

## Article

# Improving Quality of Work for Positive Health: Interaction of Sustainable Development Goal (SDG) 8 and SDG 3 from the Sustainable HRM Perspective

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**Abstract:** Evidence indicates that harmful work practices such as long working hours in high-income countries kill more people than road accidents (International Labour Organisation, 2021). The Global Reporting Initiatives (GRIs) for Sustainability—Occupational Health and Safety (OHS) 403 standards (2018)—include ‘work-related leading indicators’, but currently, a limited understanding of these exists to prevent an increase in deaths due to work-related non-communicable diseases. The health harm of work construct, which is different from work stress, is a recent development in the sustainable HRM literature explaining employees’ perception of the restrictions imposed by work practices on achieving positive health. To promote health and well-being for all in the employment stage of life (SDG 3), this study aims to establish the health harm of work that is caused by work intensification as work-related leading indicators of adverse/decent working conditions (SDG 8). A total of 605 white-collar full-time employees completed work intensification, the health harm of work, and mental well-being questionnaires, and self-reported on health risk factors and chronic health conditions. Structural equation modelling was used to analyse the mediational research model of the dynamic transitional effect of work intensification on employee health and well-being through the health harm of work. The findings indicate that work intensification improves employee mental well-being (SDG 3), but the mediation transitional effect of the health harm of work highlights that mental well-being is reduced when work intensification (SDG 8) started increasing the health harm of work among individuals. The health harm of work from the sustainable HRM perspective is found to be effective work-practice related leading indicators of health and well-being in the working population. Research and practical implications to develop a business-health agenda of shared values are discussed.

**Keywords:** health in SDGs; interactions of SDGs; leading indicators of health; positive health; mental well-being; work intensification; sustainable HRM



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## 1. Introduction

Work has become an important aspect of the health-related quality of life of the working population [1]. Furthermore, work, in the context of globalisation, has become a major public health risk because of the adverse working conditions used to manage unit labour costs for international price competitiveness [2]. The International Labour Organisation (ILO), in its recent findings, revealed that occupational health is a dominant reason for avoidable deaths among the working population in developed economies [1]. Furthermore, the health-related targets of the United Nations’ (UN) sustainable development goals (SDGs) are highlighted in SDG 3 to promote health and well-being for all, including the working population. Heller et al. [3] indicated that SDGs provide opportunities for multi-national enterprises (MNEs) to develop varied corporate social responsibility (CSR) initiatives to promote health-related quality of life as part of social sustainability. Hence, MNEs have an important role to play in developing voluntary corporate social

responsibility initiatives at the organisational level to the ILO and UN SDGs on avoidable occupational health-related deaths.

Rapid changes to working conditions in the high-economic growth context pose major challenges for MNEs, governments, and sustainability professionals to achieve the social sustainability health and well-being outcomes for employees as internal stakeholders. In this context, the perspectives of the interactions of business health [4] and SDGs [5] are used as theoretical frameworks to understand the integral role of sustainable work conditions (SDG 8) in improving occupational health and well-being (SDG 3) as part of MNE sustainability efforts.

Research on the perspective of interactions of SDGs [5] suggests that an improved occupational health and well-being increased economic growth (i.e., productivity and income). However, evidence of health externalities imposed by the business activities of MNEs [4] revealed that, in high-income countries, economic growth generally yields increasingly smaller gains or diminishing returns to occupational health and well-being (SDG 3) due to decent/adverse working conditions (SDG 8) such as long working hours and work–life imbalance [2]. Furthermore, Pfeffer [6] reported that the impact of harmful work practices on health and well-being caused 120,000 extra deaths among the working population in the United States and increased the incidence of stress, substance abuse, and occupational non-communicable diseases (e.g., cardiovascular disease). In the sustainable human resource management (HRM) literature, it is indicated that the social costs associated with the interaction of unsustainable working conditions and health and well-being [7] cost the US economy more than USD 180 billion a year. Hence, the motivation to explore the US trend in the interaction effect of adverse/decent working conditions (SDG 8) on occupational health and well-being (SDG 3) in MNEs in India from emerging economies, while also extending the global business literature by addressing two gaps in the leading indicators of health, and well-being for social sustainability.

First, a review by Park, Montiel, Husted, and Balarezo [4] revealed that future research on business activities (including work practices) and health interactions should focus on new approaches to tackle health challenges in order for stakeholders to shape an organisation's business-health agenda. Similarly, another review by Potter and colleagues [8] found in the occupational health literature, based on the job demands–resources theory [9] found that psychosocial hazards, such as high work demands and long working hours, increased the risks of work-related health issues. Furthermore, in the occupational health and sustainable HRM literature, psychosocial hazards (i.e., workload, work intensification, etc.) are used as work practices-related leading indicators or early warning signs of the potential negative impacts on occupational health and well-being [10,11].

Granter, McCann, and Boyle [12] indicated that work intensification is “the new work” paradigm of the 21st century and is not stigmatised because work can also be challenging, rewarding, and can improve mental well-being. Although this is true, based on the activation theory, the heightened exposure to the rewarding work intensification experience over a period will transition to become a risk for work-related health. The activation theory [13] suggests that the dynamic potential or the chance of psychosocial hazards becoming work-related health risks vary depending on the transitional or sustained impacts of the psychosocial hazard over a period of time. Currently, no study has explored the dynamic transitional effects of work intensification on the health harm of work for employee health and well-being outcomes in order to shape the business-health agenda.

To address this gap in the literature, this study attempts to explore the role of work practices on self-reported occupational health outcomes in order to extend the management research boundary to the business-health domain in MNEs. Including the business-health domain in the management research will enhance sustainability and HRM, and management researchers and professionals will be able to expand their understanding of the negative occupational health outcomes from the sustainability perspective of SDG 3. Hence, this study explores the role of the health harm of work (HHW) as a work-related leading

indicator construct for capturing the transitional effect of the adverse/decent working conditions (SDG 8) on occupational health and well-being (SDG 3).

The HHW was defined as an employee's perception of the restrictions imposed by work practices on achieving positive health, the increased risks of negative psychological health, and the increased side effects of work [14–16]. Addressing this gap in the literature is important in the new work paradigm context in MNEs around the world because work intensification can be challenging and rewarding for some employees at different points in time. However, the HHW from the transitional leading indicators perspective identifies when work starts to restrict on positive health and increases the risks of negative psychological health. That is, the HHW as a work-related leading indicator from the transitional effect perspective of the activation theory indicates the heightened risks due to the effect of the persistent activation of mental and physical overload caused by work intensification (i.e., psychosocial hazard), which can be flagged early enough to design corrective actions before the lagging occupational health issues start to appear. Hence, this study attempts to use the HHW as a leading indicator to extend the literature from the new work paradigm context [12] to improve the understanding of the transitional effect of work intensification on occupational health and well-being, which is avoidable from the sustainability perspective.

Second, the recently published Global Reporting Initiatives (GRIs) for Sustainability 403—Occupational Health and Safety standards [17] included “leading indicators of health” as a materiality for the evaluation of an organisation's occupational health and safety performance (p. 8). This GRI standard highlights the proactive approach to identify ‘work-related’ leading indicators, preventing or delaying the onset of psychological disorders and chronic disease in order to enhance the prospect of positive health and well-being among employees for social sustainability. Hence, this exploratory study attempts to establish empirical evidence for the HHW as a work-related leading indicator of employee health and well-being in MNEs in India by using the theoretical perspective of the interactions of SDGs.

The aim of the study is achieved by testing the mediation effect of the HHW on the relationship between work intensification (e.g., work-role overload and time demand) and three dependent health outcome variables (mental well-being, health risk factors, and occupational chronic health conditions). Baron and Kenny [18] and Pearl [19] have indicated that the mediation methodology is effective in understanding the underlying process or transitional mechanism of the study variables. The study first attempts to enrich and extend the sustainability and business-health literature to detect occupational health risks early using the HHW as work-related leading indicator. Subsequently, MNEs can develop socially responsible sustainable HRM practices to prevent and improve employee health and well-being for social sustainability to achieve long-term business success. Second, the study will facilitate large corporations (MNEs and private) to objectively implement and report/disclose the recently published 2018 GRI for sustainability health and safety standards (GRI-403) on work-related leading indicators to enhance health and well-being outcomes for social sustainability and to address avoidable occupational health deaths.

## 2. Theoretical Background and Hypothesis

### 2.1. Work Practices-Related Leading Indicators of Health for Social Sustainability

Leading indicators are explained in many ways in the occupational health literature. For example, leading indicators can be passive and active indicators, early warning signs of potential failure and deficiencies in health performances, and indicators of the relationship with lagging or trailing outcomes [10,11]. Leading indicators are not the opposite of lagging indicators, but highlight the transitional aspect of the process which can be flagged early enough to design corrective actions before the lagging indicators appear.

The dominant approach to measuring leading indicators of the organisational psychology and health literature from the perspective of interactions of SDGs appears to be more focused on assessing and managing psychosocial hazards (i.e., work intensification, work

overload, etc.) as risk factors in the workplace to crosslink with occupational health outcomes for employees [20,21]. However, very little has been achieved in understanding the transitional effect of psychosocial hazards (i.e., work intensification) as a rewarding work characteristic into becoming a risk to be used as work practices-related leading indicators of health. This study attempts to fill this gap in the social sustainability of the business-health literature to explore the HHW as the transitional effect construct of work practices-related leading indicators of health based on the activation theory [13]. That is, the HHW as a construct represents the transitional stage at which the persistent activation of mental and physical overload by work demands can be flagged early as work-related leading indicators to effectively manage the lagging occupational health issues. Hence, to improve employee health and well-being (SDG 3) from the business-health agenda, exploring the HHW as work-related leading indicators will help MNEs to prevent or reduce the transitional effect of work intensification from being rewarding to adverse working conditions (SDG 8). This will extend the business-health and sustainable HRM literature to facilitate developing appropriate organisational level sustainable work practices and systems to promote social sustainability by MNEs around the world [22].

### *2.2. Work Intensification and Health Outcomes: The Role of the Health Harm of Work*

In the sustainable HRM literature, it is indicated that high-performance work practices are most likely to cause harm to employees (in terms of health and well-being) due to work intensification while maximising organisational performances [23,24]. However, MNEs have corporate social responsibilities to minimise the harm of work by introducing appropriate institutional level interventions. Hence, in this section, an attempt is made to explain the health harm of work as a leading indicator of occupational health so that MNEs can avoid, prevent, or delay the onset of occupational health issues among employees to achieve productivity gains.

### *2.3. Work Intensification as Decent/Adverse Working Conditions (SDG 8)*

Work intensification is a widely used working condition (SDG 8) in MNEs around the world as a consequence of the increasing use of high-performance work practices to improve employees' performances and maximise profits [25,26]. Work intensification as a high-performance work practices are considered decent and/or adverse working conditions (SDG 8) in the SDG literature. For example, initially exploring work intensification in terms of the decent working condition, it is indicated that work intensification provides employees with challenges, rewards, and strong occupational identity to improve organisational performance [12].

In the business-health literature on sustainability, work intensification from the adverse working condition perspective indicates that long working hours [27] work pressure [28], overwork [29], work-overload [30], competing task [31], and knowledge work intensification [32] have been found to have negative effects on the self-reported health outcomes of employees. For example, one set of studies [33] explored the impacts of very long working hours (>50 h) and moderately long hours (41–50 h) on health outcomes (hypertension, shortage of sleep, smoking etc.). A second set of studies explored the potential confounding or interacting impacts of gender, job characteristics, and work–family balance on the relationship between long working hours and health outcomes [34,35]. Based on the evidence from the business-health literature, work intensification can be used as adverse/decent working conditions (SDG 8), and hence it is used as an independent variable in this study.

### *2.4. Work Intensification and Self-Reported Health Outcomes*

SDG 3 includes varied health outcomes for social sustainability. In this study, health outcomes [36] for SDG 3 are examined from the occupational health and well-being perspective to capture multiple self-reported health issues among the working population. That is, adverse/decent working conditions-related employee mental well-being and physical health issues range from immediate to delayed and, in duration, from acute to chronic

exposures from a range of work-related factors such as employer-specific factors (e.g., pace of work, knowledge work intensification) and task-specific factors (e.g., repetitive tasks etc.), which are investigated. Hence, in this study, the health outcomes (SDG 3) are explored using mental well-being, lifestyle, and biological health risk factors and occupational chronic health conditions as dependent variables. Mental well-being is defined as feeling good now and functioning well in day-to-day activities [37]. The activation theory [13] suggests that increased job demand activates mental overload and subsequently reduces mental well-being.

Evidence exists that a highly demanding work schedule is negatively associated with mental well-being [38]. Poor mental well-being has major implications for heavy drinking, smoking, decreased family well-being and quality of life, and increased family violence and abuse [39]. Although there is evidence that long weekly working hours has negative consequences for health and mental well-being [40], Granter, McCann, and Boyle [12] indicated that work intensification is “the new work” paradigm of the 21st century and is not stigmatised because work can also be challenging, rewarding, and improves mental well-being. However, a study found that, in full-time employment, there is no single optimum number of weekly working hours at which mental well-being is at the highest for employees [27]. Given the mixed findings on the relationship between work intensification and mental well-being among employees, we explore the mediating effects of the HHW caused by work intensification (e.g., work-role overload and time demand) to understand work practices-related leading indicators of mental well-being (SDG 3).

Insight into the clustering of lifestyle and biological health risk factors (henceforth referred to as ‘health risk factors’) as part of SDG 3 is important because this can be used in developing prevention strategies for health issues [41]. Further, a health risk factor is a variable (SDG 3) that has been shown to predict the onset of adverse health outcomes among individuals who are initially free of the conditions [42]. The health risk factors for the study are identified using the theory of triadic influence [43].

In this study, the triadic influence theory first highlights work as a social-cognitive influence on unhealthy behavioural consequences (i.e., alcohol and nicotine consumption, lack of physical activity). The second influence is about these unhealthy behavioural consequences of work, which are closely related to similar etiologies of high blood pressure and high cholesterol [44]. The final influence is about high blood pressure and high cholesterol being strong predictors of adverse health outcomes. For example, work stress enhances unhealthy life-style behavioural factors, such as smoking and excessive caffeine and alcohol consumption, an unhealthy diet, and lack of exercise, which lead to physiological or biological changes (e.g., obesity, high blood pressure, high cholesterol). Furthermore, Ferrie [45] found that work stress caused by work demands had increased weight and blood pressure among employees. Hence, in this study, the mediation effect of the HHW (SDG 8) on the relationship between work intensification and the health risk factors (SDG 3—smoking, BMI, high blood pressure, and high cholesterol) is proposed based on the theory of triadic influence.

The final set of latent dependent variables for the study on SDG 3 is about occupational chronic health conditions, which are recurring health problems caused or aggravated by work conditions or practices. In this study, occupational chronic diseases like cardiovascular disease, migraine headaches, type-2 diabetes, and heartburn were chosen based on the work–health relationship theoretical perspective advocated by the International Labour Organization—ILO (2012). The perspective indicates the causal relationship between exposure to work practices and scientific evidence for the pattern of occupational health conditions following exposure to work practices. For example, work intensification practices (e.g., work-role overload and time demands) are reported as having negative impacts on occupational health conditions such as cardiovascular disease [44] and migraine headaches [46].

Work stress caused by work intensification doubled the risk of type-2 diabetes among women in white-collar jobs [47]. A cross-sectional study found that white-collar employ-



ees suffered more from dyspeptic symptoms (including heartburn) due to work stress caused by work overload and high work demand [48]. Finally, studies have explored the mediation effect of work stress caused by long working hours on coronary heart disease (Virtanen, et al., [49]). Extending the discussed literature from the transitional effect of psychosocial hazard based on the activation theory, the study explored the mediation effect of the HHW on the relationship between work intensification (SDG 8) and occupational chronic health conditions (SDG 3), which is discussed next.

### 2.5. Health Harm of Work as a Mediator

The health harm of work (HHW) is based on the theory of the harm of work from the sustainable HRM literature [22]. The harm of work theory highlights the simultaneous ‘unintended’ unsustainable restrictions imposed by work practices on stakeholders (e.g., employees, their families etc.), to improve positive health while improving organisational performance. The HHW includes three dimensions, which are the restrictions imposed on an employee to be involved in non-job-related activities to improve their health, the risk factors for psychological health, and the side effects of work harm.

The HHW construct from the sustainable HRM perspective differs from that of ‘work recovery experience’ from the job-stress recovery literature. Comparing the work recovery experience with that of the HHW, it was found that these two constructs explain different outcomes of overwork as a psychosocial hazard [14]. The work recovery experience focuses on the need for recovery after a stressful job situation to improve employee well-being, but the HHW addresses the restrictions imposed by work on employees in achieving positive health outcomes due to the persistent activation of physical and mental overload.

There is evidence that the HHW is a related construct to that of the work recovery experience construct from the work stress literature, but also that it is different in how it predicts positive and negative health, respectively. Exploring the similarity, Mariappanadar [14], using a second-level confirmatory factor analysis model, found that the dimensions of these two measures are related in explaining the negative effects of overwork. In terms of the differences, the work recovery experiences focus on the need for recovery after a stressful job situation to ‘reduce’ negative health. For example, Sonnentag, Kuttler, and Fritz [50], using psychological detachment, relaxation, mastery, and control as four dimensions of the work recovery experience scale, demonstrated that a stressful job situation is not only reflected in high levels of emotional exhaustion, but also in the need for recovery from work. Their study also found that the reduced level of psychological detachment from work during non-work time seemed to translate job stressors into poor mental well-being.

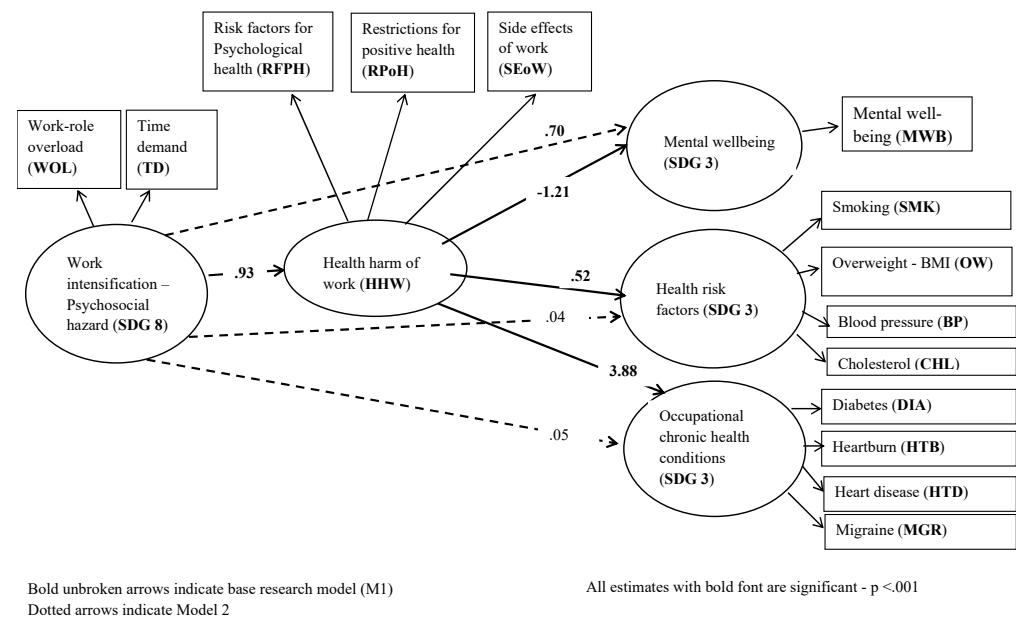
Parker and colleagues [51] found that work events and physiological stress arousal are important antecedents to work recovery experiences. Further, obsessive passion or uncontrollable engagement with work compared to harmonious passion or controllable engagement undermine work recovery experiences, leading to emotional exhaustion and reduced mental well-being [52]. However, the HHW addresses the *restrictions* imposed by work on employees to ‘improve’ positive health and mental well-being outcomes due to the persistent activation of physical and mental overload. Furthermore, the stakeholder harm index [7,53] based on a literature review, captured the HHW using the work restrictions imposed by work intensification on employees for being involved in non-work-related activities to improve positive health.

On the other hand, it is fair to assume that work strain and stress can potentially be work-related leading indicators of employee health and well-being. Hence, an attempt is made to use information from the literature to highlight the limitation of work strain compared to the HHW as being work-related leading indicators of health. The high work strain as a measure indicates that the damage to an employee’s psychological and physical health outcomes already has happened based on the non-specific responses to work-related stressors [54,55]. For example, work stress-related non-specific responses to stressors, such as acute headaches and palpitations, can be used by individuals as symptoms to realise that they are under stress and should attempt to manage their stress. At this stage, the work

stress symptoms are indicating the acute negative impacts on health. Thus, work strain has an inherent limitation to be used as a potential work-related leading indicator, but more of a cause for health outcomes [35].

In light of the similarities and differences between the HHW and work recovery experience and work strain, in this study, the HHW is used as a mediator to explore it as a work-related leading indicator of health outcomes (SDG 3) due to work intensification (SDG 8). Hence, exploring the HHW as a work-related leading indicator of health from the transitional effect perspective [10] will enrich the SDGs literature. That is, work intensification can be challenging and rewarding for employees at some stage in an employee's working life, but the HHW, from the transitional work-related leading indicator perspective, will be able to identify when work starts to increase the risks of negative health. Hence, the early identification of the HHW as work-related leading indicator caused by work intensification as a psychosocial hazard will help MNEs to avoid, prevent, and improve the health and well-being of employees for enhanced social sustainability performance.

A research model (see Figure 1) is proposed to explore the transitional effect of work intensification as a psychosocial hazard into becoming the HHW as work-related indicators for occupational health. The research model is tested to examine the mediating effects of the HHW due to work intensification (SDG 8) on all three health (SDG 3) outcomes (mental well-being, health risk factors, and occupational chronic health conditions) to understand work practices-related leading indicators. Baron and Kenny [18] and Pearl [19] have indicated that the mediation method is effective in understanding the underlying process (i.e., transitional) mechanism of observed relationships between the study variables. The model is tested using the following hypothesis:



**Figure 1.** Base research model for the study with hypotheses and standardised path coefficients (N = 605).

**Hypothesis 1:** *The HHW mediates the relationship between work intensification and mental well-being, health risk factors, and occupational chronic health conditions.*

### 3. Research Method

#### Sample and Procedure

Initially, approval for the study was obtained from an Australian university's ethics committee. Cross-sectional survey data were collected from MNEs located in four different states in India. In this study, white-collar employees from different industries were approached because there is more compelling evidence for the link between long working

hours and negative health outcomes for this type of employee in the occupational health, safety, and well-being literature [3,56]. A convenience sampling method was used in this study. Six organisations (each with a size of more than 700 full-time employees) accepted, allowing their managers to circulate emails from the researcher with an information letter to their full-time employees with a total of five years or more of work experience. The information letter included a URL to access a web-based questionnaire, which the interested participants accessed to complete the questionnaire.

In the information letter, participants were requested to complete the questionnaire in two stages. After completing stage 1 of the questionnaire (i.e., antecedent study variables), participants were requested to take a break and then complete Section 3 (i.e., relating to dependent variables) of the questionnaire after a day. This is to temporally separate the responses to antecedent and dependent study variables to reduce common method bias [57]. It took approximately a total of 25 min in stages to complete the questionnaire online. In total, there were 631 recorded questionnaires in the online system, but the number of final usable responses with two stages completed were 605. The data collected were from companies operating in IT services (43%), higher education (18%), government (11%), and manufacturing (9%). Sixty percent of participants belonged to the age group between 26 and 35 years, twenty percent belonged to those 36–45 years of age, and eighteen percent were above 46 years of age. Sixty-one percent of participants were women, and fifty-one percent of participants had more than 10 years of work experience.

## 4. Measures

### 4.1. Independent Variable: Work Intensification

Work intensification [25] was measured by including six items for work-role overload and four items on time demands (see Appendix A.1). All items were scored on a 6-point Likert rating scale ranging from 1 (strongly disagree) to 6 (strongly agree). Cronbach's alphas for the work-role overload and time demands of the scale were 0.85 and 0.88, respectively.

### 4.2. Mediator Variable: The Health Harm of Work

The health harm of work (HHW) scale [14] includes risk factors for psychological health (six items), restrictions for positive health (four items), and side effects of work (four items). Individuals were asked to indicate how strongly they agree or disagree that their current paid work causes the following effects on them. All items (see Appendix A.2) were scored on a 6-point Likert rating scale ranging from 1 (strongly disagree) to 6 (strongly agree). High scores on the dimensions of the scale were indicative of high restrictions imposed by work on participants. Internal consistencies (Cronbach's alphas) for the risk factors for psychological health, restrictions for positive health, and side effects of the work dimensions of the scale were 0.85, 0.71, and 0.73, respectively.

### 4.3. Dependent Variable: Mental Well-Being

This variable was assessed using the WHO-Five scale [58]. All five items of the scale (see Appendix A.3) were scored on a 6-point Likert rating scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). Internal consistency (Cronbach's alpha) for the scale was 0.81.

### 4.4. Dependent Variable: Health Risk Factors

The questions concerning lifestyle factors (e.g., cigarette smoking) and biological factors (e.g., blood pressure, total cholesterol, and obesity) were drawn from the HRA instrument which was developed and validated by the University of Michigan, Health Management Research Center, Ann Arbor, MI (see Appendix A.4). Health risk factors were assessed by including obesity, cigarette use, high blood pressure, and high cholesterol. The risk for each of the factors is assessed based on the health risk categories prescription from Mitchell and Bates [59]. A binary health risk variable was created by assigning participants a value of "1" if the high risk criteria were met and "0" if the risk was absent for each of the risk factors.



#### 4.5. Dependent Variable: Work-Related Chronic Disease

The four work-related chronic diseases, namely diabetes; heartburn; heart disease; and migraines, were assessed along with the biological factors using self-reporting (see Appendix A.5). These four chronic work-related health diseases were chosen for this study based on the occupational health criteria advocated by the International Labour Organization (ILO) as key indicators of the work–health relationship [49]. Participants were requested to indicate if they are currently under medical care for any of the four. This request aligns with the findings [60] that the self-reported recall of health care utilisation is reliable and valid when the recall period is short. Participants had a value of “1” if they reported currently having the condition and “0” if they reported never having the condition or having it in the past.

## 5. Data Analyses

### 5.1. Measurement Models

As this is an exploratory study with cross-sectional data, we attempted to control for common method bias in the study with the procedural and statistical recommendations suggested by Podsakoff and colleagues [57]. Firstly, from the procedural aspect, the study used all established measures to eliminate item ambiguity and social desirability. Furthermore, the measurements for predictor and dependent health variables were separated ‘temporally’ with a short time break between responding to the two sections of the questionnaire, and ‘psychologically’ by providing different instructions. Secondly, statistical remedies were achieved in the study by conducting a series of confirmatory factor analyses (CFA) to determine how the model fitted the data by using five fit indices, which are RMSEA, GFI, NFI, TLI, and IFI [61].

Initially, the full measurement model was tested using CFA, in which all items were loaded onto their respective latent factors according to the existing scales used in the study [61]. The full five-factor model (see Table 1) fits well with the data, and all indices met the respective criteria,  $\chi^2$  (179, N = 605) = 575.29,  $p < 0.001$ , GFI = 0.90; RMSEA = 0.07; CFI = 0.95; TLI = 0.96; IFI = 0.95). Harman’s single-factor test was performed to test for common method variance bias, which was involved in conducting a CFA by allowing all variables to load onto a single factor. The model indicated a poor fit, and hence a single factor did not explain for the majority of variance in the data,  $\chi^2$  (278, N = 605) = 3642.66,  $p < 0.001$ , GFI = 0.57; RMSEA = 0.18; CFI = 0.36; TLI = 0.31; IFI = 0.36). A further analysis was conducted using multiple nested models to compare with the full measurement model in order to ascertain if all variables in the study were distinct. This analysis indicated that the full five-factor model was the best fit for the data, as well as being significantly different to the other nested models (see Table 1). Hence, this suggests that all independent variables in the study were distinct, and it is appropriate to include these in further analyses.

**Table 1.** Comparison of the measurement model of metric study variables.

Models	$\chi^2$ (df)	GFI	CFI	TLI	IFI	RMSEA	$\chi^2_{diff}$	$df_{diff}$
Full measurement model, six factors	575.29 (179)	0.90	0.95	0.96	0.95	0.07		
Model A, five factors (time demand and work overload are combined into a single factor)	2375.30 (254)	0.88	0.80	0.82	0.80	0.94	1800.00	75 ***
Model B, four factors (three health harm dimensions are combined into a single factor)	2271.24 (260)	0.71	0.62	0.56	0.62	0.14	1795.95	81 ***



Table 2. Cont.

Binary Variable	Low	High														
Metric Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
7. HTD <sup>a</sup>	395 (97.5)	10 (2.5)	0.08	0.21	<b>−0.97</b>	<b>−0.88</b>	<b>0.90</b>	<b>0.96</b>								
8. MGR <sup>a</sup>	328 (81)	77 (19)	<b>0.25</b>	0.08	−0.16	0.11	<b>0.62</b>	<b>0.49</b>	<b>0.98</b>							
9. WOL <sup>b</sup>	4.15	1.34	0.01	0.08	<b>0.19</b>	<b>0.32</b>	<b>0.32</b>	−0.03	<b>−0.26</b>	−0.02						
10. TD <sup>b</sup>	4.35	1.74	0.01	0.08	0.02	<b>0.20</b>	0.07	<b>−0.23</b>	<b>−0.38</b>	0.05	<b>0.36</b>					
11. RFPH <sup>b</sup>	3.13	1.12	0.02	0.06	0.01	<b>0.21</b>	<b>0.20</b>	<b>0.14</b>	<b>0.45</b>	<b>0.14</b>	<b>0.59</b>	<b>0.58</b>				
12. RPoH <sup>b</sup>	3.57	1.15	0.01	0.04	0.00	<b>0.28</b>	0.17	<b>0.17</b>	<b>0.48</b>	−0.11	<b>0.58</b>	<b>0.51</b>	<b>0.64</b>			
13. SEoW <sup>b</sup>	2.69	1.03	0.11	0.02	<b>0.21</b>	−0.01	0.15	<b>0.23</b>	−0.09	0.06	<b>0.58</b>	<b>0.36</b>	<b>0.63</b>	<b>0.34</b>		
14. MWB <sup>b</sup>	3.99	0.93	0.03	0.04	<b>0.33</b>	<b>0.24</b>	0.08	<b>−0.20</b>	<b>−0.55</b>	−0.13	<b>−0.46</b>	<b>−0.29</b>	<b>−0.56</b>	<b>−0.44</b>	<b>−0.46</b>	

Refer to variable’s abbreviation expansion in Figure 1; <sup>a</sup> binary variables—values provided under “Low” and “High” categories are counts and percentages in parenthesis; <sup>b</sup> metric variables with means and standard deviations; N = 605. All estimates with bold font are significant ( $p < 0.05$ ).

6.1. Research Model Assessment

The research model (M1) fits the data (Table 3), with all fit indices meeting the criteria. All the path coefficients (Figure 1) were significant except for the paths from work intensification to health risk factors and work-related chronic health conditions, which did not meet the criteria of 1.96 ( $p \leq 0.05$ ). To test the indirect effects of the HHW, the direct effect of work intensification on mental well-being, health risk factors, and chronic health conditions were added to the initial research model (M1), and this new model (M2) was fitted to the data. The differences between the chi-square statistics associated with M2 and M1 were statistically significant, and hence M2 with additional paths is equally good compared to M1 (see Table 3).

Table 3. Fit of the research models (N = 605).

Model	Chi Square	df	p	GFI	AGFI	RMSEA	NFI	CFI	IFI	Chi Square Difference	df
M1	693.77	109	0.00	0.98	0.97	0.11	1	1	1		
M2	658.57	105	0.00	0.99	0.99	0.11	1	1	1	M1–M2 = 35.20 ***	4

Note. GFI = goodness of fit; AGFI = adjusted goodness-of-fit index; RMSEA = root-mean-square error of approximation; NFI = normal fit index; CFI = comparative fit index; IFI = incremental fit index. \*\*\*  $p < 0.001$ .

6.2. Structural Model Assessment

The direct effect between work intensification (SDG 8) and mental well-being (SDG 3) was positive and significant (see dotted arrow in Figure 1), but, when the HHW was introduced in the direct effect path as a mediator, the direct effect changed to a significant negative effect. Hence, the mediation effect of the HHW on the relationship between work intensification and mental well-being was partial or competitive mediation ( $ab = -1.08$ ; Z-value =  $-6.97$ ;  $p \leq 0.01$ ). Furthermore, the results revealed a full mediation effect (i.e., direct effect— $c' = 0.04$ ;  $p \geq 0.05$ ; indirect effect— $ab = 0.76$ ;  $R^2 = 0.25$ ;  $Z = 3.63$ ;  $p \leq 0.001$ ) of the HHW on the relationship between work intensification (SDG 8) and health risk factors (SDG 3). It was also revealed in the full mediation effect that the HHW has the highest potential to predict high cholesterol ( $SE_b = 0.12$   $p \leq 0.01$ ), followed by high blood pressure ( $SE_b = 0.08$   $p \leq 0.01$ ), increased BMI ( $SE_b = 0.06$   $p \leq 0.01$ ), and smoking ( $SE_b = 0.06$   $p \leq 0.01$ ) among the health risk factors (SDG 3). However, there was no significant mediation effect of the HHW on the link between work intensification (SDG 8) and chronic health conditions (SDG 3).

7. Discussion

The study findings align with the existing business-health literature [4,5,21] on the interdependency between adverse/decent work conditions as a psychosocial hazard (SDG 8)

and health for the working population (SDG 3). Furthermore, this exploratory study extends the theoretical understanding of the business-health interdependency between adverse/decent work conditions (i.e., work intensification) (SDG 8) and health for the working population (SDG 3) from the transitional heightened risk perspective of work intensification in the new work paradigm context [12]. This study provides the first empirical evidence indicating that the HHW as a construct from the transitional effect perspective of heightened activation risks of work intensification is a potential leading indicator for mental well-being and health risk factors in the high work intensification context of MNEs in India.

An attempt is made here to use the effect size for practical significance based on the interpretation guidelines for mediation results, which is independent of the sample size [64]. The direct effect of the mediation study revealed that a one unit increase in work intensification improved the mental well-being of individuals by 0.18 unit (on its 6-point scale). This finding from MNEs in India is contrary to earlier findings that work intensification reduces mental well-being in three culturally distinct regions, such as Anglo-Saxon, China, and Latin American regions [38]. However, work intensification is the new work paradigm of the 21st century and is not stigmatised because work can also be challenging, rewarding, and can provide a strong occupational identity [12]. Hence, the result has provided empirical evidence for the view that work intensification improves employee mental well-being based on the new paradigm of work intensification being perceived as challenging and rewarding for employees working in MNEs operating from India.

This direct effect between work intensification (SDG 8) and mental well-being (SDG 3) changed to reduce the mental well-being among individuals when work intensification increased the HHW. That is, employee mental well-being decreased by 1.08 units (on its 6-point scale) for every one-unit increase in work intensification (on its 6-point scale) when the indirect effect of the HHW is considered. Hence, this finding extends the occupational health and sustainable HRM literature claiming that the HHW as a construct is relevant in identifying the transitional effect of the heightened risks of work intensification as a psychosocial hazard on mental well-being among employees based on the activation theory.

The mediation results further revealed that work intensification as the adverse/decent working condition (SDG 8) had no direct impact on health risk factors (SDG 3) in MNEs operating from India, which is in contrast to previous findings from the Western literature that work intensification had a positive significant impact on health risks [65]. However, this is the first study to establish empirical evidence supporting that the HHW caused by work intensification (SDG 8) transfers the entire effect to increasing health risk factors (SDG 3). That is, 0.25 percent of the variance in the health risk factors is explained by the HHW and not by work intensification. This finding opens a new opportunity for future research on health to explore the HHW as a transitional effect construct of the activation theory, in addition to the current dominant job demands–resources theory focus on the relationship between work intensification and health risk factors [44,45].

It is common in the business-health, occupational health and well-being, and SDGs literature to explore the interdependency of SDG 8 and SDG 3 using lagging work stress factors by researchers and practitioners as leading indicators of health risk factors, which may not be the effective 'adverse/decent work practices-related' leading indicators [55]. According to Sinelnikov and colleagues [10], the definition of work-related leading indicators of health outcomes, the leading indicators must be able to predict health outcomes and should be capable of changing those outcomes through work practice-based interventions. That is, even though work stress factors may be able to predict negative health outcomes, they are only biological risk factors for health outcomes. The increased work stress factors from the sustainability health definition highlights that the biological system has lost its capacity to naturally reverse itself for human performance and requires medical interventions to manage the risks [66]. However, the HHW, as a construct based on the

transitory effect perspective of heightened activation risks of work intensification, is an effective work practice-related leading indicator in the new work paradigm that can be used to prevent or delay the onset of risk factors which leads to negative health outcomes and health inequality from the SDGs perspective among the working population [67].

Firstly, the health in the SDGs literature suggests that, due to economic growth in high-income countries, there is evidence of the diminishing returns of occupational health and well-being [2] due to adverse/decent working conditions [67]. The study findings contribute to the understanding that the HHW is an important work practice-related leading indicator of health risk factors and reduced mental well-being (SDG 3), which can be used to strategically minimise the heightened risks of adverse/decent working conditions (SDG 8) among employees. Furthermore, these findings from MNEs operating in the developing economy are in alignment with the global trend of rapid economic growth leading to occupational health and well-being issues, highlighting the interactions between business and health and SDGs (i.e., SDG 8 and SDG 3) for social sustainability. Hence, the study has provided empirical evidence to validate and extend the activation theoretical perspective of the interactions of business and health to promote health for all employees in the employment stage of life using HHW as work-related leading indicators to identify the heightened risks of work intensification on occupational health.

Secondly, these findings contribute to the domains of business-health, sustainability, sustainable HRM and public health disciplines, and academic research in reorienting decent workplace practices (SDG 8) using the HHW as a leading indicator to understand occupational health and well-being risk factors to promote positive health (SDG 3). Hence, the findings can facilitate MNEs around the world to develop the business-health agenda to achieve a higher-level human/social sustainability aspiration, along with economic growth and employment.

Thirdly, in alignment with the interdependency of SDG 8 and SDG 3 for health, the recently published 2018 occupational health and safety standards 403 by the Global Reporting Initiatives (GRIs) for sustainability for the first time included work-related leading indicators as a standard for occupational health to promote SDG 3 [17]. Hence, the study findings contribute to sustainability, sustainable HRM, and public health professionals to encourage MNEs around the world to identify the HHW along with work intensification (i.e., the psychosocial hazard of work) as work-related leading indicators to promote better health and well-being outcomes for all at the employment stage of life to achieve SDG 3. Overall, this exploratory research shows that more remains to be achieved in understanding the theoretical perspective of interactions between business and health and SDGs from the job demands–resources theory and the activation theory perspectives to explore the transitory effect of the HHW on ill health to achieve better public health and well-being outcomes for employees and promote social sustainability for the common good of business and society.

## 8. Limitations, Future Research, and Conclusions

Considering this exploratory research as the first study on the HHW from the transitory effect perspective of heightened activation risks of work intensification to understand the interactions between business and health and SDGs has strength; it is limited by the data's cross-sectional nature, which restrains making any strong causal interpretations. However, researchers have indicated guidelines for cross-sectional data to be as powerful as longitudinal data to mitigate common method bias and enhance causal inference [66]. Hence, in this study based on the guidelines, the cross-sectional data were used with a combination of strong theory, careful survey design, and appropriate statistical tools to draw causal inferences of the study variables.

The failure to confirm some of the predicted paths (e.g., work intensification to health risk factors and work-related chronic health conditions) may be due to problems inherent in single-item scales. Possible research issues to be addressed include future research suggestions indicated in the discussion section to verify some of the unique findings



from this study conducted among employees in MNEs operating from India using other international studies. Furthermore, no significant mediation effects of the HHW on work-related chronic health conditions indicate that another suitable mediator, such as health risk factors, should be considered in future research. Finally, there is no statistically significant impact of age, gender, and years of experience as control variables on the study variables. This finding may be attributed to the markedly imbalanced group sizes, and hence future research from the perspective of the interactions between business and health and SDGs with a multiple-group approach may be helpful to study [68].

World institutions on sustainability, such as GRI, introduced standards for large MNEs to focus on work-related leading indicators to promote occupational health in alignment with SDG 3. This is the first known study that attempts to establish the HHW caused by work intensification (SDG 8) as work-related leading indicators based on the transitional effect perspective of the heightened activation risks of psychosocial hazard to reduce ill health in accordance with GRI standards and to improve employee mental well-being (SDG 3). The mediation study findings from MNEs in India indicate that work intensification (SDG 8) by itself in the new work paradigm [12] has little negative impact on employee mental well-being and health risk factors (SDG 3). However, when work intensification (SDG 8) increases the HHW as a heightened work activation risk, it becomes an early warning sign for sustainability, sustainable HRM, and public health professionals to act in shaping business-health agenda for sustainable work, and improved health, safety, and well-being among employees as internal stakeholders for integrated organisational and economic sustainability.

Governments and policy makers should consider introducing mandatory requirements or encourage MNEs to use self-regulatory GRI standards for identifying the HHW as work-related leading indicators of employee health and well-being from the sustainability perspective. The HHW as work-related leading indicators for adverse/decent working conditions (SDG 8) such as work intensification will facilitate organisations to avoid major public health risks in the society and to promote health and well-being for all in the employment stage of life to achieve SDG 3. The enhanced understanding occupational health from the transitional effect of heightened activation perspective from this study is important for MNEs to address ILO's renewed social sustainability goal of reducing avoidable occupational health-related deaths for social legitimacy.

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**Institutional Review Board Statement:** The study was approved by the Human Ethics Committee, Australian Catholic University, Australia—Approval ID: 2015-179E. Informed consent was obtained from all individual participants included in the study.

**Informed Consent Statement:** According to the Human Ethics Committee, Australian Catholic University, Australia, participants' voluntary participation is considered as informed consent.

**Data Availability Statement:** Data are contained within the article.

**Conflicts of Interest:** The author declares no conflict of interest.

## Appendix A

### *Appendix A.1. Work Intensification*

This section of the survey deals with the nature of your work demands and time demands using a seven-point rating scale.

1. Strongly disagree
2. Disagree
3. Slightly disagree
4. Neither agree nor disagree
5. Slightly agree
6. Strongly agree

1.	It often seems like I have too much work for one person to do	1	2	3	4	5	6
2.	There is too much work to do everything well	1	2	3	4	5	6
3.	The performance standards on my job are too high	1	2	3	4	5	6
4.	Having too much work to do in the time available	1	2	3	4	5	6
5.	The amount of work I am asked to do is fair. (reverse-scored)	1	2	3	4	5	6
6.	I never seem to have enough time to get everything done.	1	2	3	4	5	6
7.	To get ahead in the organisation, employees are expected to work more than their contracted hours each week	1	2	3	4	5	6
8.	Employees are often expected to work overtime or take work home at night and/or weekends	1	2	3	4	5	6
9.	Employees are regularly expected to put their jobs before their families or personal lives	1	2	3	4	5	6
10.	To be viewed favourably by senior managers, employees in my organisation must put their jobs ahead of their family or personal lives	1	2	3	4	5	6

Work-role overload—items 1–6; Time demands—items 7–10.

#### Appendix A.2. Health Harm of Work

Please indicate how strongly you agree or disagree with the following statements. Circle the number that most closely reflects your degree of agreement or disagreement.

1. Strongly disagree (SD)
2. Moderately disagree (MD)
3. Slightly disagree (SD)
4. Slightly agree (SA)
5. Moderately agree (MA)
6. Strongly agree (SA)

Harm of Work Practices on Employee Well-Being Outcomes		SD	MD	SD	SA	MA	SA
1.	I am often emotionally drained when I get home. (RF1)	1	2	3	4	5	6
2.	I am struggling to balance work and play. (RPH1)	1	2	3	4	5	6
3.	I feel that I have increased my consumption of coffee. (SE1)	1	2	3	4	5	6
4.	I frequently have disturbances to normal sleep. (SE2)	1	2	3	4	5	6
5.	I have increased my consumption of alcohol to relax after a day's work. (SE3)	1	2	3	4	5	6
6.	My self-confidence is negatively affected. (RF2)	1	2	3	4	5	6
7.	It is difficult for me to find time to implement strategies to control my weight. (RPH2)	1	2	3	4	5	6
8.	I am often irritable when I get home. (RF3)	1	2	3	4	5	6

Harm of Work Practices on Employee Well-Being Outcomes		SD	MD	SD	SA	MA	SA
9.	My emotional health is negatively affected. (RF4)	1	2	3	4	5	6
10.	I rarely find time to do regular physical exercise. (RPH3)	1	2	3	4	5	6
11.	I feel so 'down in the dumps' that nothing can cheer me up. (RF5)	1	2	3	4	5	6
12.	I rarely take regular breaks from work. (RPH4)	1	2	3	4	5	6
13.	I feel nervous of late. (RF6)	1	2	3	4	5	6
14.	I take too many sick leaves of late. (SE4)	1	2	3	4	5	6

Risk factors for psychological health (RFPH)—items 1, 6, 8, 9, 11, and 13. Restrictions for positive health (RPoH)—items 2, 7, 10, and 12. Side effects of work (SEoW)—items 3, 4, 5, and 14.

#### Appendix A.3. Mental Well-Being

1. Strongly disagree (SD)
2. Moderately disagree (MD)
3. Slightly disagree (SD)
4. Slightly agree (SA)
5. Moderately agree (MA)
6. Strongly agree (SA)

1.	You are a happy person	1	2	3	4	5	6
2.	You are calm and peaceful	1	2	3	4	5	6
3.	You are interested in things	1	2	3	4	5	6
4.	You feel fresh and rested?	1	2	3	4	5	6
5.	You feel having a lot of energy	1	2	3	4	5	6

#### Appendix A.4

##### (A) Health risk factors

1. Please indicate your height \_\_\_\_ meters; Weight \_\_\_\_ Kg
2. Are you a smoker? 1 (No) 2. (Yes)
  - a. If yes, how many cigarettes do you smoke in a day: 1 (<10) 2 (10 and more)
3. Blood pressure
  - a. Reported systolic/diastolic blood pressure >139/>89 mmHg or currently have high blood pressure.
  - b. Currently take medication for blood pressure
  - c. Currently under medical care for blood pressure
4. Cholesterol
  - a. Reported total cholesterol >239 mg/dL or currently have high cholesterol.
  - b. Currently take medication for cholesterol

To work out your BMI:

- divide your weight in kilograms (kg) by your height in metres (m)
- then divide the answer by your height again to get your BMI

For example:

- If you weigh 70 kg and you're 1.75 m tall, divide 70 by 1.75. The answer is 40.
- Then divide 40 by 1.75. The answer is 22.9. This is your BMI.

A binary health risk variable was created for each risk factor by assigning individuals a value "1" if high risk criteria were met and "0" if the risk was absent. In addition, a variable for total number of risks was created by summing risk factors, and the number of risks was categorised into low (defined as 0 to 2 risks), medium (3 to 4 risks), and high risk (5 or more risks).

#### Appendix A.5

##### (B) Occupational chronic health conditions

Please indicate whether you had a following condition by choosing an option:

1. Never
2. In the past
3. Have currently

If you have a condition, please indicate whether you are currently under medical care and/or taking medications for the condition.

Condition	Never	In the Past	Have Currently	If Responded to "3", Are under Medical Care and/or Medication	
1. Diabetes	1	2	3	1 (Yes)	2 (No)
2. Heartburn	1	2	3	1 (Yes)	2 (No)
3. Heart disease	1	2	3	1 (Yes)	2 (No)
4. Migraine	1	2	3	1 (Yes)	2 (No)

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