WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

The Impact that Overtime Work has on Vietnam's Manufacturing Workers' Burnout, Engagement, and Intention to Leave.

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DOI: https://doi.org/10.55248/gengpi.5.0424.0913

A B S T R A C T

In the context of controversy surrounding the issue of increasing maximum overtime hour in Vietnam, the study was conducted to clarify the effects of overtime on workers' intention to leave their jobs. This research aims to explain the relationship between overtime hour, burnout, engagement and intention to leave organization. The study was conducted by online surveys targeting workers who are working in manufacturing companies in Vietnam. There were 465 responses, but only 139 valid questionnaires were selected for data analysis. Results obtained from linear and quadratic analysis have drawn conclusions about both positive and negative roles of working overtime hour. All 6 hypotheses describing relationships between 4 variables including working overtime hour, burnout, engagement and intention to leave organization are accepted. There are 4 hypotheses matching result from previous research in the Job demand resource model on the relationship between burn out, engagement and intention to leave. In addition, the study confirmed both the positive and negative roles of over time hour: Working overtime hour has positive relationship with burn out which lead to negative impact on employee well-being such as intention to leave; working overtime hour have quadratic relationship with engagement which reduce intention to leave. The findings may suggest managers to arrange and allocate overtime appropriately, as well as the government to introduce overtime laws and resolve existing disputes.

Keywords: Overtime work, Burnout, Engagement, Intention to leave, Vietnam

1. Introduction

During the current period of economic development, working hours of workers are a very serious social issue. The situation that workers have to work overtime exceeding policy is very common. Therefore, in many factories in Vietnam, there have been many strikes of workers to claim labor rights. The last days of May 2018, due to forced overtime 74 hours per month and having to work in an unsecured environment, 500 garment workers in Tam Dan industrial cluster (Phu Ninh district, Quang Nam) quit their jobs to claim benefits (Trung Kien, 2018). Many workers reported that, fin the period of time after Lunar new year, they were forced to work overtime from Monday to Friday, adding 3.5 hours a day, including Sundays. This makes them extremely tired and exhausted. By the end of March 2018, nearly 4,000 workers of Yamani Dynasty Co., Ltd. located in Nam Hong Industrial Cluster (Nam Truc District, Nam Dinh) simultaneously quit their job, asking the company's leaders to improve the working conditions, including non-overtime work over 300 hours/year (Van Dong, 2018).

The leaving of workers greatly affects the business. The interrupted factories and production lines cause production stagnation and significant damage. Recruiting new workers and retraining also cause a lot of loss of time and money.

Besides, now government of Vietnam are arguing about making the rule about maximum hour for working overtime. Some of them think that: Currently, the total number of overtime hours of Vietnamese businesses is limited to about 300 hours - much lower than that of competing countries such as Bangladesh 408 hours, China 432 hours, Indonesia 728 hours (Le, 2019). Lots of businesses also want to increase overtime hour to be able to keep up with the work progress. Moreover, in reality, many workers are willing to work overtime, and even look for jobs that give them opportunity to work overtime on the grounds that they want to earn extra income.

According to the results of the salary, income, expenditure and life survey of employees in 2018 announced by the Vietnam General Confederation of Labor and the Institute of Workers - Union, the basic monthly salary of employees (if they work full time, full working days) received an average of 4.67 million dong/month. However, workers have to spend a lot of money to ensure their life, while with many people the fixed salary is not enough to cover their own lives and their families so they need to work overtime and earn extra income. In addition to basic wages (accounting for 84.4%), workers also receive overtime pay, attendance money and other allowances, supports from businesses. With this additional amount and basic salary, the average income of workers (excluding meals) increases to nearly 5.53 million VND / month. Many workers have given up unstable outside jobs to apply for jobs in industrial parks and have worked with the company for a long time because of stable salary, having conditions to increase their income if they work hard. On the other hand, they are regularly involved in activities to take care of their spiritual life organized by unions. In addition to income, some people also

feel that having more overtime will reduce the time pressure to achieve the target. Thus, increasing maximum overtime hour is desired by both workers and businesses.

This fact would suggest that working long hours may be the reason for factory workers to leave. However, how that effects workers‟ decision to leave is far from clear. Overtime working provide workers with additional income and usually at higher pay rates. So why workers oppose overtime working and even leave? It can be seen that may overtime is affecting the employee's intention to quit in both negative and positive ways simultaneously.

So far, there have been a number of studies explaining separately the correlation between overtime and burnout (Rupert, Hartman & Miller, 2013; Yoder, 2010; Leiter & Maslach, 1988; Maslach, Schaufeli & Leiter, 2001), employees‟ health (Johnson & Lipscomb, 2006) or overtime and satisfaction, engagement with businesses (Watanabe & Yamauchi, 2018), that lead to leaving intention. Most of the above studies only looked at individual effects, either negative or positive on employee's intention to leave, but were not generalized when both had simultaneous impacts on ITL.

This thesis investigates the effect of overtime working on Vietnamese worker's intention to leave through cause-effect relationship between working overtime, burn out, engagement and intention to leave.

2. Literature review

The model of this research will focus on clarifying the role of working overtime on ITL through burnout and engagement. The relationship between burn out, engagement and ITL are adaptive with JDR model. Not only JDR model, there have also been many studies that have shown similar relationships of them. For example: the negative impact of engagement on ITL has been proved by Du Plooy and Roodt (2010), Halbesleben and Wheeler (2008); crossover interrelation between engagement and burn out was discussed by Bakker, Emmerik, and Euwema (2006); physical and mental burn out leading to the intention of quitting is an old topic that has long been studied by Weisberg, and Sagie (1999), Leung and Lee (2006). But there have been no studies that applied the JDR model to clarify the role of working overtime on burnout, engagement and organizational outcome.

Relationship between working overtime and burnout

Leiter (1997) viewed burnout in terms of exhaustion, cynicism and reduced professional efficacy. Similarly, Pines and Aronson (1988) defined burnout as "a state of physical, emotional, and mental exhaustion". Burnout measurement scale by Pines (2005) also developed based on this definition.

The fact that overtime workers lead to burnout is also highlighted in many articles. So, this relationship seems to be easy to predict. Most previous studies have pointed to the negative role of working overtime on employees' well-being. Luther et al. (2017) concluded that clinicians those working overtime are much more burnout and facing to stronger work–life conflict than those not working overtime. Kok et al. (2016) claimed that working around 45 hours per week or more can lead to heavier burnout among military mental health providers. Likewise, Rupert, Hartman and Miller (2013) pointed out a strong positive relationship between the average working hours per week and the emotional exhaustion (a dimension of burnout). Supporting for above hypothesis, Yoder (2010) demonstrated that working overtime worked as a trigger for burnout, which is a reaction of chronic work-related stress (Leiter & Maslach, 1988; Maslach, Schaufeli & Leiter, 2001) presented by emotional exhaustion, depersonalization. When considering the opposite direction, Peterson et al. (2008) found that exhausted employees described more frequency of overtime than workers who were non-burned-out and disengaged. Imai et al. (2004) suggested a similar issue that working overtime hours is one of contributions to burnout.

Surprisingly, there are also many studies proving the opposite. Richter et al. (2014) asserted that decrease in working time in a hospital could not lead to a related reduced risk of burnout. Study of Shirom, Nirel, and Vinokur (2010) also indicates that work hours do not influence burnout directly . Similarly, Schaufeli, Taris and van Rhenen (2008) also concluded that overtime did not cause burnout of employees. However, with given the current situation in the context of workers working at manufacturing companies in Vietnam, the hypothesis of relationship between burnout and working overtime in this paper is still positive relationship.

Relationship between working overtime and engagement.

Work engagement is defined as follows (Schaufeli, Salanova, González-Romá & Bakker, 2001)

"Engagement is a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption. Rather than a momentary and specific state, engagement refers to a more persistent and pervasive affective-cognitive state that is not focused on any particular".

The problem of workers who were forced to work overtime too much leading to exhaustion, protests and even turnover decision, is an indisputable practice. While engagement is an important indicator for predicting well-being, it may seems that working overtime has a negative impact on engagement. Watanabe and Yamauchi (2018) argued that involuntary overtime work described a negative impact on mental health and work engagement, whilst voluntary overtime work bring a positive effect on well‐being. On the other hand, Beckers et al. (2004) founded that both compulsive drive and engagement are positively associated with working overtime. But based on the reality from interviews with workers and even the government's controversy over the desire to increase maximum overtime hour, it can be seen that, from another perspective, the workers themselves may want to work overtime more. More overtime makes them more satisfied because they can increase their income or reduce the pressure on time to meet the productivity targets. This evokes an idea that not only does working overtime have a negative effect on engagement, but, to some extent, can have a positive impact on engagement. Therefore, this research hypothesizes that working overtime has quadratic (inverted U-shape) relationship with engagement.

Based on the literature review, the conceptual framework was developed as followed.

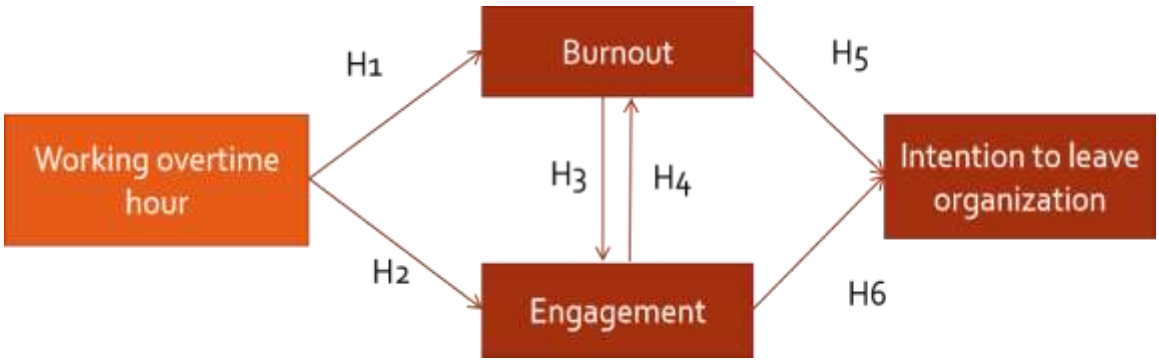

Figure 1: The research framework

Hypothesis 1 (H1): Working overtime hour has positive impact on burnout of employee

Hypothesis 2 (H2): Working overtime hour has inverted U-shape influential relationship with employee's engagement

Hypothesis 3 (H3): Employee's burnout has negative impact on employee's engagement

Hypothesis 4 (H3): Employee's engagement has negative impact on employee's burn out

Hypothesis 5 (H5): Employee's burnout has positive impact on employee's ITL organization.

Hypothesis 6 (H6): Employee's engagement has negative impact on employee's ITL organization.

3. Methodology

This study is carried out to investigate the impact that overtime work has on Vietnam's manufacturing workers' burnout, engagement, and intention to leave. The targeted participants of this research are workers working at manufacturing company in Vietnam and receiving the overtime compensation in accordance with the law of Vietnam. However, to prevent the effects of demographic factors, this paper will narrow the study's subject based on age and gender. Specifically, subjects that are female, under 30 years old will be selected for data analysis. According to Hair et at (1998), the minimum number of samples should be equal to the number of items measuring multiplying 5. The survey has all 4 variables measured by 25 questions. Therefore, based on this theory, the minimum number of valid samples in the survey should be 125. The questionnaire consists of 3 main parts. The first part is to introduce the purpose and summarize the content of the questionnaire so that respondents can easily understand the problem and implement the questionnaire. The next section is the most important, including questions that measure variables. The respondent's demographic data is included in the final section. The IBM teams will use SPSS Statistics Software (version 20.0) to process the data obtained from the online questionnaire survey. First, the reliability of the measured instruments for four of the variables employed in this study will be tested using the Cronbach's Alpha test. Second, the test group will be given access to the analyzing factors based on the real data through the use of the Confirmatory Factor analysis (CFA). Thirdly, to find out if there are reliable correlations between the independent and dependent variables, a Pearson Correlation test will be performed. Lastly, linear regression will be used to analyze the data in order to assess the research's underlying hypotheses.

4. Results and findings

4.1 Data description

A total of 465 questionnaires were answered, of which 354 respondents were the target objects of the survey, who are workers in manufacturing, assembling, processing companies and have compensation for overtime according to Viet Nam labor law. However, only 139 responses were taken for data analysis. These are answers from female workers and under 30 years old. To avoid the effects of demographic factors, the subjects for data analysis were scaled based on gender and age. According to the study of Luekens et al. (2004), women are more likely to quit their jobs than men. Moreover, according to the Ministry of Labor, Invalids and Social Affairs, in the formal economic sector, women account for a high proportion in the intermediate, low-skilled occupations, typically worker (among those who do not require high knowledge, skills, over 50% are female). On the other hand, a study by Ahuja et al. (2007) or Collins (2014) also showed that age is related to employees' ITL their jobs. The younger employee, the less engaged with the business and the greater the intention to quit. Therefore, this study has selected this object to analyze data. In addition to age and gender, education and income level is also associated with the intention to quit (Kelly, 2004; Stockard and Lehman, 2004; Johnson and Birkeland, 2003). However, research is only aimed at workers who are low-educated, have similar low-income and not diverse.

Table 1: Descriptive Statistics

Abb.	Item	N	Min	Max	Mean	S.D.
EV1	At my work, I feel bursting with energy	**139**	1.00	5.00	3.245	0.833
EV2	At my job, I feel strong and vigorous	**139**	1.00	5.00	3.288	0.810
EV3	When I get up in the morning, I feel like going to	**139**	1.00	5.00	3.345	0.968
ED4	I am enthusiastic about my job	**139**	1.00	5.00	3.871	0.824
ED5	My job inspires me	**139**	1.00	5.00	2.957	0.970
ED6	I am proud on the work that I do	**139**	1.00	5.00	3.094	1.089
EA7	I feel happy when I am working intensely	**139**	1.00	5.00	3.108	1.159
EA8	I am immersed in my work	**139**	2.00	5.00	3.475	0.958
EA9	I get carried away when I'm working	**139**	1.00	5.00	3.331	0.959
B1	When you think about your work overall, how often do you feel tired?	**139**	1.00	5.00	2.813	0.848
B2	When you think about your work overall, how often do you feel disappointed with people?	**139**	1.00	5.00	2.370	0.889
B3	When you think about your work overall, how often do you feel hopeless?	**139**	1.00	5.00	2.223	0.948
B4	When you think about your work overall, how often do you feel trapped?	**139**	1.00	5.00	2.532	0.973
B5	When you think about your work overall, how often do you feel helpless?	**139**	1.00	5.00	2.388	0.897
B6	When you think about your work overall, how often do you feel depressed?	**139**	1.00	4.00	2.079	0.860
B7	When you think about your work overall, how often do you feel physically weak/Sickly?	**139**	1.00	5.00	2.230	1.023
B8	When you think about your work overall, how often do you feel worthless/like a failure?	**139**	1.00	4.00	2.201	0.910
B9	When you think about your work overall, how often do you feel difficulties sleeping?	**139**	1.00	4.00	2.058	0.875
B10	When you think about your work overall, how often do you feel "I've had it"?	**139**	1.00	5.00	2.266	1.004
I1	As soon as I can find a better job, I'll leave my organization?	**139**	1.00	5.00	2.806	1.056
I2	I am actively looking for a job outside my place of employment.	**139**	1.00	4.00	1.993	0.803
I3	I am seriously thinking about quitting my job.	**139**	1.00	5.00	2.065	0;911
I4	I often think of quitting my job at my organization	**139**	1.00	5.00	2.173	0.963
I5	I think I'll still be working at my place of employment 5 years from now.	**139**	1.00	5.00	3.345	0.805

4.2 Reliability analysis

In order to assess the reliability of the scale and eliminate the unreliable measuring items, this study use Cronbach„s Alpha test for scales of both independent and dependent variables, respectively.

If measurement items have Corrected Item-Total Correlation $\geqslant$ 0.3, these items reach standard.

Table 2: Reliability analysis

Item-Total Statistics						
Item	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**	**Cronbach's Alpha**	**N of Items**
EV1	6.633	2.509	0.684	0.730		
EV2	6.590	2.563	0.690	0.727	0.815	3
EV3	6.532	2.222	0.640	0.786		
ED4	6.050	3.787	0.551	0.877		
ED6	6.827	2.419	0.775	0.662	0.825	3
ED5	6.964	2.832	0.754	0.682		
EA7	6.806	2.955	0.662	0.757		
EA8	6.439	3.494	0.704	0.705	0.812	3
EA9	6.583	3.665	0.641	0.766		
B1	20.353	34.708	0.536	0.871		
B2	20.791	34.326	0.545	0.871		
B3	20.942	32.895	0.642	0.864		
B4	20.633	33.422	0.570	0.869		
B5	20.777	33.189	0.656	0.863	0.878	10
B6	21.086	33.355	0.672	0.862		
B7	20.935	32.583	0.611	0.866		
B8	20.964	33.528	0.609	0.866		
B10	20.899	31.917	0.692	0.859		
B9	21.108	34.836	0.501	0.874		
I1	9.576	7.811	0.692	0.813		
I2	10.388	9.500	0.578	0.840		
I3	10.317	8.174	0.769	0.790	0.850	5
I4	10.209	7.833	0.788	0.782		
I5	9.036	9.861	0.494	0.858		

Test results show that all observed items have Corrected Item-Total Correlation > 0.3, Cronbach"s Alpha of each group of items > 0.815 so this is a very good measurement scale.

However, Cronbach's Alpha if Item E4 deleted = 0.877 > 0.825 (Cronbach"s Alpha of group of items representing for Dedication), so we will remove item E4 to improve reliability of this scale. Cronbach's Alpha if Item I5 Deleted = 0.858> 0.850 (Cronbach"s Alpha of group of items representing for ITL), so we will remove item I5 to improve reliability of this scale.

In summary, after analyzing reliability, 2 items were rejected, including: E4 and I5. Now the Engagement scale has 8 items, the ITL scale has 4 items, the Burn out scale still has 10 items.

Confirmatory Factor Analysis (CFA)

The Kaiser-Meyer-Olkin coefficient (KMO) is an indicator used to consider the suitability of factor analysis. The achieved results must meet the following conditions: $0.5 \leqslant KMO \leqslant 1$ for factor analysis is appropriate. The larger the KMO, the greater the common part between variables.

Bartlett's test is used to see if observed items are correlated with each other. If Sig Bartlett"s Test <0.05, it shows that the observed items are correlated with each other in a factor.

Total Variance Explained ⩾ 50% shows that group of these items is suitable. Considering the variance to be 100%, this value shows how much extracted items can be condensed and how many percentages of the observed items will be lost.

CFA analysis of Engagement Vigor

KMO = 0.715> 0.5, so the common part between the items is very large, factor analysis is accepted. Sig Bartlett‟s Test = 0.000 <0.05, indicating that the observed items are correlated with each other in a factor.

Table 3: KMO and Bartlett's Test of Virgo

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.715
Bartlett's Test of Sphericity	Approx. Chi-Square	145.608
	df	3
	Sig.	0.000

Total Variance Explained = 73.54% ⩾ 50%, extracted items are condensed to 73.54% of the observed variable.

Table 4: Total Variance Explained of Virgo

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative%
1	2.206	73.540	73.540	2.206	73.540	73.540
2	0.441	14.703	88.243			
3	0.353	11.757	100.000			

The result of the Component Matrix (Rotated) table shows that the 3 items below are only grouped into one factor. Factor loading of each item ⩾ 0.7, so the observed items is statistically very good.

Table 5: Component Matrix of Virgo (Rotated)

Item	Component
	1
VE2	0.870
VE1	0.867
VE3	0.836

CFA analysis of Engagement Dedication

KMO = 0.5, factor analysis is accepted. Sig Bartlett‟s Test = 0.000 <0.05, indicating that the observed items are correlated with each other in a factor.

Table 6: KMO and Bartlett's Test of Dedication

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.500
Bartlett's Test of Sphericity	Approx. Chi-Square	131.225
	df	1
	Sig.	0.000

Total Variance Explained = 89.295% ⩾ 50%, extracted items are condensed to 89.295% of the observed variable.

Table 7: Total Variance Explained of Dedication

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.786	89.295	89.295	1.786	89.295	89.295
2	0.214	10.705	100.000			

The result of the Component Matrix (Rotated) table shows that the 2 items below are only grouped into one factor. Factor loading of each item ⩾ 0.7, so the observed items is statistically very good.

Table 8: Component Matrix of Dedication (Rotated)

Item	Component
	1
ED5	0.945
ED6	0.945

CFA analysis of Engagement Absorption

KMO = 0.712 > 0.5, so the common part between the items is very large, factor analysis is accepted. Sig Bartlett‟s Test = 0.000 <0.05, indicating that the observed items are correlated with each other in a factor.

Table 9: KMO and Bartlett's Test of Absorption

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.712
Bartlett's Test of Sphericity	Approx. Chi-Square	143.368
	df	3
	Sig.	0.000

Total Variance Explained = 73.259% ⩾ 50%, extracted items are condensed to 73.259% of the observed variable.

Table 10: Total Variance Explained of Absorption

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.198	73.259	73.259	2.198	73.259	73.259
2	0.447	14.907	88.167			
3	0.355	11.833	100.000			

The result of the Component Matrix (Rotated) table shows that the 3 items below are only grouped into one factor. Factor loading of each item ⩾ 0.7, so the observed items is statistically very good.

Table 11: Total Variance Explained of Absorption

Item	Component
	1
EA8	0.876
EA7	0.851
EA9	0.840

CFA analysis of Burn out

KMO = 0.886> 0.5, so the common part between the items is very large, factor analysis is accepted. Sig Bartlett‟s Test = 0.000 <0.05, indicating that the observed items are correlated with each other in a factor.

Table 12: KMO and Bartlett's Test of Burn out

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.886
Bartlett's Test of Sphericity	Approx. Chi-Square	536.208
	df	45
	Sig.	0.000

Total Variance Explained = 48.154% < 50%, so we removed item B9 with the smallest loading factor to improve Total Variance Explained.

Table 13: Total Variance Explained of Burn out

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.815	48.154	48.154	4.815	48.154	48.154
2	0.977	9.775	57.928			
3	0.808	8.083	66.011			
4	0.676	6.755	72.766			
5	0.636	6.363	79.130			
6	0.576	5.764	84.894			
7	0.507	5.074	89.968			
8	0.366	3.655	93.623			
9	0.345	3.449	97.072			
10	0.293	2.928	100.000			

Table 14: Component Matrix of Burn out (Rotated)

Item	Component
	1
B10	0.768
B6	0.752
B5	0.740
B3	0.727
B7	0.713
B8	0.700
B4	0.667
B2	0.634
B1	0.626
B9	0.589

After removing item B9, Total Variance Explained = 50,217% > 50%, the extracted items are condensed 50,217% of the observed variable.

Table 15: Total Variance Explained of Burn out (after removing B9)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.520	50.217	50.217	4.520	50.217	50.217
2	0.909	10.100	60.318			
3	0.767	8.522	68.839			
4	0.649	7.207	76.046			
5	0.612	6.797	82.843			
6	0.512	5.691	88.534			
7	0.373	4.145	92.679			
8	0.364	4.042	96.720			

9	0.295	3.280	100.000

The result of the Component Matrix (Rotated) table shows that the 9 items below are only grouped into one factor. Factor loading of each item ⩾ 0.5, so the observed items is statistically good and very good.

Table 16: Component Matrix of Virgo (Rotated, after remove B9)

Item	Component
	1
B10	0.761
B6	0.754
B5	0.750
B3	0.724
B8	0.718
B7	0.703
B4	0.683
B2	0.645
B1	0.626

CFA analysis of ITL

KMO = 0.793> 0.5, so the common part between the items is very large, factor analysis is accepted. Sig Bartlett‟s Test = 0.000 <0.05, indicating that the observed items are correlated with each other in a factor.

Table 17: KMO and Bartlett's Test of ITL

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.793
Bartlett's Test of Sphericity	Approx. Chi-Square	271.289
	df	6
	Sig.	0.000

Total Variance Explained = 70.701% ⩾ 50%, extracted items are condensed to 70.701% of the observed variable.

Table 18: Total Variance Explained of ITL

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	**% of Variance**	**Cumulative %**	**Total**	**% of Variance**	**Cumulative %**
1	2.828	70.701	70.701	2.828	70.701	70.701
2	0.562	14.044	84.745			
3	0.393	9.815	94.560			
4	0.218	5.440	100.000			

The result of the Component Matrix (Rotated) table shows that the 4 items below are only grouped into one factor. Factor loading of each item ⩾ 0.5, so the observed items is statistically very good.

Table 18: Component Matrix of ITL (Rotated)

Item	Component
	1
I3	0.894
I4	0.893

I1	0.811
I2	0.757

In summary, after CFA analysis, items B9 were rejected. Now the Burn out scale has 9 items, the ITL scale has 4 items, the Engagement scale has 8 items.

4.4 Pearson correlation analysis

Representative variables are generated through averaging the accepted items: Burn out (BO)=mean(B1,B2,B3,B4,B5,B6,B7,B8,B10)

- Intention to leave (ITL)=mean(I1,I2,I3,I4)
- The engagement value is equal to the average of the 3 factors Vigor, Dedication, Absorption.
- Vigor(VI)=mean(E1,E2,E3) Dedication(DE)=mean(E5,E6) Absorption(AB)=mean(E7,E8,E9) Engagement(ENG)=mean(VI,DE,AB)

There is a correlation between two variables if value of Sig. (2-tailed) <0.05 The Pearson correlation values (r) range from -1 to 1:

- If r toward to 1 or -1: the linear correlation is more significant. Positive r indicates positive correlation while negative r indicates negative correlation.
- If r goes to 0: the linear correlation is weaker.
- If r = 1: absolute linear correlation, when presented points on the Scatter plot, the points represented will merge into a straight line.
- If r = 0: Now there will be 2 situations. Firstly, there is no correlation between the two variables. Second, there is a nonlinear relationship between them.

Table 20: Pearson Correlation statistic

		WO	**ENG**	**BO**	**ITL**
WO	Pearson Correlation	1	-0.046	0.410	0.143
	Sig. (2-tailed)		0.594	0.000	0.093
	N	139	139	139	139
ENG	Pearson Correlation	-0.046	1	-0.475	-0.712
	Sig. (2-tailed)	0.594		0.000	0.000
	N	139	139	139	139
BO	Pearson Correlation	0.410	-0.475	1	0.611
	Sig. (2-tailed)	0.000	0.000		0.000
	N	139	139	139	139
ITL	Pearson Correlation	0.143	-0.712	0.611	1
	Sig. (2-tailed)	0.093	0.000	0.000	
	N	139	139	139	139

Between WO and BO: Sig. (2-tailed) <0.05 and r = 0.41, so there is a positive correlation between working overtime hour and burn out.

Between WO and ENG: Sig. (2-tailed) >0.05, so there is no linear correlation between working overtime hour and engagement.

Between ENG and BO: Sig. (2-tailed) <0.05 and r = -0.475, so engagement and burn out are negatively correlated

Between ENG and IIL: Sig. (2-tailed) <0.05 and r = -0.712, so engagement and ITL are negatively correlated

Between BO and ITL: Sig. (2-tailed) <0.05 and r = 0.490, so there is a positive correlation between burn out and ITL

4.5 Regression Analysis

Testing hypothesis 1: Working overtime hour has positive impact on burnout of employee.

Table 21: Regression Analysis Summary of Working overtime hour and Burn out

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.410	0.168	0.162	0.600	1.972

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9.992	1	9.992	27.749	0.000[b]
	Residual	49.333	137	0.360		
	Total	59.325	138			

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	1.647	0.142		11.610	0.000
1	WO	0.221	0.042	0.410	5.268	0.000

Adjusted R Square = 0.162 shows that the Working overtime hour affects 16.2% on the change of the Burn out. Durbin – Watson (DW) = 1.972 so there is a high probability that there is no first-order auto correlation.

Sig (F-test) = 0.000<0.05, Sig (t-test) = 0.000 <0.05, Standardized Coefficients Beta = 0.41, indicates that the Working overtime hour has the positive relationship with Burn out. The equation describing relationship between Working overtime hour and Burn out is as below: BO = 0,221*WO + 1.647.

Testing hypothesis 2: Working overtime hour has inverted U-shape influential relationship with employee's engagement

Table 22: Regression Analysis Summary of the impact of Working overtime on Engagement

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.608	0.370	0.360	0.619

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	**30.531**	**2**	**15.266**	**39.867**	**0.000**
Residual	**52.077**	**136**	**0.383**		
Total	**82.608**	**138**			

Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
WO	**1.686**	**0.197**	**2.648**	**8.540**	**0.000**
WO ** 2	**-0.254**	**0.029**	**-2.761**	**-8.904**	**0.000**
(Constant)	**0.793**	**0.317**		**2.501**	**0.014**

Adjusted R Square = 0.36 shows that there is quadratic relationship between Working overtime hour and Engagement, working overtime hour affects 36% on the change of the Engagement.

Sig (F-test) = 0.000<0.05, Sig (t-test) = 0.000 <0.05, Standardized Coefficients Beta (WO) = 2,648, Standardized Coefficients Beta (WO2) = -2,761, the quadratic equation describing relationship between Working overtime hour and Engagement is as below: ENG = -0.254*WO2 + 1.686*WO + 0.793

Testing hypothesis 3: Employee's burnout has negative impact on employee's engagement

Table 23: Regression Analysis Summary of impact of Engagement on Burn out

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.475	0.226	0.220	0.579	1.936

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13.407	1	13.407	40.002	0.000[b]
	Residual	45.918	137	0.335		
	Total	59.325	138			

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.637	0.210		17.310	0.000
	ENG	-0.403	0.064	-0.475	-6.325	0.000

Adjusted R Square = 0.220 shows that the Engagement affects 22% on the change of the Burn out. Durbin – Watson (DW) = 1.936 so there is a high probability that there is no first-order auto-correlation.

Sig (F-test) = 0.000<0.05, Sig (t-test) = 0.000 <0.05, Standardized Coefficients Beta = -0.475, indicates that the Engagement has the negative impact on Burnout. The equation describing relationship between Engagement and Burn out is as below: BO = -0.403*ENG + 3.637

Testing hypothesis 4: Employee's engagement has negative impact on employee's burn out

Table 24: Regression Analysis Summary of impact of Burn out on Engagement

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.475[a]	0.226	0.220	0.683	1.250

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18.669	1	18.669	40.002	.000[b]
	Residual	63.939	137	0.467		
	Total	82.608	138			

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.523	0.216		20.948	0.000
	BO	-0.561	0.089	-0.475	-6.325	0.000

Adjusted R Square = 0.22 shows that the Burn out affects 22% on the change of the Engagement. Durbin – Watson (DW) = 1.250 so there is a probability that there is no first-order auto correlation.

Sig (F-test) = 0.000<0.05, Sig (t-test) = 0.000 <0.05, Standardized Coefficients Beta = -0.475, indicates that the Burn out has the negative impact on Engagement. The equation describing relationship between Burn out and Engagement is as below: ENG = -0.561*BO + 4.523

Testing hypothesis 5: Employee's burnout has positive impact on employee's ITL organization.

Table 25: Regression Analysis Summary of impact of Burn out on ITL

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.611	0.373	0.368	0.624	1.520

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	31.717	1	31.717	81.472	0.000b
	Residual	53.334	137	0.389		
	Total	85.051	138			

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.544	0.197		2.760	0.007
	BO	0.731	0.081	0.611	9.026	0.000

Adjusted R Square = 0.368 shows that the Burn out affects 36,8% on the change of the ITL. Durbin – Watson (DW) = 1.520 so there is a probability that there is no first-order auto-correlation.

Sig (F-test) = 0.000<0.05, Sig (t-test) = 0.000 <0.05, Standardized Coefficients Beta = 0.611, indicates that the Burn out has the positive impact on ITL. The equation describing relationship between Burn out and ITL is as below: TIL = 0.731*BO + 0.544

Testing hypothesis 6: Employee's engagement has negative impact on employee's ITL organization.

Table 26: Regression Analysis Summary of impact of engagement on ITL

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.712	0.506	0.503	0.554	1.513

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	43.069	1	43.069	140.550	0.000b
	Residual	41.982	137	0.306		
	Total	85.051	138			

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.575	0.201		22.771	0.000
	ENG	-0.722	0.061	-0.712	-11.855	0.000

Adjusted R Square = 0.368 shows that the Burn out affects 36,8% on the change of the ITL. Durbin – Watson (DW) = 1.520 so there is a probability that there is no first-order auto-correlation.

Sig (F-test) = 0.000<0.05, Sig (t-test) = 0.000 <0.05, Standardized Coefficients Beta = 0.611, indicates that the Burn out has the positive impact on ITL. The equation describing relationship between Burn out and ITL is as below: TIL = 0.731*BO + 0.544

Table 4.11: The results of multiple linear regression.

Hypotheses	Results
Hypothesis 1 (H1): Working overtime hour has positive impact on burnout of employee.	Supported
Hypothesis 2 (H2): Working overtime hour has inverted U-shape influential relationship with employee's engagement	Supported
Hypothesis 3 (H3): Employee's burnout has negative impact on employee's engagement	Supported
Hypothesis 4 (H4): Employee's engagement has negative impact on employee's burn out	Supported
Hypothesis 5 (H5): Employee's burnout has positive impact on employee's ITL organization.	Supported
Hypothesis 6 (H6): Employee's engagement has negative impact on employee's ITL organization	Supported

5. Results and Discussion

Each of the relationships in Hypothesis 3,4,5,6 is accepted. This show that the relationship between burnout, engagement and ITL are adaptive with the corresponding relationships in in JDR model. Specifically, the research results show that engagement affects 50.3% on the change of the ITL, proving that the role of engagement contributes greatly to ITL. Accepted H6 also supports the results of previous studies on the relationship of engagement and ITL by Du Plooy and Roodt (2010), Halbesleben and Wheeler (2008). Burn out has a positive effect on the intention to quit, but burn out only explains 36,8% of the change in ITL, lower than engagement. This is understandable, as previous studies also showed that burn out leads to health outcomes problems much more clearly than outcomes about motivational outcome, like ITL. The fact also shows that exhausted workers will lead to health problems and errors in the working process as well as work efficiency. Malnourished workers often suffer from malnutrition, weak resistance, easy attack, especially in polluted and unsafe working environment, increasing pressure of hard work. According to Doctor Huynh Tan Tien, Director of Ho Chi Minh City Center for Occupational Health and Environmental Protection (2019), workers are at a high risk of diseases, mainly from ear, nose and throat diseases (31%), eyes (23.11%) and maxillofacial (18%). Although the impact on the intention to quit is not really great but decreasing burn out also increases employee engagement with work, while engagement is a key factor in reducing employees' intention to quit. The results of the reciprocal relationship between burn out and engagement coincide with study of Bakker, Emmerik and Euwema (2006) as well as JDR model.

Increasing the number of working overtime hours will increase employee exhaustion. This result is not surprising and consistent with many previous studies that more working overtime more exhausted (Luther et al., 2017; Kok et al., 2016; Rupert, Hartman & Miller, 2013; Yoder, 2010; Imai et al., 2004). Consequently, it becomes evident that employees experience burnout when they work over 40 hours per month, a level that remains notably high compared to the government's maximum prescribed limit. However, the study's target respondent is those under 30 years old, so this is understandable. Because this age often has good health and ability to work at higher intensity than older ages. However, the results showed that overtime hour affected only 16.2% of burn out. This demonstrates that there are also many other factors dominate the exhaustion of workers, not merely number of hours. For example: distributed or concentrated overtime arrangement, breaks time for employees to regain strength, whether there is organizational support in nutrition or the work environment to improve health for workers or not.

Working overtime hour has quadratic relationship with engagement. This hypothesis is different from previous studies on the impact of overtime on engagement of Beckers et al. (2004), but it was made based on practice issue that occurred in the context of Vietnamese workers. Watanabe & Yamauchi (2018) claimed that involuntary overtime work impacts negatively on mental health and work engagement. In this research context, workers also often work overtime as assigned by manager, it is less likely that workers can voluntarily or arrange their overtime themselves. However, the finding from quadratic regression of this study were different from that of Watanabe & Yamauchi. This difference may stem from the study subjects. In this paper, target respondent is a worker at manufacturing company. They are often people without professional knowledge, low income, so they usually want to work more to increase income. Meanwhile, research subjects of Watanabe & Yamauchi are nurses. They are people having professional knowledge and stable income, but the nurse job requires a lot of time and night duty so maybe they do not have much desire to work overtime but want to spend more time with their family and themselves. As such, in this research, the engagement to organization will increase when working overtime with a low level. The reason is that the wages of the workers are quite low, if they only work the usual number of times, it is hard to cover their living. In order to get additional income, for simple jobs of workers when the salary is calculated by working time, overtime is the optimal solution. If they can get more money from overtime, they can meet their demand and feel more engaged to their work. However, when the overtime is too much, it will lead to an imbalance in life, they do not have enough time to take care of yourself and your family, leading to dissatisfaction and disengagement to work. Moreover, when the overtime is too high, it causes exhaustion and also contribute to reduce engagement. Based on the graph 4.2 we can see that engagement increases when employees work around from less than 2.5 hours/week to less than 7.5 hours/week (from less than 10 hours/month to less than 30 hours/month). Beyond this time, engagement will decrease. Amazingly, this is in line with the current situation where the government stipulates that organizations can conduct working overtime within 30 hours a month. However, overtime hour only explains 36% of engagement. According to the interviews with workers, not only the income that makes them want to stay in company, but other welfare policies also greatly influence the worker's decision to work at the company. For example: Policy for health insurance, social insurance, the care for the spiritual life of trade unions, moreover, long-term job stability compared to free precarious jobs outside.

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