

The Mediating Role of Intrinsic Motivation in the Relationship Between Organizational Support and Quantitative Workload and Work-Related Fatigue

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Abstract

Increasingly tight job competition means that workers often ignore work-related fatigue conditions, which can negatively impact workers and organizations, resulting in decreased health and work effectiveness and even work accidents. In order to prevent this, proper work-related fatigue management is needed. This research examines the role of intrinsic motivation as a mediator in the relationship between organizational support and quantitative workload with work-related fatigue. This research is quantitative research with a survey method. The sampling technique used was stratified random sampling. The measuring instruments used are the Occupational Fatigue Exhaustion/Recovery Scale (OFER), the Quantitative Work-load Inventory (QWI), the short version of the Survey of Perceived Organizational Support (SPOS), and the Situational Motivation Scale (SIMS). Data analysis used path analysis and bootstrapping in SmartPLS 3.0. The analysis results show no mediating role for intrinsic motivation in the relationship between organizational support and quantitative workload with work-related fatigue. A high quantitative workload triggers increased work-related fatigue, so it needs to be balanced with sufficient organizational support.

Abstrak

Persaingan kerja yang semakin ketat membuat para pekerja seringkali mengabaikan kondisi kelelahan terkait pekerjaan sehingga dapat berdampak negatif bagi pekerja dan organisasi, seperti penurunan kesehatan dan efektivitas kerja hingga kecelakaan kerja. Guna mencegah hal tersebut, diperlukan pengelolaan kelelahan terkait pekerjaan yang tepat. Penelitian ini bertujuan menguji peran motivasi intrinsik sebagai mediator pada hubungan dukungan organisasi dan beban kerja kuantitatif dengan kelelahan terkait pekerjaan. Penelitian ini merupakan penelitian kuantitatif dengan metode survei. Teknik sampling yang digunakan adalah stratified random sampling. Alat ukur yang digunakan, yaitu Occupational Fatigue Exhaustion/Recovery Scale (OFER), Quantitative Workload Inventory (QWI), versi pendek dari Survey of Perceived Organizational Support (SPOS), and Situational Motivation Scale (SIMS). Analisis data menggunakan path analysis dan bootstrapping pada SmartPLS 3.0. Hasil analisis memperlihatkan tidak ada peran mediator oleh motivasi intrinsik pada hubungan dukungan organisasi dan beban kerja kuantitatif dengan kelelahan terkait pekerjaan. Peningkatan kelelahan terkait pekerjaan dipicu oleh tingginya beban kerja kuantitatif, sehingga perlu diimbangi dengan dukungan organisasi yang cukup.



INTRODUCTION

Modern developments always demand workers to fulfill the wants and needs of the organization where they work. Someone unable to keep up with change will have difficulty getting a promotion and will be eliminated from the organization. The COVID-19 pandemic has caused organizations in Indonesia to lay off their employees (Gazali & Qurnain, 2022; Rabbi, 2021; Susilawati et al., 2020). Pink (2021) reports that Statistics Indonesia (Indonesian: *Badan Pusat Statistik*, shortened as BPS) announced that 1.82 million people became unemployed due to the COVID-19 pandemic starting in February 2020. Based on the Jawa Pos newspaper by Ryandi (2020), it is known that the Governor of East Java stated that the COVID-19 pandemic resulted in as many as 6,924 employees in East Java experiencing layoffs. Ultimately, this caused unrest among workers, thereby triggering job competition.

Increasingly tight job competition often makes workers ignore their health conditions. The most typical indication of physical health, often ignored, is work-related fatigue. Based on a survey in the United States by the National Safety Council (2017), it was found that 93% of 504 leaders were aware of fatigue as a work safety issue. However, only 73% of 2,010 workers had the same opinion, which indicates workers' ignorance and indifference to the perceived work-related fatigue conditions. The impact of ignoring work-related fatigue conditions can be detrimental to workers and organizations because it causes worsening of workers' health conditions, the emergence of errors at work, and even work accidents (Alahmadi & Alharbi, 2018; Dahlan & Widanarko, 2022; Fan & Smith, 2017; Han et al., 2014; Liu et al., 2018; Mustofani & Dwiyantri, 2019; Qiu et al., 2020; Safira et al., 2020; Sunaryo & Ratriwardhani, 2022; Widanarko et al., 2019). Apart from that, data from the Directorate General of Labor Inspection Development (Indonesian: *Direktorat Jenderal Pembinaan Pengawasan Ketenagakerjaan*, shortened as Ditjen Binwasnaker)—one of the work units of the Ministry of Manpower in 2012, found that around 36% of 847 work accident cases in Indonesia occurred due to work-related fatigue (Safira et al., 2020).

In order to avoid detrimental things, prevention is needed by knowing and implementing appropriate management regarding work-related fatigue based on the factors that influence it. Previous research found the factors of work-related fatigue, such as work hours and sleep quality (Åkerstedt et al., 2004; Dawson et al., 2012; Dorrian et al., 2011), but the quantitative factors, including workload and organizational support, have not been widely discussed (Han et al., 2014; Liu et al., 2018; Qiu et al., 2020).

Work-related fatigue is a form of fatigue that occurs because of work. According to World Health Organization (WHO) in the eleventh revision of the International Classification of Diseases (ICD-11; 2022), fatigue can be indicated through symptoms including fatigue, lethargy or decreased energy, reduced or depleted physical and mental resources, decreased work capacity, and reduced efficiency when responding to stimuli. In Indonesia, most people use a dichotomy view to differentiate mental and physical fatigue. However, it should be noted that work-related fatigue can also be differentiated based on its level of severity, namely chronic fatigue and acute fatigue (Bartley, 1957; Liu et al., 2018; Winwood et al., 2005). Winwood et al. (2005) stated that chronic fatigue can evolve into acute fatigue, which is agreed to be a more severe level.

Work-related fatigue cannot be separated from the term workload. Excessive workload is also called overload, and lack of workload is called underload. Both are bad because overload and underload can trigger negative work behavior (such as fatigue, boredom, and apathy). The workload must be ideal for supporting creativity and intrinsic motivation at work (Bakker & Demerouti, 2007). Therefore, workload needs to be measured so that it can be managed appropriately. Workload can be

measured quantitatively or qualitatively. Quantitative workload includes the number of tasks, difficulty level, and work duration to be considered more objective and appropriate for measuring large numbers of participants. Meanwhile, qualitative workload includes the level of complexity of the task process. In other words, it has purely subjective assessment standards, so they are unsuitable for measuring many participants (Han et al., 2014).

Work-related fatigue is not only influenced by quantitative workload but is also influenced by organizational support. Organizational support theory explains that workers who receive sufficient organizational support will provide positive feedback (commitment, effort, and performance) to the company (Eisenberger et al., 1986; Liu et al., 2018). Workers can receive organizational support through superiors and co-workers in the form of mentoring, caring between co-workers, and a supportive work environment.

Organizational support is quite complex and involves the subjectivity of the recipient, so it is more appropriate to identify it through the employee's perception regarding the assessment and actions of the organization (leaders and co-workers) toward the employee (Eisenberger et al., 1986). The organizational support received by someone can make workers feel suitable for their work. This feeling of suitability encourages a person to be interested in their work and consider it enjoyable, which can be identified as intrinsic motivation. Several previous studies explain that high organizational support creates intrinsic motivation in workers so that workers do not feel too tired (Caird & Kline, 2004; Fernet et al., 2012; Liu et al., 2018; Qiu et al., 2020).

Intrinsic motivation is a motivational orientation within an individual that encourages individuals to take roles in their work based on interest and pleasure for their satisfaction (Deci & Ryan, 1985; Spreitzer, 1995; Thomas & Velthouse, 1990). Self-determination theory explains that organizational support predicts intrinsic motivation (Deci & Ryan, 1985; Gagné et al., 2010; Tremblay et al., 2009). Low intrinsic motivation can push work-related fatigue to a more severe level (Tourangeau & Cranley, 2006). Apart from mediating organizational support with work-related fatigue, intrinsic motivation can also act as a mediator of quantitative workload with work-related fatigue (Alam et al., 2023; Evianti et al., 2020; Fernet et al., 2012; Herlambang et al., 2021; Liu et al., 2018; Qiu et al., 2020). Workers who receive the same quantitative workload can experience different levels of work-related fatigue, which is influenced by personal traits, namely intrinsic motivation (Dysvik & Kuvaas, 2013; Liu et al., 2018). A high quantitative workload causes low intrinsic motivation (Han et al., 2014; Herlambang et al., 2021; van Yperen & Hagedoorn, 2003).

Liu et al. (2018) prove intrinsic motivation's mediating role in the relationship between organizational support and quantitative workload with work-related fatigue. As far as this research is concerned, this is the first time this model has been examined further, either in Indonesia or abroad. Even so, several previous studies with similar variables stated organizational support, quantitative workload, and intrinsic motivation as the main factors that influence work-related fatigue (Fernet et al., 2012; Gillet et al., 2013; Han et al., 2014; Herlambang et al., 2021; Qiu et al., 2020; van Yperen & Hagedoorn, 2003). Meanwhile, Safira et al. (2020) state contradictory results that work-related fatigue is not related to quantitative workload but to nutritional status and sleep quality.

Based on the explanation above, it is essential to carry out this research. In particular, this concept still needs to be discussed in Indonesia. Also, previous studies on work-related fatigue often used participants in work settings that rely on physical work (for example, product line workers and manual workers). Meanwhile, the participants in this research were social service workers whose work did not rely on physical effort. This research examines the role of intrinsic motivation as a mediator in the relationship between organizational support and quantitative workload and work-related fatigue.

This research hypothesizes that intrinsic motivation mediates the relationship between organizational support, quantitative workload, and work-related fatigue.

METHODS

This research is a quantitative survey. The analysis was carried out using path analysis and bootstrapping in SmartPLS 3.0, which also contains reliability and validity tests. This research examines four research constructs consisting of one endogenous construct (work-related fatigue), two exogenous constructs (organizational support and quantitative workload), and one mediator construct (intrinsic motivation).

Data was collected from employees at the Surabaya Social Service using a paper-based questionnaire. The research participants totaled 166 employees from a population of 291 people. The participant inclusion criteria are (1) civil servants and government employees with work agreements (Indonesian: *pegawai negeri sipil* [PNS] dan *pegawai pemerintah dengan perjanjian kerja* [PPPK]) at the Surabaya City Social Service; (2) male and female gender; (3) age 20–60 years (according to working age); and (4) employees in one of the following fields, namely the Secretariat Field, the Religious and Self-Help Field, the Social Rehabilitation Field, the Social Welfare Field, and the Planning, Data Collection, Supervision and Control of Social Problems Field.

The sampling technique used was stratified random sampling, which divides the population into several strata or subgroups and takes random samples from each stratum (Taherdoost, 2016). The measuring instrument used is (1) the Occupational Fatigue Exhaustion/Recovery Scale (OFER) to measure work-related fatigue; (2) the Quantitative Workload Inventory (QWI) to measure quantitative workload; (3) the short version of the Survey of Perceived Organizational Support (SPOS) to measure organizational support; and (4) the Situational Motivation Scale (SIMS) to measure intrinsic motivation.

Work-related fatigue was measured using The Occupational Fatigue Exhaustion/Recovery Scale (OFER) by Winwood et al. (2005). The selection of measuring instruments refers to the instruments used in previous research by Liu et al. (2018). This measuring tool measures the level of fatigue felt by employees. It consists of three dimensions: chronic fatigue, acute fatigue, and adequate recovery time. It has 15 items and 7 Likert scales (0 = strongly disagree to 6 = strongly agree). OFER has a value of $\alpha = .885$.

Quantitative workload was measured using the Quantitative Workload Inventory (QWI) designed by Spector and Jex (1998). This measuring instrument was used because it was considered to have more explicit and precise items than the instrument used in previous research (Liu et al., 2018). This measuring tool measures the workload imposed on employees quantitatively. It consists of two dimensions: the amount of work (pace) and the amount of work (volume). It has five items and 5 Likert scales (1 = Less than once per month or never; 2 = One or two times per month; 3 = One or two times per week; 4 = One or two times per day; 5 = Several times per day (more than twice per day)). QWI has a value of $\alpha = .850$.

The short version of the Survey of Perceived Organizational Support (SPOS) was compiled by Eisenberger et al. (1986). This measuring tool measures subjectively (from the employee's perspective) the support the organization provides to employees. The choice of measuring instrument was based on the consideration that this measuring instrument was more complex and relevant than the measuring instrument used by Liu et al. (2018). It consists of two dimensions: evaluative judgment and discretionary actions. It has 18 items and 7 Likert scales (1 = strongly disagree to 7 = strongly agree). SPOS has a value of $\alpha = .913$.

The Situational Motivation Scale (SIMS) was designed by Guay et al. (2000). This measuring tool measures a person's motivation based on particular situations. Its dimensions are intrinsic motivation, identified regulation, external regulation, and motivation. According to the needs of this research, this research will only use the dimension of intrinsic motivation. It has 15 items and 7 Likert scales (1 = strongly disagree to 7 = strongly agree). This research only uses the intrinsic motivation dimension, which consists of 4 items. The SIMS measuring instrument has a value of $\alpha = .855$.

The theoretical framework in this research is described as follows.

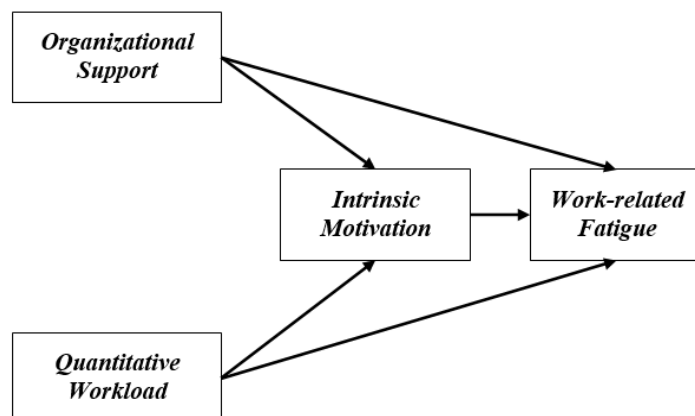


Figure 1.
Research Framework

RESULTS

Table 1 contains demographic data from this research, including age, gender, marital status, years of work, and open questions. Sixty-three participants in the data obtained were in the 20–28 age range, with 52% being male. Most participants were married (72%), worked for 1–5 years (73.5%), and held staff positions (84%).

The open questions in this research consisted of: (1) relationship with the direct leader; (2) relationships with colleagues; (3) role at work; (4) feelings about work; (5) frequency of absence; (6) reason for absence; (7) encouragement to work; and (8) reasons for continuing to work. Most of the participants in this research felt they had better relationships with their coworkers than their direct leaders, so they needed better relationships with their direct leaders.

Overall, the workload received by participants was uneven, and it was shown that 39% felt they had an excessive workload even though 59% felt their workload was following their capacity. 55% of participants admitted to receiving additional tasks outside the job description. 42% of participants felt stressed and exhausted because they often had to fix or complete work that had not been completed by their staff/colleagues/direct leaders. 31% of participants stated that they had frequent absences of more than three times a year due to fatigue (38%). 62% prefer rewards as encouragement and 65% admitted continued working because they had to fulfill their obligations/work contracts.

Table 1.
Demographic Data

Demographic	Category	F	Percentage (%)
Age	20–28	63	38%
	29–36	39	23%
	37–44	23	14%
	45–52	31	19%
	53–60	10	6%
Total		166	100%
Gender	Male	87	52%
	Female	79	48%
Total		166	100%
Marital status	Single	47	28%
	Married	119	72%
Total		166	100%
Years of work	1–5	122	73.5%
	6–10	29	17.5%
	11–15	10	6%
	> 15	5	3%
Total		166	100%
Position	Head of division	5	3%
	Head of subdivision	10	6%
	Staff (PNS)	11	7%
	Staff (PPP/Non PNS)	140	84%
Total		166	100%
Relationship with direct leader*	I have had/had a conflict with my direct leader	14	7%
	I feel that my direct leader is showing favoritism	28	13%
	I feel that my direct leader does not appreciate my efforts	28	13%
	I feel like my direct leader doesn't care about me	66	31%
	Other	78	36%
Total		214	100%
Relationships with colleagues*	I have had/had a conflict with my colleagues	12	6%
	I feel like my colleagues are showing favoritism	12	6%
	I feel like my colleagues don't appreciate my efforts	19	10%
	I feel like my colleagues don't care about me	48	25%
	Other	98	52%
Total		189	100%

Demographic	Category	F	Percentage (%)
Workload	According to my capacity and abilities	94	57%
	Beyond my capacity and abilities	64	39%
	Less, compared to my capacity and abilities	3	2%
	Other	5	3%
Total		166	100%
Roles while working	When I work, I don't play the role I'm supposed to and instead take on other roles that shouldn't be my part	28	17%
	When working, I took shortcuts by handing over my assignments to other employees but they were collected in my name	7	4%
	I often get additional tasks outside the job description	92	55%
	Other	39	23%
Total		166	100%
Feelings about work*	I felt depressed and exhausted, because I was forced to take on another role that was not my part	71	32%
	I feel that my work is quite relaxed and tends to be light, because some of the work that I should have done has been transferred to other departments.	25	11%
	I feel stressed and exhausted, because I often have to fix or complete work belonging to my staff/colleagues/direct leaders that has not been completed.	93	42%
	I feel that my work tends to be relaxed and light, because I can deliberately not complete my work completely in order to get back up (completed by other employees).	3	1%
	Other	29	13%
Total		221	100%
Frequency of absence	3 times or more a year	51	31%
	2 times a year	42	25%
	1 time a year	27	16%
	0 times or never	46	28%
Total		166	100%
Reason for absence*	Sick	59	32%
	Fatigue	70	38%
	Bored	9	5%
	Stressed	26	14%
	Other	21	11%
Total		185	100%

Demographic	Category	F	Percentage (%)
Work encouragement*	Interest in work	48	28%
	The desire to satisfy oneself	10	6%
	Rewards/rewards	107	62%
	Other	8	5%
Total		173	100%
Reasons to keep working*	My own wish	35	15%
	Leader demands	45	20%
	Fulfill obligations/employment contract	148	65%
Total		228	100%

*Can answer more than one.

Table 2 reports correlations in every variable. The correlation test results show that each construct is correlated with each other. Organizational support and work-related fatigue have a negative relationship. Quantitative workload and work-related fatigue have a positive relationship.

Table 2.
Correlation of Variables

	1	2	3	4
Work-related fatigue				
Organizational support	-.761*			
Quantitative workload	.533*	-.433*		
Intrinsic motivation	-.688*	.773*	-.503*	

The results of hypothesis testing using path analysis in SmartPLS can be known by looking at the path coefficients and bootstrapping values. Path coefficients are values that show the direction of the relationship of each research hypothesis (positive or negative; Ringle et al., 2015) Path coefficients lie in the value range -1 to +1, so if the path coefficient value is -1 to 0, then the direction of the relationship is negative. Conversely, if the path coefficient value is 0 to +1, then the direction of the relationship is positive.

Meanwhile, bootstrapping is a non-parametric procedure allowing statistical significance testing through various PLS-SEM results (Ringle et al., 2015). The significance value of a hypothesis is determined by looking at the t-statistic value obtained through the bootstrapping process. This research uses the most commonly used significance level for the bootstrapping process, namely .05 (two-tailed). Following the significance level used, the standard value of the t-statistic is more than 1.96 (p-value < .05) to be declared significant.

The bootstrapping results in Table 3 and Figure 2 show that the t-statistics value for the relationship between organizational support and work-related fatigue is $6.955 > 1.96$ (1.96 is the significant limit value, two-tailed), so it can be interpreted that there is a significant relationship between organizational support and work-related fatigue with a negative relationship direction (see Figure 3). The relationship between quantitative workload and work-related fatigue has a t-statistics value of 3.406, which means there is a significant relationship between quantitative workload and work-related fatigue. Figure 3 shows a positive relationship between quantitative workload and work-related fatigue. Table 3 and Figure 2 show a significant relationship between organizational support and intrinsic motivation ($13.428 > 1.96$; t-statistic > t-table). Figure 3 shows the direction of the positive relationship between

organizational support and intrinsic motivation. The relationship between quantitative workload and intrinsic motivation has a t-statistics value of 3.838, which means there is a significant relationship between quantitative workload and intrinsic motivation.

The relationship between intrinsic motivation and work-related fatigue has a t-statistics value of $1.907 < 1.96$ (t-statistic < t-table; insignificant), which shows no significant relationship between intrinsic motivation and work-related fatigue. There is no relationship between intrinsic motivation (mediator) and work-related fatigue (endogenous construct) with the explanation regarding the existence of a significant direct relationship between the two exogenous constructs, and the endogenous construct shows that there is no mediating role by intrinsic motivation in the relationship between organizational support and quantitative workload, with work-related fatigue.

Table 3.
Path Analysis

	Sample Mean	Standard Deviation	t-statistics
Organizational Support → Work-related Fatigue	-.550	.079	6.955
Quantitative Workload → Work-related Fatigue	.222	.064	3.406
Organizational Support → Intrinsic Motivation	.682	.051	13.428
Quantitative Workload → Intrinsic Motivation	-.208	.054	3.838
Intrinsic Motivation → Work-related Fatigue	-.152	.082	1.907

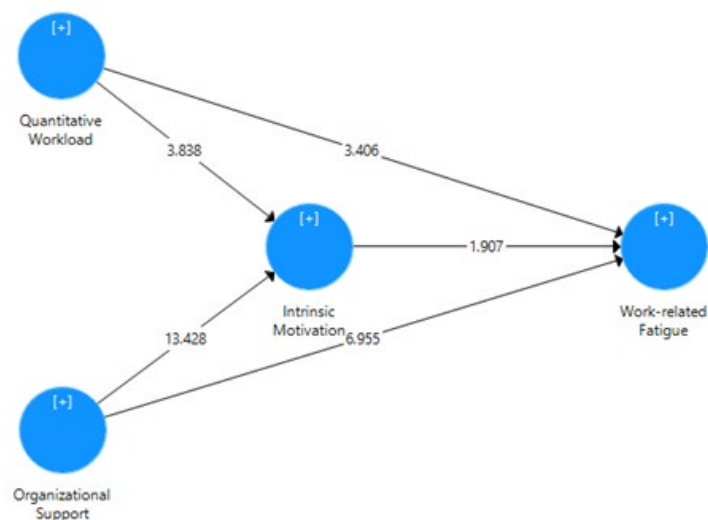


Figure 2.
Bootstrapping

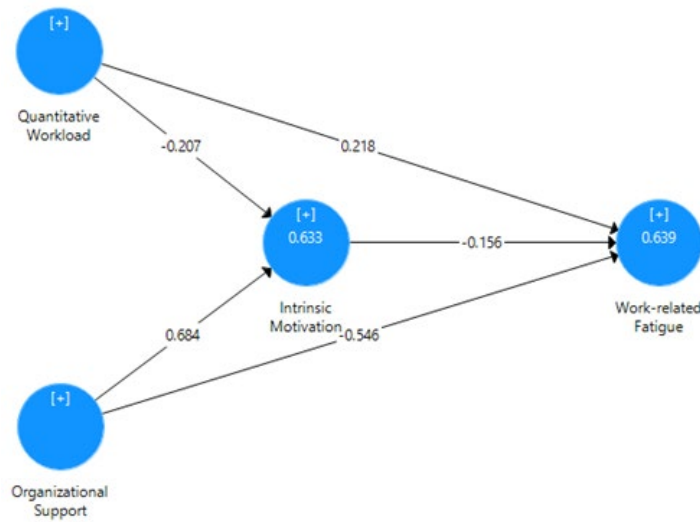


Figure 3.
Path Coefficients

DISCUSSION

Based on the results presented, intrinsic motivation cannot mediate the relationship between organizational support and quantitative workload and work-related fatigue. The result of this research is inconsistency with previous research, which supports the mediating role of intrinsic motivation in the relationship between organizational support and quantitative workload with work-related fatigue (Fernet et al., 2012; Gillet et al., 2013; Han et al., 2014; Herlambang et al., 2021; Liu et al., 2018; Qiu et al., 2020; van Yperen & Hagedoorn, 2003). Even though the role of the mediator is not proven, this research can be explained using organizational support theory and self-determination theory. Based on organizational support theory, workers who receive sufficient organizational support will provide positive feedback through commitment, effort, and performance. Conversely, workers who feel less supported by the organization will be at risk of providing negative feedback (Eisenberger et al., 1986). The correlation shows that organizational support has a negative relationship with work-related fatigue. Besides that, it showed that 31% of workers feel ignored, 13% feel unappreciated, 13% feel favoritism, and 7% have had/had conflicts with their direct leaders. Moreover, 39% of workers received a workload beyond their capacity and 2% less than their capacity.

Self-determination theory explains that individuals with the same quantitative workload can produce different work-related fatigue, influenced by the individual's unique character (intrinsic motivation), where one of the predictors is organizational support (Deci & Ryan, 1985). The relationship test results show that organizational support positively correlates with intrinsic motivation. Meanwhile, quantitative workload has a negative relationship with intrinsic motivation and a positive relationship with work-related fatigue. This research showed that 55% of workers receive tasks outside their job description, and 42% feel stressed and exhausted due to having to do or complete work that is not their own. However, 65% of workers decided to continue to work in the organization because they had to fulfill their obligations/work contracts.

Researchers also found that organizational support has a positive relationship with intrinsic motivation (Alam et al., 2023; Caird & Kline, 2004; Evianti et al., 2020; Fernet et al., 2012; Liu et al., 2018; Qiu et al., 2020). Previous research states that quantitative workload has a significant relationship with intrinsic motivation and a negative relationship (Han et al., 2014; Herlambang et al., 2021; van Yperen & Hagedoorn, 2003). The relationship between intrinsic motivation and work-related fatigue in previous research does not match the results of this research. Previous research states that

intrinsic motivation is significantly related to work-related fatigue (Fernet et al., 2012; Herlambang et al., 2021; Liu et al., 2018; Qiu et al., 2020).

CONCLUSION

Through this research, it is known that organizational support and quantitative workload significantly impact work-related fatigue. When workers try to maintain their jobs, it is not uncommon for these workers to have to deal with high quantitative workloads, which trigger work-related fatigue to a severe level. Organizations must provide support to prevent increased work-related fatigue and negative employee impacts. This research can explain to workers and organizations that work-related fatigue is a severe case that is important to pay attention to and prevent. Efforts to prevent increased work-related fatigue can be made by managing organizational support and quantitative workload. When workers receive a high quantitative workload balanced with sufficient organizational support, they feel more relaxed and energized in doing their work. They are happy to make a positive contribution to the organization. Organizational support includes mentoring from direct leaders and mutual care between colleagues.

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