

Observing the Influence of Job Demands, Job Resources, and Family Demands on Work Engagement Moderated by Self-Efficacy

Samsiah Rangkuti^{1*}, Meirani Harsasi², Daru Asih³,
Shine Pintor Siolemba Patiro⁴, & Sri Yusriani^{5*}

^{1,2,4}Department of Postgraduate Studies-Indonesia Open University

³Mercu Buana University, Jakarta Indonesia

⁵Institute Of Postgraduate Studies Universiti Sains Malaysia, Penang Island Malaysia

*Corresponding authors: samsiahrkt@bps.go.id

hafidzah021018@gmail.com, sriyusriani_syspsp@student.usm.my

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Abstract

According to the Job Demand-Resource Theory, job demands, job resources, and personal resources significantly influence employee performance through work engagement (Bakker & Demerouti, 2017). Furthermore, performance is also affected by demands and resources originating from the family context (Brummelhuis & Bakker, 2012). This study aims to examine the impact of job demands, job resources, and family demands on work engagement, with self-efficacy as a moderating variable. The research was conducted at the Central Statistics Agency (BPS) across various districts/cities in North Sumatra Province, using a sample of 309 employees. The sampling technique employed was systematic random sampling, and the data analysis method used was Partial Least Square-Structural Equation Modeling (PLS-SEM). The study's findings show that both job resources and self-efficacy significantly and positively impact work engagement. This suggests that increases in job resources and self-efficacy are associated with enhanced work engagement. Conversely, job demands and family demands did not significantly affect work engagement. Additionally, the findings reveal that self-efficacy does not significantly moderate the relationship between job demands, job resources, family demands, and work engagement.

Keywords: Work engagement, job demands, job resources, self-efficacy, JD-R theory.

JEL CODES: J0, J2, J5

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1. Introduction

1.1 Research Background

Public servants or Aparatur Sipil Negara (ASN) are strategically responsible for realizing the national goals outlined in the Preamble of the 1945 Constitution of the Republic of Indonesia. To achieve these goals, it is necessary to have ASNs with high performance and a service-oriented approach toward society. The Badan Pusat Statistik (BPS) is a non-ministerial government institution with the vision of "Providing Quality Statistics for an Advanced Indonesia." To realize this vision, BPS requires a high-performing and service-oriented workforce.

According to the Job Demands-Resources (JD-R) theory developed by Bakker & Demerouti, (2017) one of the factors determining employee performance is work engagement. Positive mental states associated to work, such as vigor, dedication, and absorption in one's tasks, are referred to as work engagements. It is influenced by various factors, such as personal resources, job resources, and job demands. Employees with high levels of work engagement work with dedication and enthusiasm, viewing their work as enjoyable.

One of the factors influencing the an organization's succes is the adequacy of its human resources. For the work units in the BPS offices of North Sumatra Province, the adequacy of employees is shown in Table 1.

Table 1.a Data Report of BPS

No	Name of Work Unit	Active Employees	Employee Needs Based on Workload Analysis	Percentage
1	BPS North Sumatra Province	109	188	57.98%
2	BPS Nias Regency	41	52	78.85%
3	BPS Mandailing Natal Regency	31	52	59.62%
4	BPS South Tapanuli Regency	23	52	44.23%
5	BPS Central Tapanuli Regency	23	53	43.40%
6	BPS North Tapanuli Regency	26	52	50.00%
7	BPS Toba Samosir Regency	27	52	51.92%
8	BPS Labuhan Batu Regency	22	52	42.31%
9	BPS Asahan Regency	32	53	60.38%
10	BPS Simalungun Regency	36	58	62.07%
11	BPS Dairi Regency	25	53	47.17%
12	BPS Karo Regency	25	59	42.37%
13	BPS Deli Serdang Regency	45	58	77.59%
14	BPS Langkat Regency	36	59	61.02%
15	BPS South Nias Regency	24	48	50.00%

Table 1.b Data Report of BPS

No	Name of Work Unit	Employees	Workload Analysis	Percentage
16	BPS Humbang Hasundutan Regency	25	48	52.08%
17	BPS West Pakpak Regency	23	49	46.94%
18	BPS Samosir Regency	22	48	45.83%
19	BPS Serdang Bedagai Regency	28	54	51.85%
20	BPS Batu Bara Regency	21	52	40.38%
21	BPS North Padang Lawas Regency	19	48	39.58%
22	BPS Padang Lawas Regency	19	48	39.58%
23	BPS South Labuhan Batu Regency	21	48	43.75%
24	BPS North Labuhan Batu Regency	18	48	37.50%
25	BPS Sibolga City	17	48	35.42%
26	BPS Tanjung Balai City	17	49	34.69%
27	BPS Pematang Siantar City	22	54	40.74%
28	BPS Tebing Tinggi City	22	49	44.90%
29	BPS Medan City	46	59	77.97%
30	BPS Binjai City	26	53	49.06%
31	BPS Padangsidempuan City	23	53	43.40%
32	BPS Gunung Sitoli City	21	49	42.86%
Total	Total	915	1798	50.89%

Source: Data Report of BPS, October 2023

The table above indicates that the number of active employees in all work units of the BPS offices in North Sumatra Province is still below the required number based on workload analysis. The average percentage of fulfillment is only 50.89 percent. This condition presents a challenge for all employees within the BPS offices of North Sumatra Province, as the insufficient number of employees will increase job demands.

1.2 Research Objective

The relationship between work engagement and performance is explained by the JD-R theory, which was introduced by Bakker & Demerouti, (2017). This theory posits that job performance is influenced by personal resources, job resources, and job demands:

1. **Job Resources:** Positive aspects derived from the job, such as social support from colleagues and supervisors, recognition for performance, supervision, and guidance from superiors.
2. **Personal Resources:** Positive personal attributes in self-evaluation, such as optimism, self-efficacy (confidence in one's own abilities), and self-esteem.
3. **Job Demands:** The roles and tasks that an individual must perform, requiring physical and mental effort to accomplish.

Lu et al. (2018) show that work engagement among public employees mediates the relationship between service-oriented work systems and service-oriented employee behavior. Tian et al. (2019) investigated the impact of self-efficacy on job performance, with work engagement as a mediating variable. Their findings demonstrate a strong positive correlation between self-efficacy and work engagement, as well as between work engagement and job performance.

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Corbeanu and Iliescu (2023) found that vigor, dedication, and absorption—key components of work engagement—are positively correlated with organizational performance.

Several studies have examined the antecedents of employee performance at BPS DKI Jakarta. For example, Mayesta et al. (2022) explored the effects of restructuring and organizational commitment on work engagement, which subsequently impacts employee performance at BPS-Statistics in the Kepulauan Bangka Belitung Province. Additionally, Mer and Srivastava (2023) found that work-life balance, reward and recognition, and artificial intelligence positively influence employee engagement. Sawitri (2024) investigated the effects of work-life balance, employee engagement, and training on job satisfaction, which, in turn, affects employee performance. Similarly, Manalu et al. (2021) studied the impact of work engagement on employee performance at the BPJS Ketenagakerjaan Binjai Branch, concluding that work engagement positively influences employee performance.

The findings of these studies support the JD-R theory, which explains that work engagement influences employee performance. Therefore, one approach to improving organizational performance is by enhancing employee work engagement. This study aims to examine the influence of job demands, job resources, and family demands on work engagement, with self-efficacy as a moderating variable.

2. Literature Review

2.1 Work engagement

(Kahn, 1990) first introduced the concept of engagement. Engagement is defined as a condition in which employees utilize physical, cognitive, emotional, and mental aspects to achieve work goals. (Maslach & Leiter, 2008) state that work engagement is the opposite of burnout. Work engagement is characterized by increased positive energy (the opposite of exhaustion), involvement (the opposite of cynicism), and efficacy (the opposite of inefficacy). Work engagement is a positive mental state regarding work, marked by vigor, dedication, and absorption (Bakker & Demerouti, 2017).

The aspects of work engagement (Bakker & Demerouti, 2017) are:

- Vigor: A state characterized by high levels of energy, mental resilience, perseverance, and enthusiasm at work.
- Dedication: A positive attitude where employees view their work as important, fostering a strong drive to perform at their best.
- Absorption: A positive state in which employees are fully immersed in their work, feeling engrossed and happy with their tasks.

2.2 Job Demands

Demands are defined as the global perception of the level and intensity of responsibilities within the work (or family) domain. Job demands refer to the assessment of the degree of demands in the work environment (Demerouti et al., 2001).

The physical, psychological, social, and organizational components of work that necessitate prolonged physical and/or psychological effort and are thus linked to certain physiological and/or psychological costs are all included in the job demands (Demerouti et al., 2001). Examples include workload and time pressure from work

2.3 Job resources

The organizational, social, and physical elements that support goal achievement and stress reduction are referred to as job resources. Job resources include autonomy, positive working relationships with coworkers, chances for advancement, coaching and mentoring, and learning and development (Demerouti et al., 2001).

2.4 Job Demands-Resources (JD-R) Theory

The JD-R theory by Bakker & Demerouti (2017) explains how employee performance is influenced by two factors: job resources and job demands. Job demands encompass the physical, psychological, social, or organizational aspects required by a job. Job resources are the aspects of a job that have the potential to motivate employees in achieving work goals. Job demands and job resources are perceived differently by each employee. One important aspect of job resources (Bakker & Demerouti, 2017). When an employee gets emotional support from his or her leader, such as a leader who understands the needs of the job, the problems they face, and is willing to help the employee in completing the work, then this will be able to increase the employee's engagement in work (Eledora et al., 2024).

This theory posits that a combination of high job demands and low job resources will lead to exhaustion, whereas a combination of challenging job demands and high job resources will result in high work engagement.

Regarding family demands, demands are defined as the global perception of the intensity of responsibilities within the work or family domain (Boyar et al., 2008). It is important to note that demands are subjective. Employees may perceive job demands differently even in identical work conditions. Similarly, family demands refer to the perception of responsibilities within the family, such as time spent with family, caregiving responsibilities, etc. (Bakker & Demerouti, 2014).

2.5 Self efficacy

The term self-efficacy was first introduced by Bandura in 1977, a psychologist who developed Social Cognitive Theory. Social Cognitive Theory explains the reciprocal relationship between human behavior, individual characteristics, and the social environment. A change in one component will have implications for the others. Cognitive, social, and behavioral aspects must be organized to prepare individuals to face various events that affect their lives (Bandura, 1977).

Self-efficacy is defined as an individual's assessment of their ability to organize, regulate, and execute a series of actions required to achieve a specific level of performance, Bandura & Wessels (1997). It is not related to the skills a person possesses but rather to their judgment of what they can do with the skills they have (Yusriani et al., 2023). This indicates that self-efficacy is not a general trait but is dependent on specific conditions and situations Bandura & Wessels (1997) Furthermore, self-efficacy can enhance digital competence and learning enthusiasm (Yusriani et al., 2023).

2.6 Previous Research

The study by (Radic et al., 2020) shown that job demands negatively affect work engagement, while job resources positively affect work engagement. (Mussagulova, 2021) showed that job resources (such as autonomy, competence, and social perceptions) are positively associated with work engagement, and this relationship is stronger when public service motivation is high. (Han et al., 2020) also observed that work resources have a favorable influence on work engagement whereas job demands have a negative one.

(Bakker et al., 2019) found that stressful events in the family environment lead individuals to use significant resources to cope with these events, which subsequently affects their work life. Employees who continuously ruminate on these experiences may experience a decline in self-efficacy. A decrease in self-efficacy leads to a reduction in work engagement and performance.

(Kuok et al., 2022) demonstrated that self-efficacy is a positive predictor of work engagement and a negative predictor of emotional exhaustion. (Albrecht & Marty, 2020) also found that self-efficacy and job resources are positively correlated with work engagement. Their study further showed that self-efficacy is a critical factor influencing employee work engagement.

According to Social Cognitive Theory (Bandura, 1977), self-efficacy influences how people think, feel, motivate themselves, and act. Similarly, in the workplace, self-efficacy controls employees' perceptions of job demands, family demands, and job resources. (Liu et al., 2017) found that self-efficacy moderates the relationship between perceived organizational support and work engagement. Additionally, self-efficacy moderates the relationship between optimism and work engagement (Lu et al., 2018). (Krishnan et al., 2018) found that self-efficacy moderates the relationship between perceived job characteristics and work engagement.

2.7 Research Model

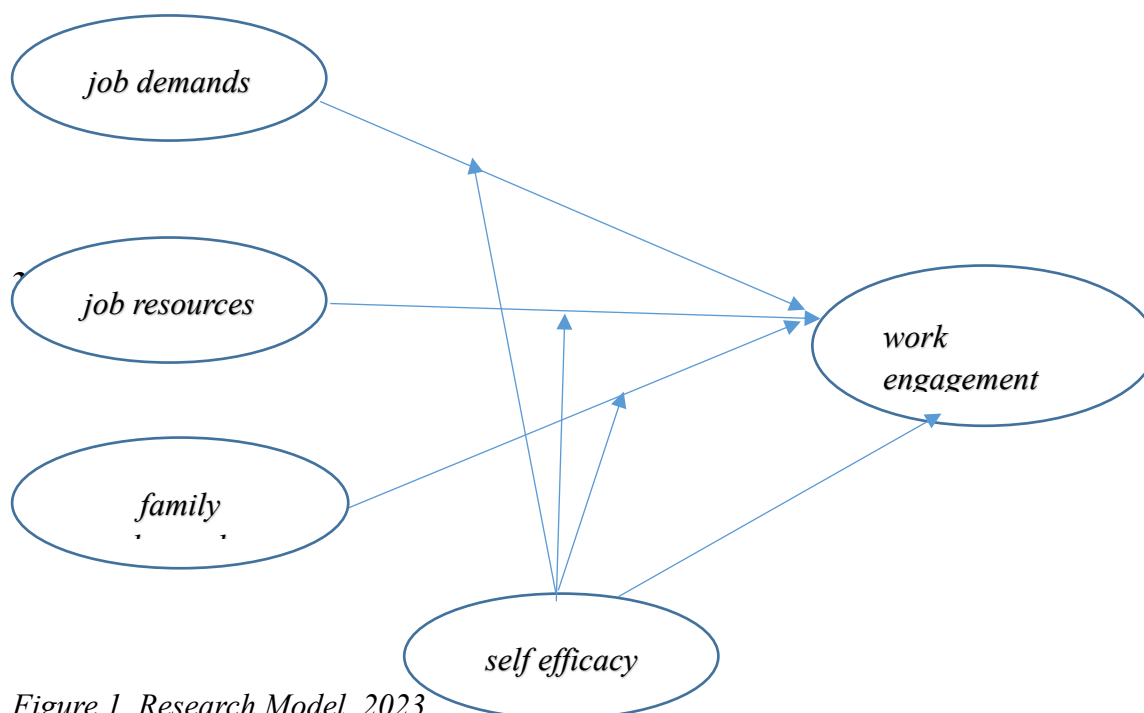


Figure 1. Research Model, 2023

Operational Definitions

• Operational Definition of Work Engagement

Work engagement is defined as a positive mental state of BPS employees regarding their work, characterized by vigor, dedication, and absorption. Work engagement is measured using the Utrecht Work Engagement Scale (UWES) as outlined by Salanova & Schaufeli (2008) The measurement uses 9 indicators:

1. At my work, I feel that I am bursting with energy.

2. When I get up in the morning, I feel like going to work.
3. At my job, I feel strong and vigorous.
4. I am proud of the work that I do.
5. I am enthusiastic about my job.
6. My job inspires me.
7. I feel happy when I am working intensely.
8. I get carried away when I'm working.
9. I am immersed in my work.

- **Job Demands**

Job demands refer to BPS employees' perceptions of the responsibilities and demands in their work. The measurement of the job demands variable is adapted from the study by (Inoue et al., 2014) with 6 indicators:

1. My job requires me to work hard.
2. My job is under time pressure.
3. I feel that my job exceeds my capabilities (overload).
4. My job drains my emotions.
5. My job requires me to perform tasks using information technology.
6. My job creates an imbalance in my personal life.

- **Operational Definition of Job Resources**

In this study, job resources are defined as BPS employees' perceptions of positive factors that support the achievement of work goals. The measurement of job resources is adapted from the study by Inoue et al. (2014) with the following indicators:

1. I receive sufficient information about my job objectives.
2. My job matches my skills/knowledge.
3. I receive support from my supervisor in my work.
4. I work in an environment where everyone complements each other.
5. I receive fair evaluations for my work.
6. I receive appropriate compensation for my work.
7. I have opportunities to develop my career.

- **Operational Definition of Family Demands**

In this study, family demands are defined as BPS employees' perceptions of responsibilities within the family. The measurement of family demands is adapted from the study by (Matthews et al., 2010) using the following 3 indicators:

1. I find it difficult to focus on my work because I am frequently under stress from my family obligations.

2. A behavior that I find I have to skip work activities because of the amount of time I have to dedicate to my family.
3. Behaviour that is necessary and productive at home would not be productive at work.
 - **Operational Definition of Self-Efficacy**
 - Self-efficacy is defined as BPS employees' assessment of their ability to successfully fulfill assigned tasks. The measurement of self-efficacy is adapted from the study by (Rigotti et al., 2008) with the following indicators:
 1. Because I can trust in my skills, I can maintain my composure in the face of challenges at work..
 2. I typically have multiple solutions to choose from when faced with an issue at work.
 3. My prior work experiences have equipped me effectively for my future career.
 4. I believe I am ready for the majority of the duties at work.

2.8 Variable Measurement

All the variables mentioned above will be measured using a Likert scale ranging from 1 to 5 as follows:

1. Strongly Disagree (STS)
2. Disagree (TS)
3. Neutral (R)
4. Agree (S)
5. Strongly Agree (SS)

2.9 Hypotheses

The hypotheses to be tested are as follows:

Relationship between Job Demands and Work Engagement

H1: Job demands have a significant impact on work engagement.

Relationship between Job Resources and Work Engagement

H2: Job resources have a significant impact on work engagement.

Relationship between Family Demands and Work Engagement

H3: Family demands have a significant impact on work engagement.

Relationship between Self-Efficacy and Work Engagement

H4: Self-efficacy has a significant impact on work engagement.

Moderating Effect of Self-Efficacy

H5: Self-efficacy moderates the impact of job demands on work engagement.

H6: Self-efficacy moderates the impact of job resources on work engagement.

H7: Self-efficacy moderates the impact of family demands on work engagement.

3. Research Method

This study employs a quantitative research method based on Creswell & Creswell (2017) and Hendrian & Patirol (2020). The data used in this research will be sourced from respondents'

answers to a questionnaire. The questionnaire responses are designed as numerical values within a specific scale range. The data will later be processed using statistical methods. The data represents individual perceptions of self-efficacy, job demands, job resources, family demands, and work engagement.

Population

The population in this study consists of all BPS employees at the district/city level in North Sumatra Province who have been actively working for at least the past year in their current unit. The total population in this study is 806 individuals.

Sample

To determine the minimum sample size for this study, the Slovin formula (Gunarto, 2018) is used. Using the Slovin formula, the minimum sample size is calculated to be 268 respondents. To account for incomplete data or non-response in the questionnaire, an additional 52 respondents are included, bringing the total sample size to 320 respondents. The sample is selected using the systematic random sampling method (Cresswell & Cresswell, 2017; Yusriani et al., 2023; Eledora et al., 2024).

Data Collection Procedure

The data collection procedure involves distributing the questionnaire via a Google Form link to the selected respondents through the WhatsApp application. The questionnaire is self-administered by the respondents. The questionnaire is distributed to the respondents between June 20 and July 4, 2024.

Data Analysis Technique

The inferential analysis used in this study is Partial Least Squares-Structural Equation Modeling (PLS-SEM) with Smart PLS 3.0 software. This analysis is used to describe the relationships between variables and to test the research hypotheses (Hair et al., 2017).

Stages of PLS Analysis

3.1 Evaluation of the Reflective Measurement Model

According to (Hair et al., 2017) and Gunarto (2018), the model evaluation stages are as follows:

- Convergent validity is evaluated using the Loading Factor (LF) and Average Variance Extracted (AVE). Values above 0.70 indicate appropriate validity.
- Discriminant Validity Test: To confirm discriminant validity, one must meet the Fornell-Larcker criterion, which states that the square root of AVE must be higher than the correlation with other variables.
- Reliability Test: Cronbach's Alpha and Composite Reliability are used to test for reliability; scores above 0.70 indicate strong accuracy and consistency.

3.2 Evaluation of the Structural Model

- R-Square Value: The degree to which variation in independent variables influences dependent variables is ascertained using the R-Square value..
- Effect Size (f^2): The impact of predictor variables at the structural level is shown by the effect size, and f^2 values are regarded as weak (0.02), moderate (0.15), or large (0.35).
- Predictive Relevance (Q^2): To confirm that the model fit is predictively relevant, the Q^2 test is run.

- Goodness of Fit (GOF) Index: The total structural model is validated by the GOF index, whose values are regarded as small (0.1), moderate (0.25), or big (0.36).).

3.3 Hypothesis Testing

Significance weight values are used in hypothesis testing, with a t-statistic > 1.96 or a P-value < 0.05 indicating that the independent variable significantly influences the dependent variable (Anwar et al., 2024; Gunarto, 2018).

4. Findings and Discussions

Findings

4.1. Respondent Profile

Out of the 320 target samples, 309 provided complete responses, and these 309 responses were processed and analyzed. The study's respondents consisted of 51.80% males and 48.20% females. In terms of age, the majority (22.7%) were within the 35-39 years age range. Regarding marital status, most respondents (73.40%) were married. Based on education, the majority of respondents (75.5%) had completed a Diploma IV/S-1 bachelor degrees. The detailed characteristics of the respondents are presented in the following tables:

Table 2. Respondent Characteristics by Gender

No	Gender	Frequency	Percentage
1	Male	160	51.8
2	Female	149	48.2
Total		309	100

Source: Primary Data (July 2024), processed

Table 3. Respondent Characteristics by Age

No	Age	Frequency	Percentage
1	< 25 years	33	10.7
2	25-29 years	44	14.2
3	30-34 years	51	16.5
4	35-39 years	70	22.7
5	40-44 years	45	14.6
6	45-49 years	36	11.7
7	50-55 Years	22	7.1
8	> 55 years	8	2.6
Total		309	100

Table 4. Respondent Characteristics by Marital Status

No	Marital Status	Frequency	Percentage
1	Not Married	71	23.0
2	Married	233	75.4
4	Divorced	4	1.3
5	Widowed	1	0.3
Total		309	100

Table 5. Respondent Characteristics by Highest Education Level

No	Education Level	Frequency	Percentage
1	Primary school-senior high school level	32	10.04
2	Diploma I/II/III	43	13.9
3	Diploma IV/ Bachelor degrees	180	58.3
4	Master degrees	54	17.5
Total		309	100

Source: Primary Data (July 2024), processed

Table 6. Respondent Characteristics by Years of Service

No	Years of Service	Frequency	Percentage
1	< 1 years	17	5.50
2	1-5 years	67	21.68
3	6-10 years	42	13.59
4	11-15 years	69	22.33
5	16-20 years	62	20.06
6	21-25 years	19	6.15
7	26-30 years	14	4.53
8	31-35 years	13	4.21
9	>35 years	6	1.94
Total		309	100

4.2 Distribution of Respondent Answers

Distribution of Responses for Job Demands Variable

Table 7. Distribution of Responses for Job Demands Variable

Item	Statement	Average	Rating Criteria
X11	My job requires me to work hard.	4.20	High
X12	My job is under time pressure.	3.85	High
X13	I feel that my job exceeds my capabilities (overload).	3.01	Moderate
X14	My job drains my emotions.	2.97	Low
X15	My job requires me to perform tasks using information technology.	4.45	High
X16	My job creates an imbalance in my personal life	2.83	Moderate
Average for Job demand variable		3.55	Moderate

Distribution of Responses for Job Resources Variable

Table 8. Distribution of Responses for Job Resources Variable

Item	Statement	Average	Rating Criteria
X21	I receive sufficient information about my job objectives.	4.03	High
X22	My job matches my skills/knowledge.	3.79	High
X23	I receive support from my supervisor in my work.	4.16	High
X24	I work in an environment where everyone complements each other.	3.83	High
X25	I receive fair evaluations for my work.	3.82	High
X26	I receive appropriate compensation for my work.	3.64	Moderate
X27	I have opportunities to develop my career..	3.78	High
Average for Job resources variable		3.86	High

Source: Primary Data (July 2024), processed

Distribution of Responses for Family Demands Variable

Table 9. Distribution of Responses for Family Demands Variable

Item	Statement	Average	Rating Criteria
X31	I find it difficult to focus on my work because I am frequently under stress from my family obligations	2.19	low
X32	A behavior that I find I have to skip work activities because of the amount of time I have to dedicate to my family.	2.09	Low
X33	Behaviour that is necessary and productive at home would not be productive at work	2.76	Moderate
Average for Family Demands Variable		2.35	low

Source: Primary Data (July 2024), processed

Distribution of Responses for Self-Efficacy Variable

Table 10. Distribution of Responses for Self-Efficacy Variable

Item	Statement	Average	Rating Criteria
Z1	Because I can trust in my skills, I can maintain my composure in the face of challenges at work.	3.89	High
Z2	I typically have multiple solutions to choose from when faced with an issue at work.	4.04	High

Item	Statement	Average	Rating Criteria
Z3	My prior work experiences have equipped me effectively for my future career	4.11	High
Z4	I believe I am ready for the majority of the duties at work	4.94	High
Average for Self efficacy variable		4.25	High

Distribution of Responses for Work Engagement Variable

Table 11. Distribution of Responses for Work Engagement Variable

Item	Statement	Average	Rating Criteria
Y1	At work, I feel full of energy.	3.76	High
Y2	When I wake up in the morning, I feel happy to go to work.	3.72	High
Y3	At work, I feel strong and vigorous.	3.76	high
Y4	I am proud of the work that I do.	4.03	high
Y5	I am enthusiastic about my job.	3.91	high
Y6	My job inspires me.	3.86	high
Y7	I feel happy when I am working intensely.	3.79	high
Y8	I get carried away when working.	3.62	Moderate
Y9	I am immersed in my work.	3.19	Moderate
Average for work engagement variable		3.74	high

4.3 Hypothesis Testing

Evaluation of the Measurement Model (Outer Model)

The evaluation of the reflective measurement model is based on indicator reliability, internal consistency reliability, convergent validity, and discriminant validity (Hair et al., 2017; Hendrian & Patiro, 2020). The loading factor (LF) value needs to be > 0.70 , and the Average Variance Extracted (AVE) value > 0.50 . If the factor loading value is below the threshold, the indicator is removed.

Table 12. Outer Loading Values of Variables (Before Indicator Removal)

Variable	Indicator	Outer Loading	Note	Next Action	AVE
<i>job demands</i> (X1)	X11	0.017	Not valid	Removed	0.767
	X12	0.308	Not valid	Removed	
	X13	0.782	valid	Retained	
	X14	0.857	valid	Retained	
	X15	0.057	Not valid	Removed	
	X16	0.819	valid	Retained	
<i>job resources</i> (X2)	X21	0.708	valid	Retained	0.633
	X22	0.669	Not valid	Removed	

Variable	Indicator	Outer Loading	Note	Next Action	AVE
	X23	0.758	valid	Retained	
	X24	0.744	valid	Retained	
	X25	0.816	valid	Retained	
	X26	0.528	Not valid	Removed	
	X27	0.677	Not valid	Removed	
family demands (X3)	X31	0.659	Not valid	Removed	1.00
	X32	0.925	valid	Retained	
	X33	0.657	Not valid	Removed	
self efficacy (Z)	Z1	0.814	valid	Retained	0.622
	Z2	0.810	valid	Retained	
	Z3	0.770	valid	Retained	
	Z4	0.859	valid	Retained	
work engagement (Y)	Y1	0.788	valid	Retained	0.656
	Y2	0.794	valid	Retained	
	Y3	0.822	valid	Retained	
	Y4	0.785	valid	Retained	
	Y5	0.884	valid	Retained	
	Y6	0.824	valid	Retained	
	Y7	0.724	valid	Retained	
	Y8	0.545	Not valid	Removed	
	Y9	0.360	Not valid	Removed	

Source: Output of SmartPLS 3.0, processed, 2024

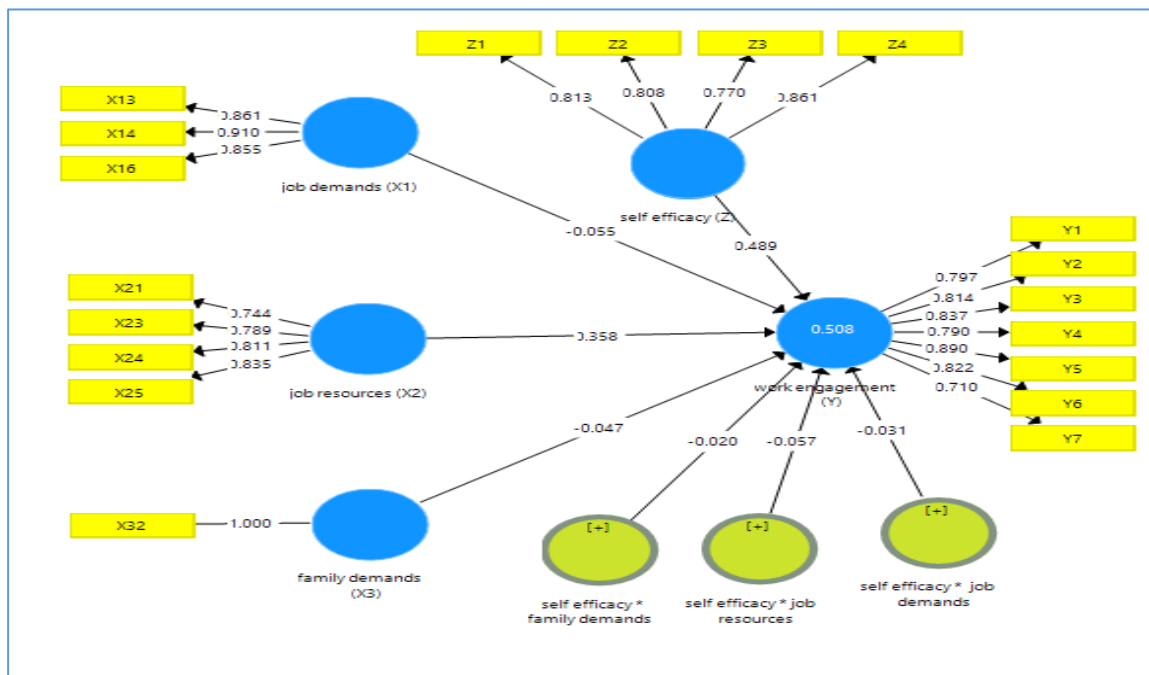


Figure 2 Visualization of the Outer Model Path Diagram (After Indicator Removal)

Reliability Test

Two techniques can be used to check reliability: Composite Reliability and Cronbach's Alpha. For both numbers to be deemed reliable, they must exceed 0.70.

Table 13. Cronbach's Alpha and Composite Reliability Values at the Variable Level

Variable	<i>Cronbach's Alpha</i>	<i>Composite Reliability</i>	Remark
<i>Job demands (X1)</i>	0.850	0.908	<i>reliable</i>
<i>Job resources (X2)</i>	0.807	0.873	<i>reliable</i>
<i>Family demands (X3)</i>	1.00	1.00	<i>reliable</i>
<i>Self efficacy (Z)</i>	0.831	0.887	<i>reliable</i>
<i>Work engagement (Y)</i>	0.912	0.930	<i>reliable</i>

Source: Output of SmartPLS 3.0, processed, 2024

Table 13 shows that the Cronbach's Alpha and Composite Reliability values for all constructs are above 0.70, indicating that the constructs in the estimated model meet the criteria for internal consistency reliability. Thus, it can be concluded that all constructs are reliable, and further assessments can proceed.

The Inner Model involves structural model testing to assess the relationships between latent constructs. This testing includes several calculations to determine model suitability, such as the coefficient of determination (R^2), effect size (f^2), Standardized Root Mean Square Residual (SRMR), and predictive relevance (Q^2). The criteria for R^2 values are as follows: 0.67 (substantial), 0.33 (moderate), and 0.19 (weak). The f^2 values are categorized as 0.02 (small influence), 0.15 (moderate influence), and 0.35 (large influence). A model meets the fit criteria if the SRMR value is less than 0.1. The thresholds for Q^2 are 0.02 (small), 0.15 (medium), and 0.35 (large), as discussed by (Hair et al., 2017).

Table 14. Summary of Model Fit Assessment Result

Variables	R-Squared adjusted	F-Square Y	Q-Square Predictive Relevance	SRMR
job demands (X_1)		0.005		
job resources (X_2)		0.205		
family demands (X_3)		0.004		0.065
work engagement (Y)	0.508		0.324	
self efficacy (Z)		0.400		

Source: Output of SmartPLS 3.0, processed, 2024

Based on the R^2 values presented in the table, it can be concluded that job demands, job resources, family demands, and self efficacy explain 50,80% of work engagement variance, with the remaining percentage attributable to other factors. The F-square values indicate that job demand and job family demands have a small effect on work engagement. But job resources have a moderate effect on work engagement. And self efficacy have large effect on work

engagement.

Additionally, the Q^2 value for performance is 0.324, demonstrating that the model is medium effective at predicting work engagement. The model's fit is further confirmed by an SRMR value below 0,1, signifying that the model is well-suited to the data.

Table 15 Hypothesis Testing

To determine how the independent variable affects the dependent variable, hypothesis testing is done. It can be concluded that the independent variable significantly affects the dependent variable if the P value is less than 0.05.

Hypothesis	Path Coefficient	t statistic	P Values	Remark
H ₁ job demands (X1) -> work engagement (Y)	-0.055	1.238	0.216	Not Significant
H ₂ job resources (X2) -> work engagement (Y)	0.358	6.506	0.000	Significant
H ₃ family demands (X3) -> work engagement (Y)	-0.047	1.030	0.303	not Significant
H ₄ self efficacy (Z) -> work engagement (Y)	0.489	8.733	0.000	Significant
H ₅ self efficacy * job demands -> work engagement (Y)	-0.031	0.608	0.543	Not Significant
H ₆ self efficacy * job resources -> work engagement (Y)	-0.057	1.273	0.203	Not Significant
H ₇ self efficacy * family demands -> work engagement (Y)	-0.020	0.473	0.636	Not Significant

Source: Output of SmartPLS 3.0, processed, 2024

Discussions

- H₁ For job demands and work engagement, the path coefficient is -0.055. The negative coefficient suggests that employees' work engagement declines as job demands increase. The P-value of 0.216 (>0.05) and the t-statistic value of 1.238 (<1.96), however, show that there is no significant relationship between job demands and work engagement. As a result, Hypothesis 1 is rejected.

- H₂ The path coefficient for job resources and work engagement is 0.358. The positive coefficient indicates that increasing job resources leads to higher employee work engagement. The t-statistic value of 6.506 (> 1.96) and P-value of 0.000 (< 0.05) indicate that the effect of job resources on work engagement is significant. Therefore, Hypothesis 2 is accepted.
- H₃ The path coefficient for family demands and work engagement is -0.047. The negative coefficient indicates that higher family demands lead to decreased employee work engagement. However, the t-statistic value of 1.030 (< 1.96) and P-value of 0.303 (> 0.05) indicate that the effect of family demands on work engagement is not significant. Therefore, Hypothesis 3 is rejected.
- H₄ The path coefficient for self-efficacy and work engagement is 0.489. The positive coefficient indicates that increasing self-efficacy leads to higher employee work engagement. With a t-statistic of 8.733 (> 1.96) and a P-value of 0.00 (< 0.05), the effect of self-efficacy on work engagement is significant. Therefore, Hypothesis 4 is accepted.
- H₅ The path coefficient for the effect of self-efficacy in moderating the impact of job demands on work engagement is negative, indicating that employees with high self-efficacy tend to experience a weaker influence of job demands on work engagement. The t-statistic value of 0.608 (< 1.96) and P-value of 0.543 (> 0.05) indicate that the moderating effect of self-efficacy on the relationship between job demands and work engagement is not significant.
- H₆ The path coefficient for the effect of self-efficacy in moderating the impact of job resources on work engagement is negative, suggesting that employees with high self-efficacy tend to experience a weaker influence of job resources on work engagement. The t-statistic value of 1.273 (< 1.96) and P-value of 0.203 (> 0.05) indicate that the moderating effect of self-efficacy on the relationship between job resources and work engagement is not significant.
- H₇ The path coefficient for the effect of self-efficacy in moderating the impact of family demands on work engagement is negative, implying that employees with high self-efficacy tend to experience a weaker influence of family demands on work engagement. The t-statistic value of 0.473 (< 1.96) and P-value of 0.636 (> 0.05) indicate that the moderating effect of self-efficacy on the relationship between family demands and work engagement is not significant.

The hypotheses testing in this study provides valuable insights into the relationships between job demands, job resources, family demands, self-efficacy, and work engagement among employees, aligning with existing literature on the Job Demands-Resources (JD-R) Theory and self-efficacy.

H1: The negative path coefficient for job demands and work engagement (-0.055) suggests that higher job demands could reduce work engagement. However, the non-significant t-statistic (1.238) and P-value (0.216) indicate that job demands do not significantly affect work engagement in this context, likely due to the moderate job demands reported by employees, which may not be overwhelming enough to significantly lower engagement (Bakker & Demerouti, 2017). (Han et al., 2020) also noted that the impact of job demands on engagement can be mitigated by factors like job or personal resources.

H2: The significant positive path coefficient for job resources and work engagement (0.358) confirms that job resources play a crucial role in enhancing employee engagement, consistent

with JD-R Theory. The strong t-statistic (6.506) and P-value (0.000) highlight the importance of job resources in fostering work engagement, as supported by (Radic et al., 2020) and (Mussagulova, 2021) who emphasized the critical role of job resources in promoting well-being and performance.

H3: The non-significant path coefficient for family demands and work engagement (-0.047) suggests that family demands do not significantly impact work engagement. This may be because the family demands faced by employees are manageable and do not interfere with their work responsibilities (Boyar et al., 2008). The regional context and cultural factors may also influence these findings.

H4: The strong positive relationship between self-efficacy and work engagement (0.489) emphasizes how important self-efficacy is in fostering engagement. The significant t-statistic (8.733) and P-value (0.000) suggest that employees with higher self-efficacy are more likely to be engaged in their work, consistent with Bandura's (1977, 2000) theory of self-efficacy. (Krishnan et al., 2018) and (Liu et al., 2017) further support the positive impact of self-efficacy on work engagement.

H5: The negative but non-significant moderating effect of self-efficacy on the relationship between job demands and work engagement (t-statistic = 0.608, P-value = 0.543) suggests that while self-efficacy may lessen the negative impact of job demands, this effect was not significant in this study. This may be due to the moderate level of job demands, which might not necessitate high self-efficacy for mitigation (Tian et al., 2019).

H6: The non-significant moderating effect of self-efficacy on the relationship between job resources and work engagement (t-statistic = 1.273, P-value = 0.203) indicates that job resources are strong predictors of work engagement independently, without needing further moderation by self-efficacy (Albrecht & Marty, 2020).

H7: The non-significant moderating effect of self-efficacy on the relationship between family demands and work engagement (t-statistic = 0.473, P-value = 0.636) suggests that family demands do not significantly affect work engagement in this context. This might be due to specific demographic or cultural factors in the study sample, which influence how family demands are perceived and managed (Boyar et al., 2008; Brummelhuis & Bakker, 2012).

The results of this study enhance the understanding of how job resources and self-efficacy are vital for improving work engagement among employees. While job and family demands can impact engagement, their effects may be influenced by other contextual factors, which should be explored in future research. This study supports the JD-R Theory and underscores the importance of fostering self-efficacy and providing adequate job resources to maintain high levels of work engagement in organizational settings. Additionally, the study highlights the interesting roles of self-efficacy and job resources as critical variables in employee engagement.

5. Conclusion

This study is limited to BPS district/city offices in North Sumatra Province, so the results reflect only this region and cannot be generalized to the national level (BPS across Indonesia). Researchers interested in expanding this study are advised to conduct research at the national level.

According to the Work-Home Resources (WH-R) model developed by Ten Brummelhuis and Bakker (2012), family demands and home resources influence workplace outcomes. This study

did not examine home resources; future research should consider including this variable. This study collected general information on job demands, but in practice, job demands vary depending on the employee's position. Future research should measure job demands more specifically based on the employee's position.

This study concludes that job resources and self-efficacy have a significant positive impact on work engagement among BPS district/city employees in North Sumatra Province. In contrast, job demands and family demands do not significantly affect work engagement in this context. The implication of these findings is that efforts to increase work engagement among BPS district/city employees in North Sumatra Province should focus on enhancing job resources and self-efficacy. With high job resources and self-efficacy, employees are more likely to feel capable of handling the job and family demands they encounter.

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