showing the distribution of levels of fatigue in the sample.

Levels of Fatigue	**Frequency**	**Percent**
High Level of Fatigue	20	17.24%
Average Level of Fatigue	75	64.66%
Low Level of Fatigue	21	18.1%
Total	116	100%

Table 5 shows the gender distribution in levels of fatigue in the current sample (N=116). Out of the 57 males sampled for the study, 7 individuals scored 'High Level of Fatigue', 36 individuals scored 'Average Level of Fatigue' and 14 individuals scored 'Low Level of Fatigue'; ie. 12.29%, 63.15% and 24.56% of the total male sample population respectively. Out of the 59 females sampled for the study, 13 individuals scored 'High Level of Fatigue', ie. 22.04% of the total female sample population; 39 individuals scored 'Average Level of Fatigue', ie. 66.10% of the total female sample population; and 7 individuals scored 'Low Level of Fatigue', ie. 11.86% of the total female sample population. It can be observed that in both male and female gender, most of the sample population falls under the category of 'Average Level of Fatigue'. However, the percentage of the population falling under 'High Level of Fatigue', when compared to 'Low Level of Fatigue' is more in females than in males, and vice versa; ie. the percentage of the population falling under 'Low Level of Fatigue', when compared to 'High Level of Fatigue' is more in males than in females. The above Fig. 4 depicts the same distribution in the form of a bar chart.

Table 5 Frequency table showing gender distribution in levels of fatigue in the sample.

Levels of Fatigue	**Male**	**Female**
High Level of Fatigue	7	13
Average Level of Fatigue	36	39
Low Level of Fatigue	14	7
Total	57	59

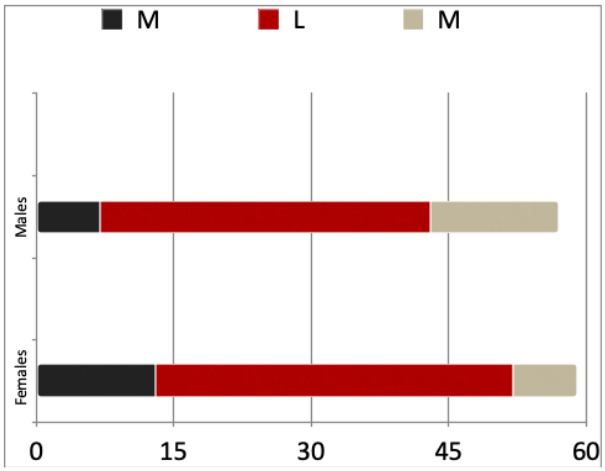

Figure 4
Bar chart depicting the gender distribution in levels of fatigue in the sample.

For this research sample (N=116), the group of females (M=65.03, SD=17.780, N=59) obtained higher scores as compared to the males (M=56.89, SD=20.242, N=57). From Table 6, it can be observed that F = 0.420, p = 0.518, which is not significant and hence, equal variance is assumed. It can further be observed that the t = -2.303 (p = 0.023) which is significant at the 0.05 level. Therefore, it can be concluded that there is a significant gender difference in work fatigue scores.

Table 6 Frequency table showing gender distribution in levels of fatigue in the sample.

Test Variable	**Test Variable**	**N**	**Mean**	**SD**	**F**	**Sig.**	**t**	**Sig. (2-tailed)**
Work Fatigue	Males	57	56.89	20.242	0.420	0.518	-2.303	0.023
	Females	59	65.03	17.780				

The following tables are the results and analysis of descriptive statistics (mean and standard deviation) for Work Fatigue (IV) and Work Engagement (DV). Additionally, skewness and kurtosis for the dependent variables, that is for Work Engagement scores were analysed to check the distribution of data and determine whether a parametric test or a non-parametric test would be more appropriate for analysis.
Table 7 shows the descriptive statistics for the independent variable, levels of Work Fatigue in the current sample (N=116). The mean (M) was calculated as 61.03, and standard deviation (SD) was 19.382.

Table 7 Descriptive statistics showing the mean and standard deviation for Work Fatigue scores.

Independent Variable	N	Mean	SD
Levels of Work Fatigue	116	61.03	19.382

Table 8 shows the descriptive statistics for the dependent variable, Work Engagement in the current sample (N=116, M=38.72, SD=10.068). The skewness (-0.433) and kurtosis (0.256) of the scores fall between the range of -1.96 to +1.96, indicating the distribution of data is normal and thus, a parametric test can be conducted for the data set.

Table 8 Descriptive statistics showing the mean, standard deviation, skewness and kurtosis for Work Engagement scores.

Dependent Variable	N	Mean	SD	Skewness	Kurtosis
Work Engagement	116	38.72	10.068	-0.433	0.256

Inferential Statistics

The following section presents the results and analysis obtained using the statistical test of ANOVA (Analysis of Variance) as per the study's objectives and hypothesis. The analysis carried out for the study was using two-way ANOVA (Analysis of Variance); to compare the mean difference between the groups that have been split within the independent variable. The primary purpose for opting for two-way ANOVA is to understand if there is the presence of an interaction effect between the two independent variables on the dependent variable.

Table 9 shows descriptive statistics including mean and standard deviation for Work Engagement across groups (gender: male and female). The male sample (N=57), shows the mean for low (42.43), average (39.36), and high (27.57) scorers for levels of 'Work Fatigue'. Similarly, the female sample (N=59), shows the mean for low (46.14), average (39.79), and high (31.77) scorers for levels of 'Work Fatigue'.

Table 9 Descriptive statistics showing the mean and standard deviation for Work Engagement across groups.

Dependent Variable	IV : Gender	IV : Levels of Work Fatigue	N	Mean	SD
Work Engagement	Male	Low	14	42.43	11.915
		Average	36	39.36	8.222
		High	7	27.57	9.846
		Total	57	38.67	10.239
	Female	Low	7	46.14	4.451
		Average	39	39.79	9.747
		High	13	31.77	9.121
		Total	59	38.78	9.988

Table 10 shows Levene's Test of Homogeneity of Equality of Error Variances. The Levene's statistics score [F(5,110)=0.704] is not significant (p=.621) at the 0.05 level of significance, thus accepting the hypothesis assumed by the equality of variance. It shows that the variances in the mean are equal and there is no difference in variances of both groups.

Table 10 Levene's Test of Homogeneity of Variance.

F	df1	df2	Sig.
0.704	5	110	0.621

*p<0.05

Table 11 shows the test of between subjects' effects. For the dependent variable, Work Engagement, Gender (F(1)=1.651) is not significant at 95% confidence interval (p=0.202), indicating that gender does not have a significant effect on work engagement. Thus, the null hypothesis H1, which states 'there is no significant influence of gender on work engagement among young adults working in the service sector' is not rejected.

Work Fatigue (F(2)=12.268) is significant (p=<0.001) at the 0.05 level of significance. This indicates that the level of work fatigue has a significant effect on work engagement. Thus, the alternate hypothesis H2, which states ' there is a significant influence of levels of fatigue on work engagement among young adults working in the service sector' is not rejected.

The interaction of IVs, ie. interaction between gender and work fatigue (F(2)=0.445) is not significant (p=0.642). Thus, indicating that there is no significant combined interaction effect of gender and work fatigue on work engagement (p>0.05). Therefore, the null hypothesis H3 which states 'there is no significant interaction between gender and fatigue on work engagement among young adults working in the service sector' is not rejected.

Table 11 Two-way ANOVA analysis showing Test of Between-Subjects Effects.

Dependent Variable	Independent Variables	df	F	Sig.
Work Engagement	Gender	1	1.651	0.202
	Levels of 'Work Fatigue'	2	12.268	<0.001
	Gender*Work Fatigue	2	0.445	0.642

*p<0.05

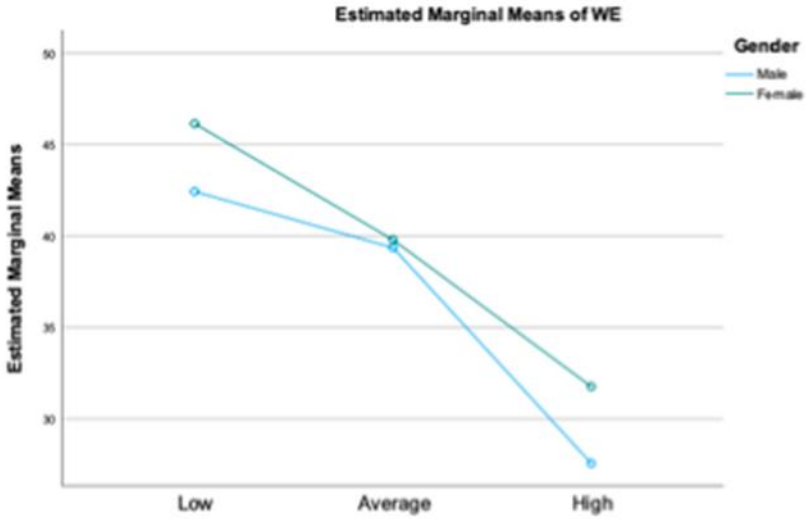

Figure 5
Line graph showing the estimated means of WE

Table 12 shows the post hoc analysis of Tukey Honestly-Significant-Difference (Tukey HSD), as equality of variance is assumed. As ANOVA provides insight into which parameters are significant, the post hoc testing using Tukey HSD tells which levels of work fatigue are actually different from one another. For the independent variable mean differences (I-J); low-average (I-J= 4.08) and average-low (I-J= -4.08) are not significant (p>0.05). Thus, there is no significant difference between low and average levels of Work Fatigue. For the independent variable mean differences (I-J); low-high (I-J= 13.37), average-high (I-J= 9.29), high-low (I-J= -13.37) and high-average (I-J= -9.29) are significant (p>0.05). Thus, there is a significant difference between low and high levels of Work Fatigue, and also between average

and high levels of Work Fatigue. The low-high and average-high levels of Work Fatigue can be said to have a significant interaction with Work Engagement.

Table 12 Post-Hoc Analysis (Tukey HSD) for Work Engagement and Work Fatigue.

Independent Variable		**Dependent Variable Work Engagement**	**Sig.**
Work Engagement (I)	Work Fatigue (J)	Mean Difference (I-J)	
Low	Average	4.08	0.182
	High	13.37 *	<.001
Average	Low	-4.08	0.182
	High	9.29 *	<.001
High	Low	-13.37 *	<.001
	Average	-9.29 *	<.001

Additional Analysis

Table 13 shows the correlation between Work Fatigue and Work Engagement. For this research sample (N=116), the Work Fatigue (M=61.03, SD=19.382) and the Work Engagement (M=38.72, SD=10.068) showed a Pearson Correlation (r value) of -0.419 with a significance value less than 0.001. That is, the correlation value is significant. This signifies that variables Work Fatigue and Work Engagement have a significant inverse relationship with one another; however, as the correlational value is -0.419, it thus denotes a low correlation strength between the two variables.

Table 13 Correlation of Work Fatigue and Work Engagement.

Variables	**N**	**Mean**	**SD**	**Pearson Correlation**	**Sig.**
Work Fatigue	116	61.03	19.382	-0.419 **	<0.001
Work Engagement	116	38.72	10.068		

V.DISCUSSION

This section facilitates in describing the extent to which each of these objectives were explained by the analysis presented above. Based on the objectives stated earlier, the study proposed three hypotheses. Each of these is discussed below individually in the following sections.

To test the hypothesis and thereby reach the objectives of the study, 116 young Indian adults working in the essential service sector (Banking and Finance Services) and non-essential service sector (Tourism and Hospitality Services) were administered the Checklist Individual Strength Questionnaire (CIS) and Utrecht Work Engagement Scale (UWES), along with the socio-demographic profile sheet.

Gender and Work Engagement

Previous studies have indicated a mixed conclusion in determining the influential role of gender on work engagement. While some studies suggest that males tend to exhibit higher levels of work engagement when compared to females (Hanggarawati and Kismono, 2022 [15]), others concluded that women are more likely to be highly engaged in work than men (Topchyan and Woehler, 2020 [16]). Many of the existing research focused on employees' engagement in healthcare or educational set-ups. As professions such as nursing or teaching are most commonly associated with the female gender, studies in these workplaces indicated women having higher work engagement. On the other hand, studies with context such as the government institutional set-up or that of positions with authority which is predominantly looked at as more suited for males, showcased men being more highly engaged.

These mixed inferences clearly indicated that the gender-engagement relationship is not a simple matrix to determine a positive or a negative relationship, particularly in a society which is ethnically and culturally very diverse. Based on the contradicting existing literature, it was hypothesised that.

H1: There is no significant influence of gender on work engagement among young adults working in the service sector. Results showed that gender has no significant influence on work engagement (Table 11). The data supports the hypothesis. The study's results were the first of its kind in the Indian population of young adults working in the service

sector. With rising gender equality awareness and opportunities to climb corporate ladders, both male and female employees find themselves competing for higher management roles. Because the service sector encompasses multiple job roles and there are little or no predefined gender set roles for any job role within this sector, there is not much bias involved in evaluating work engagement for any gender. Therefore, this data on work engagement among young adults in the service sector, working in India show no gender significance. However, there is no denying of the fact that this may differ for different workplace settings and different work cultures across the globe.

Work Fatigue and Work Engagement

The very definition of work engagement states that it is "a positive, fulfilling, work-related state of mind that is characterised by vigour, dedication, and absorption" (Schaufeli et al. [6]). Despite the debate in academia about whether work engagement can be determined by 2 components or 3 components; the component of vigour is included in both perspectives. This component of vigour refers to the high levels of energy and mental resilience (Schaufeli et al.[6]) of an individual. The key symptomatic representation of fatigue includes a persistent feeling of exhaustion or weariness either physically, mentally, or both (Dittner et al 2004 [17]), or now the newly included dimension - emotionally as well. Based on this theoretical understanding, it was hypothesised that

H2: There is a significant influence of levels of fatigue on work engagement among young adults working in the service sector.

Results showed that there exists a significant influence of levels of fatigue on work engagement (Table 11). The data obtained for the study did support the hypothesis. These findings however do not align with the previous studies on similar variables. The small number of studies done so far have primarily focused on participants from Western countries. Research on the nursing population found that a group of older nurses having longer careers did exhibit higher levels of fatigue but also higher levels of work engagement ($p<0.05$) ((Wu, Li, Geng, Wang, Wang & Zhang, 2021 [18]). A 2021 research findings by Balasubramanian conducted on employees from two East Tennessee manufacturing companies revealed that while there is a link between subjective fatigue and employee engagement, but not a one-way causality between the two. In other words, large levels of subjective fatigue have no direct impact on employee engagement (Balasubramanian, 2021 [19]). Various factors such as cultural differences, socio-demographic factors such as family type and years of experience, all contribute to manipulating fatigue and employee engagement levels. As extraneous variables such as number of family members, marriage and years of experience were controlled in the sample, a concrete relationship between the IV and DV was thus reflected.

The additional analysis, table 13 showed that there is a significant inverse relationship between work fatigue and work engagement, ($r = -.419$; $p = <0.001$), which means as the individual's level of work fatigue increases, the work engagement decreases. However, it is to be noted that the correlation strength is weak. It is important to remember that correlation is not causation. Therefore, it can be concluded that there is a significant inverse correlation between work fatigue and work engagement, nonetheless, work fatigue is not the only cause of decreased work engagement.

The findings of this study can be supported by the theoretical foundation of the concept of work engagement. A second premise of the Job-Demands Resources model (JD-R model) is that the experience of strain in one's job and motivation is influenced mainly by the health-impairing phase, ie. poorly designed tasks or consistent prolonged job demands, which drain employees' mental and physical resources, resulting in energy depletion (i.e., fatigue) and health issues (e.g. Demerouti et al., 2000, 2001a, b; Leiter, 1993 as cited in Bakker, Demerouti, 2011 [14]). Under such high job demands, people are said to utilise performance-protection tactics. As a result, the greater the extent of this activation and/or effort, the higher the individual's physiological expenses. Such a compensatory method may deplete an individual's energy in the long run, eventually leading to a breakdown and hence reduced level of work engagement.

Interaction of Gender and Work Fatigue

Based on studies pertaining to the individual relationship of Gender and levels of Work Fatigue, it was hypothesised that

H3: There is no significant interaction between gender and fatigue on work engagement among young adults working in the service sector.

Results showed that the interaction of gender and work fatigue did not have a significant influence on work engagement (Table 11). The sample population obtained for the study supported the hypothesis. Since the previous hypothesis with the individual variable of gender was supported by the gathered data, which stated that there is no significant gender influence on work engagement; thus the interaction effect also is not significant.

A post-hoc analysis which analysed the effect of the various levels of the variable (Table 12) indicated that there is a significant difference between low and high levels of Work Fatigue, and also between average and high levels of Work Fatigue; that is, work engagement differ significantly between young adults with low and high levels of work fatigue, and also between those in the average and high levels of work fatigue.

The data collected for this study clearly had a low number of participants with the majority of them falling into the 'Average Level of Work Fatigue' (75 out of 116 participants, ie. 64.66% of the total sample population). The reason for this anomaly could be attributed to the limited time period within which the data was collected. During the planning

of data collection, the inclusion criteria requirement was to have employees with a minimum of 3 years of work experience and association with the same organisation. However, during the initial phase of data collection it was observed that due to the pandemic COVID'19, many approached employees had either lost their jobs or had to take up a new job. Thus, the requirement of 3 years was brought down to a minimum 1 year for work experience and working association with the same organisation, for more inclusivity into the sample population. The collection of offline data was also limited as employees felt very conscious and overwhelmed to respond to these questionnaires at their workplace, fearing their managers' reaction.

As seen from Table 1 that 49.1% of the participants were males, while 50.9% were females. The group size is almost identical (with only 0.8% difference). Therefore, the representation of gender can be deemed equal and appropriate for drawing gendered comparisons. Previous studies have shown that the prevalence of fatigue is higher in the female population owing to many biological and socio-cultural factors, especially in India (Biswas, Mukherjee, Bhattacharyya, and Sarkar, 2019 [20]; and Patel, Kirkwood, Weiss, et. al. 2005 [21]). Even though most literature reviews come to consensus that females are more prone to fatigue than male, there are studies which support that recovery is faster in women than in men (Laurent, Green, Bishop, Sjökvist, Schumacker, Richardson & Curtner-Smith, 2010 [22]). However, in most of these studies, the female population was studied in either isolation or was present in low numbers compared to the male population. Even in the case of most studies on work engagement, the sectors or workplaces chosen were associated stereotypically with one gender. Therefore, the limitations of many of the existing studies were its sample and its gender representation.

A little over half of the participants (51.72%) worked in the 'essential services' which included employees from the Banking and Finance Sectors, and the rest (48.28%) worked in the 'non-essential services' which included employees from the Tourism and Hospitality Sector. In the existing pool of literature, there is an abundance of studies exploring various forms of fatigue, work engagement and various other psychological determinants in the healthcare sector and the educational sector. The surge in research interest in these sectors grew significantly, especially during the pandemic. Therefore, the restriction into only two sectors for both essential and non-essential services in this study was to reduce or limit the impact of any extraneous variables in measuring the dependent variable, ie. work engagement.

Table 4 shows the distribution of levels of fatigue in the sample. The many definitions of fatigue in the literature reviews dating back to over 90 years (e.g., Pillsbury, 1922, as cited in Frone and Tidwell, 2016 [2]), there has frequently been a meaningful distinction between physical exhaustion brought on by the depletion of muscular energy and mental exhaustion brought on by the draining of cognitive energy. Recently, both the growth in the service sector and the amount of teamwork expected of employees have increased tremendously. These adjustments necessitate more intense interpersonal contact both within the firm and between employees and various external parties. As a result, in addition to physical and mental fatigue, more attention has been given to emotional fatigue, which comes from the exhaustion of emotional energy (e.g., Australian Safety and Compensation Council, 2006; Maslach & Jackson, 1981; Shirom & Melamed, 2006, as cited in Frone and Tidwell, 2016 [2]).

An independent sample t-test was run to determine whether gender differences exist in Work Fatigue scores. The test results as seen in Table 6 indicate that there is a significant gender difference on work fatigue scores (female mean score = 65.03 and male mean score = 56.89). The females (N=59) have obtained higher scores as compared to the males (N=57).

Only a few employees showcased the presence of high levels of work fatigue (17.24%) and low levels of work fatigue (18.10%). A large majority, ie. 64.66% of the employees fell under the category of the average level of work fatigue. This can mainly be because of response bias, trying and maintaining to give desirable responses to not harm the reputation or public image of the organisation in which they work. Even with the assurance that the data would be kept confidential, the fear of portraying a negative image was still observed in a few employees. As the sectors chosen for this study involve direct contact with the customers, a negative image will hinder their reputation with their customer base. Therefore, it is most likely that the level of fatigue is underreported.

From the study, we have so far concluded that there is a significant gender difference in work fatigue and there is a significant influence of work fatigue on work engagement. However, there is no significant gender influence on work engagement. It is also established that variables, work fatigue and work engagement are inversely related with low correctional strength. This determines that there are many other factors that influence work engagement and a standalone relationship with one variable cannot be determined.

The main finding of this overall study is that gender has no, whereas work fatigue has a significant influence on work engagement. Previous studies were done with respect to establishing respective negative and positive relationships, however, these were determined with respect to the Western population and Western work culture. Thus, the results of this study add a little extra value to the already existing literature, as it brings out the interaction effect and the individual influences of the variables, especially in the context of young adults working in India, in this nation's work culture.

Implications of the Study

The study of work fatigue and work engagement targets some major concerns and pressing challenges of today's post-pandemic society, mainly digital transformation and the hybrid mode of working. In today's workspace, there is a constant need to learn and keep up with sophisticated technological software to retain one's job. The once 9:00 to 5:00 job along with the travel time and traffic shifted to a sudden remote work-work-from-home culture, which now once again is seeing a shift to a new way of working, ie. the hybrid work culture. The necessity to acclimatise into these new changes in the organisation leads to and places strain on the employees; a phenomenon being termed as 'Change Fatigue' which in turn impacts their well-being and other characteristics such as organisational commitment and turnover intentions (Bernerth, Walker & Harris, 2011 [23]).

Gender is the social differences seen between men and women. Gender equality has been and is always a matter of discussion in any forum. Workplaces are not immune to gender equality fights. From fighting gender stereotypes to the demand for equal opportunities and equal pay, the feminist movement has brought into the limelight the different ways in which gender of an employee plays a critical role in a workplace setting. Therefore, it is important and necessary to study the influence of gender on various phenomena, especially in a country like ours which is predominantly a patriarchal society. It is most often noted that the complaint of fatigue is present more in women than in men (Bensing, Hulsman, Schreurs, 1999 [24]).

This study makes an intriguing suggestion and can be used to facilitate the formation of organisational policies to enhance work engagement and its components. Organisations may think about focusing on human resources policies that are appropriate and help promote work engagement, achieve work-life balance, and remove gender bias and doubts about workplace engagement.

Reviews of the literature have shown that since 2010, a number of strategies have emerged to improve work engagement. Although there was significant variety across the studies in terms of research design, participant characteristics, content, duration, and the organisation's location and industry, almost all of them accepted Schaufeli et al (2002).'s conceptualisation of job engagement. Studies that examined one or more of the three subcomponents of the total level of work engagement differed, which has an impact on the capacity to combine studies for a meta-analysis. Personal resource-building interventions, job resource-building interventions, leadership training interventions, and health-promoting interventions are the four main categories of interventions that have been discovered (Knight, Patterson & Dawson, 2017 [25]). As it is well established that socio-cultural factors have an influence on work engagement, this study can be used to study and help develop interventions suitable for the Indian population.

To increase ecological validity, clarification based on study findings including respondents from various contexts is required. Additionally, it is significant because the data from this study can be used to enhance the efficacy of human resources policy (Kismono & Hanggarawati, 2022 [15]).

Despite an increase in the academic interest to understand fatigue and work engagement. There has been no substantial impact to improve the much-set and appreciated trend of "hustle culture". There are also more strains and stressors present in the present time brought in by the increased pace, complexity of life and the unrealistic demand to maintain a fancy CV/ resume or a social media profile. The promotion of positive mental health at the workplace will need cooperative management and good leadership who can reduce the stress or fear of change among employees.

Limitations of the Study

This study has a few limitations that are outlined as follows:

First, the data collected was during the recovery phase of the pandemic - in the year 20, which saw a major change in workplace cultures which added to 'change fatigue' in the employees, and various other factors impacting their fatigue and engagement levels.

Second, the participants of the study were majorly from two states, mainly covering organisations functioning in Maharashtra and Karnataka, again not representative of the whole state for the results to be generalised as pan-India.

Scope for Further Research

Further research can also focus on other variables such as marital status, socio-economic status, work location (rural/urban/abroad) and difference in employment type: shift-times, part-times, full-time, remote working, etc. and their impact on work engagement.

To get a complete picture of the influence of gender on work fatigue and work engagement, future research can focus on LGBTQ+ communities, looking into various challenges and factors that affect the community impacting their fatigue and work engagement levels.

There are certain nations often running in the minds of some patriarchy driven individuals who believe that a woman is not suited for senior or leadership positions as they belong to a weaker gender, get tired easily, is more often distracted with household and children, and won't be as engaged as a man would be in doing work. This study, as well as similar

gendered studies in workplace settings can provide support to remove gender stereotypes and biases in workplaces and advocate for equal rights and opportunities for both men and women alike.

Using this study as the basis, experimental research can be conducted to determine the causality factors influencing levels of fatigue on work engagement. This can further help in developing intervention plans to promote work engagement, which directly or indirectly will influence employees' overall well-being.

Intervention studies can be conducted and its effects can be examined, which will add depth to the Occupational Health literature. This again will help organisations reduce the rate of its employee turnover; help determine why their employees are feeling fatigued- whether it is mental fatigue due to competency deficiency and lack of on-job training (because of which they are unable to produce quality work in limited timeframe), or physical fatigue due to lack of sleep, unhealthy eating habits, hot temperature in the workplace, etc, or emotional fatigue due to work nature being of high pressure. This will further aid the organisation to make a training/learning and development framework for its employees to increase their engagement in work, help plan recreational and team-building activities whenever needed to reduce work stress and also build social support in the workplace.

As 'feeling fatigued' is a very subjective individual experience, a qualitative study can be designed to understand how employees' from varied cultures define, understand, what they think are the causes and factors of fatigue and how it affects their work engagement.

VI.CONCLUSION

Daily routine life underwent drastic changes during the pandemic and and still continues to in the post-lockdown phase. Just like everybody, the service sector employees were not immune to this sudden change either. During lockdown, the essential service sector was forced to keep open even during times of high infection risk while the non-essential service sector was forced to shut down putting many out of business. Both these sectors were forced to innovate and adapt to this change.

This was reflected in their fatigue and engagement levels; people were desperate to keep their jobs or find a new one while also keeping their lives safe for their loved ones. In order to succeed and grow in one's career, employees need to have better performance outcomes. A fatigued employee has difficulty in displaying an optimised performance level, thus hampering work engagement and their overall well-being. An employee's well-being is important to curb organisation challenges such as employee turnover and burnout. An engaged employee has goals which follow the organisation's mission, which if not present, will lead to losses for the organisation. Therefore, there is no doubt in saying that employees' well-being gives a competitive win to a company over other rivals in the market.

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