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MORALITY BEFORE KNOWLEDGE

Determinants of health-related productivity loss: Investigating the link between workaholic tendencies and presenteeism in the public sector

Karomah Devi Astriningrum[1,*]

[1] *Program of Public Health, Faculty of Health Sciences, Universitas Pembangunan Nasional "Veteran" Jakarta, Jakarta, Special Capital Region of Jakarta 12450, Indonesia.*

*Correspondence: karomahdevi@gmail.com

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ABSTRACT

Background: Presenteeism is the behavior of workers who are present to do their work when they experience health problems. Presenteeism behavior is quite worrying because it can harm the company and also worsen health. This research aims to determine the most dominant factors in the level of presenteeism at Institution X in 2023. **Methods**: The research used a cross-sectional study design and data was obtained directly by filling out a questionnaire (primary data). The research was conducted in November – December 2023 using a sample of 205 PPNPN employees at a Non-Ministerial Government Institution in Central Jakarta. Data analysis used the Chi-Square and Multiple Logistic Regression tests to achieve research objectives. **Findings:** Univariate analysis revealed that 59.5% of employees experienced high presenteeism, while 67.3% exhibited workaholic tendencies. After being controlled for job satisfaction, the analysis results show that workaholic ($P < 0.001$; POR = 3.703; 95% CI = 1.8–7.6) is the factor that dominates the level of presenteeism. Furthermore, the analysis confirmed that demographic characteristics (gender, age, education, and marital status) and job insecurity did not have a significant relationship with presenteeism levels (P > 0.05). **Conclusion**: The existence of presenteeism behavior can be a concern for institutions to create a good work environment so that the prevalence of presenteeism can decrease and employees maintain productivity without harming their health. **Novelty/Originality of this article:** This study identifies workaholism as the most dominant factor influencing presenteeism among non-ministerial government employees, highlighting the importance of addressing workplace culture in mitigating health-related productivity loss.

KEYWORDS: determinant; presenteeism; workaholic.; health-related productivity.

1. Introduction

Presenteeism refers to the behavior of employees who attend work despite being ill, which can ultimately reduce their productivity (Cooper & Lu, 2016). Forcing oneself to work while unwell may also diminish work morale and lead to stress and mental health issues (Nahar, 2018). Presenteeism can be voluntary, driven by professional commitment, or involuntary due to factors such as the high cost of absenteeism for employees, the difficulty of replacing certain roles, and a lack of job security (Garrow, 2016). Management support is crucial in fostering a positive work culture and preventing presenteeism (Nahar, 2018). When properly managed, adaptive presenteeism can help balance performance demands with health-related limitations, thereby benefiting both employee well-being and job

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performance (Karanika-Murray & Biron, 2020). Nevertheless, presenteeism is generally regarded as a negative behavior that may increase the likelihood of errors in the workplace.

According to data from the European Working Conditions Telephone Survey (EWCTS) 2021, 27.5% of workers in the European Union continued to work while sick. In 2022, the Chartered Institute of Personnel and Development (CIPD) in 2022 reported that 65% of employees worked on-site while ill, and 81% worked from home despite being sick. Presenteeism was also observed among employees at a public university in Portugal, where 30.1% of non-academic staff reported attending work while unwell (Magalhães et al., 2022). In Samarinda, Indonesia, 31.6% of healthcare workers engaged in presenteeism (Linda et al., 2023). Furthermore, 37% of elementary school teachers exhibited high levels of presenteeism, the majority of whom were women (68%) (Aprilia, 2021). Over the past two decades, the phenomenon of presenteeism has gained significant attention due to its potential to negatively impact organizational outcomes (Karanika-Murray et al., 2021).

According to the Centre for Mental Health (2017), the cost of presenteeism in the UK reached over £21.2 billion per year. However, to date, there is no recent data that accurately represents the magnitude of losses caused by presenteeism. This indicates that presenteeism can lead companies to incur significantly higher expenses. When employees force themselves to work while ill, it can result in depression, decreased performance, loss of productivity, increased health risks, and a greater likelihood of taking sick leave in the future—ultimately becoming a costly issue for organizations (Nahar, 2018).

According to Johns (2010), the occurrence of presenteeism is influenced by various factors such as work context, personal characteristics, and work experience. Employees who possess strong work ethics and exhibit workaholic tendencies, often avoiding rest days, are particularly vulnerable to presenteeism. In fact, workers with seemingly positive attitudes—such as being workaholics, highly meticulous, and mentally resilient—may be more likely to engage in presenteeism (Johns, 2010). When workers have limited opportunities to recover due to workaholic behavior, it can interfere with both job performance and family relationships (Mazzetti et al., 2019). Job insecurity, such as the fear of being easily replaced or facing punishment, also drives employees to continue working while ill. This suggests that the causes of presenteeism cannot be attributed to a single factor but require a comprehensive analysis.

At Non-Ministerial Government Institution X, which operates in the field of disaster management, it was found that employees continued to attend work despite being ill or experiencing health problems. This behavior is driven by a strong sense of responsibility toward their assigned duties. Additionally, the nature of certain tasks that cannot be delegated to others compels employees to remain present. Preliminary findings revealed various factors contributing to employees' engagement in presenteeism. Therefore, this study aims to identify the most dominant independent variable influencing the level of presenteeism among employees at Institution X in 2023.

Based on the results of a preliminary study involving a questionnaire distributed to 10 employees at Institution X, it was found that 9 out of 10 continued to work while in poor health and were categorized as having a high level of presenteeism (>18). The preliminary findings indicate that presenteeism behavior was driven by a strong sense of responsibility toward work and loyalty to the organization. Enjoyment of the work itself also contributed to employees continuing to work despite experiencing health problems. Minor health issues such as headaches, eye strain, and back pain did not prevent employees from working. However, under certain circumstances, employees did take sick leave or requested time off for medical check-ups. Therefore, this study is necessary to identify other dominant factors contributing to presenteeism at Institution X in 2023.

This study examines the most dominant factor influencing the level of presenteeism at Institution X. The data were collected directly (primary data) by the researcher between November and December 2023 at Institution X. The study targeted Government Employees with Non-Civil Servant Status (PPNPN) at the institution. By understanding the relationship between workaholic behavior and the level of presenteeism, it is expected that a more effective work environment can be created and employee productivity can be improved

without causing losses to the organization due to presenteeism. To achieve the research objectives, data were collected using questionnaires with the following instruments: the Stanford Presenteeism Scale-6 (SPS-6), the Bergen Work Addiction Scale (BWAS), the Job Diagnostic Survey, and the Job Insecurity Scale. This research employed a quantitative approach with a cross-sectional study design, and data analysis was conducted through univariate, bivariate, and multivariate methods.

Presenteeism was first defined by Cooper & Lu (2016) as a concept that combines the act of employees coming to work while sick with the resulting loss of productivity. It is a phenomenon in which workers experience medical complaints and poor health but still attend the workplace (Aronsson et al., 2000). Presenteeism refers to the physical presence of employees at work while ill, which may lead to reduced productivity and work quality (Koopman et al., 2002). According to Koopman's concept, employees remain actively engaged both cognitively, emotionally, and behaviorally while working (Koopman et al., 2002). In addition, presenteeism also includes tasks performed outside of formal working hours and locations (Koopman et al., 2002).

The concept of presenteeism presented by Koopman et al. (2002) offers a broader assessment compared to the definitions provided by Cooper & Lu (2016) and Aronsson (2000). However, Hemp (2004) describes presenteeism as a condition in which employees work while unwell, resulting in a productivity loss of one-third or more. Based on the perspectives of these four scholars, presenteeism can be understood as the act of employees attending work while not in a healthy physical condition, which in turn can lead to decreased productivity.

Presenteeism behavior is categorized into four types, each representing a different approach to balancing health and productivity. These types serve as a framework for understanding how employees manage their work responsibilities while dealing with health conditions (Karanika-Murray et al., 2021). Functional presenteeism refers to the condition located in the first quadrant, characterized by both high health and high performance. It describes the ability of employees to maintain their usual level of productivity without compromising their health. In this state, workers achieve an ideal balance between managing poor health conditions and meeting productivity demands. Therapeutic presenteeism occurs when employees are in relatively good health but show low performance. In this case, employees choose to come to work because they seek support from their colleagues. The workplace is perceived as a safe and supportive environment, where interpersonal relationships and social connections contribute to the recovery of their health. Over-achieving presenteeism describes a situation in which employees are in poor health but continue to perform at a high level. While this may seem beneficial in the short term, it can lead to serious health issues—both mental and physical—and increases the risk of future absenteeism. The pressure to maintain performance despite poor health can be detrimental in the long run. Dysfunctional presenteeism is situated in the fourth quadrant, where both health and performance levels are low. In this condition, employees are unable to recover their health and cannot sustain their work performance. Dysfunctional presenteeism carries a high risk of health deterioration and productivity loss, as no adjustments are made to workload demands, exceeding the individual's physical and mental capacity.

2. Methods

2.1 Conceptual framework

This study using a quantitative research, employing an analytical observational study design with a cross-sectional approach. The use of a cross-sectional design aims to identify the most dominant factors influencing the dependent variable without any intervention, by collecting data directly at a single point in time. This study employed a non-probability sampling technique, specifically purposive sampling. Non-probability sampling is a sampling method that does not adhere to the principles of probability (Rawung, 2020).

Purposive sampling involves selecting respondents from a population based on specific criteria determined by the researcher.

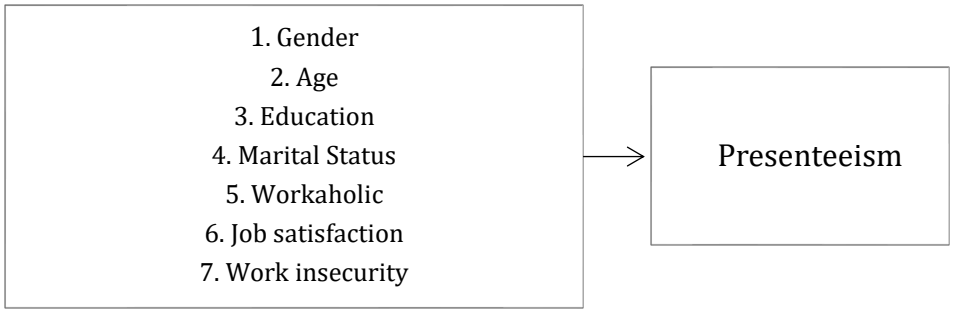

Fig. 1. Conceptual framework

Presenteeism behavior can be influenced by a variety of factors, including work context (job satisfaction, task significance, job interdependence, autonomy, and ease of replacement), personal characteristics (strong work ethic, affective and normative organizational commitment, workaholism, conscientiousness, internal health locus of control), and work experience (equity, job insecurity, and work-to-family conflict). Among the many factors that may contribute to presenteeism, this study focuses only on those considered to have a significant relationship: job satisfaction, workaholism, and job insecurity. In addition, sociodemographic variables are also examined to explore differences in presenteeism levels based on gender, age, education, and marital status.

Other factors that may contribute to presenteeism are not examined in this study. This is because work equity at Institution X has already been fulfilled, as all employees are given equal opportunities, resulting in the absence of discriminatory behavior. In certain situations, employees are even granted the autonomy to make decisions relevant to themselves, allowing them to manage their work-life balance effectively. Furthermore, Institution X does not easily terminate employment (ease of replacement) unless an employee violates disciplinary regulations that may harm the organization. Additionally, conscientiousness and internal health locus of control are not investigated, as some tasks can be delegated to others during sick leave and can still be monitored remotely, even if the employee maintains a high degree of personal health control.

2.2 Research hypothesis

The hypotheses of this study are formulated to assess the relationships between several independent variables and the level of presenteeism at Institution X in 2023. The first hypothesis posits that there is a significant relationship between respondent characteristics—such as gender, age, educational level, and marital status—and the level of presenteeism. The null hypothesis states that no such relationship exists between these sociodemographic variables and presenteeism levels. The second hypothesis suggests that there is a relationship between workaholic behavior and the level of presenteeism, while the null hypothesis assumes no such relationship. Similarly, the third hypothesis examines the association between job satisfaction and presenteeism, with its null hypothesis rejecting the existence of a relationship. The fourth hypothesis proposes that job insecurity is related to the level of presenteeism, whereas the null hypothesis denies this association. Finally, the study also aims to determine which among the independent variables is the most influential in affecting presenteeism levels among employees at Institution X in 2023.

Table 1. Operational Definition

Variable	Operational Definition	Measurement Tools	Measuring Method	Measurement Result	Measurement Scale
Presenteeism	Presenteeism is the act of workers showing up to do their work when their bodies are not in a healthy condition, which can reduce productivity.	Stanford Presenteeism Scale-6	Online questionnaire filling	0 = High (> 18) 1 = Low (≤ 18)	Ordinal
Sex	Sex is defined as the physiological and biological differences between women and men.	Questionnaire	Online questionnaire filling	0 = Man 1 = Women	Nominal
Age	Age is the period of time passed since birth in units of years.	Questionnaire	Online questionnaire filling	0 = < Mean/Median 1 = ≥ Mean/Median	Ordinal
Education Level	The level of education is the stage of education that a person undergoes to develop their personality and abilities.	Questionnaire	Online questionnaire filling	0 = High School/Equivalent 1 = Diploma/Bachelor/Master	Ordinal
Marital Status	Marital status is the status of a marriage position that describes a person's relationship with other people.	Questionnaire	Online questionnaire filling	0 = Unmarried/Not Married 1 = Married	Ordinal
Workaholic	Workaholic is the behavior of workers who work continuously and keep thinking about work even though they are not working (categorized as workaholic if the respondent chooses the answers “often” and “always” more than 4 items).	Bergen Work Addiction Scale	Online questionnaire filling	0 = Workaholic 1 = Not Workaholic	Ordinal
Job Satisfaction	Job satisfaction is the level of satisfaction felt by workers for their work.	Job Diagnostic Survey	Online questionnaire filling	0 = High 1 = Moderate 2 = Low	Ordinal
Work Insecurities	Job insecurity is a condition felt by workers because they do not have a sense of security and powerlessness over their work.	Job Insecurity Scale	Online questionnaire filling	0 = High 1 = Moderate 2 = Low	Ordinal

2.3 Sample calculation

The sample in this study consisted of individuals who met the inclusion criterion, which was all Government Employees Non-Civil Servants (PPNPN) at Institution X in 2023. The exclusion criterion included employees of Institution X in 2023 who did not complete all items in the research questionnaire. The required sample size for this study was calculated using the Lemeshow formula with a confidence interval of 95% (α = 0.05).

$$n = \frac{\left\{Z_{1-\alpha/2}\sqrt{2P(1-P)} + Z_{1-\beta}\sqrt{P_1(1-P_1)+P_2(1-P_2)}\right\}^2}{(P_1-P_2)^2} \quad \text{(Eq. 1)}$$

In this study, the minimum required sample size is denoted by *n*. The value $Z_{1-}\beta$ refers to the standard normal distribution value at a test power of β = 80%. The value $Z_{1-}\alpha/2$ represents the standard normal distribution value at a confidence level of α = 5%. The parameter *P* is the average of P_1 and P_2, where P_1 is the proportion of presenteeism in the at-risk group, and P_2 is the proportion of presenteeism in the non-risk group.

Table 2. Sample calculation

Variable	Researcher	P_1	P_2	Total Sample
Sex	(Janssens et al., 2016)	0.40	0.18	66
Age	(Linda et al., 2023)	0.35	0.17	93
Education Level	(Min et al., 2021)	0.5	0.22	45
Marital Status	(Linda et al., 2023)	0.48	0.23	57

Based on the sample size calculation using the Lemeshow formula, the minimum required sample was 93. This number was then multiplied by two, as the calculation was based on Lemeshow's formula for hypothesis testing of the difference between two proportions. As a result, the minimum required sample was 186. To anticipate potential issues such as invalid data and loss to follow-up, the researcher added an additional 10% to the minimum sample size, bringing the total sample to 205 employees.

The data collection method used in this study was conducted directly by distributing questionnaires to all respondents, thereby collecting primary data. The primary data included all variables, namely presenteeism behavior, workaholism, job satisfaction, and perceived job insecurity. Respondents completed the questionnaire using their personal devices to access an online form. The process of collecting the primary data involved the researcher first asking for the respondents' consent to participate in the study. Once consent was obtained, the researcher provided the online questionnaire to the employees who agreed to participate.

2.4 Research instrument

A research instrument is a tool used to assist in collecting the necessary data (Siyoto & Sodik, 2015). In this study, the research instrument used was a questionnaire in the form of a Likert-type scale, which reflected attitudes ranging from strongly agree to strongly disagree. The following instruments were utilized to gather data on the study variables. The Stanford Presenteeism Scale-6 (SPS-6) is a measurement instrument adapted from the SPS-32 and developed by Koopman et al. (2002). The SPS-6 is designed to estimate how health conditions may affect employee productivity. It comprises six statement items that have been tested for validity and reliability, with a significance level of 0.05 and a Cronbach's Alpha of 0.523, as reported by Tanama (2019). The instrument uses a Likert scale to measure attitudes, ranging from "Strongly Disagree" to "Strongly Agree," with response options coded from 1 to 5.

The Bergen Work Addiction Scale (BWAS) is a measurement tool developed by Andreassen, Griffiths, Hetland, and Pallesen in 2012 to provide an instrument that captures each core component of work addiction. The BWAS includes seven items that assess

workaholic behavior and has been tested for validity and reliability, with a Cronbach's Alpha score of 0.821 (Eugenea et al., 2021). As a unidimensional instrument, the BWAS can classify employees as either workaholic or non-workaholic. According to Andreassen et al. (2012), the cut-off for identifying workaholic tendencies is based on responses where a participant answers "often" or "always" to more than four items. The Likert scale used in the BWAS ranges from "Never" to "Always," corresponding to response values from 1 to 5.

The Job Diagnostic Survey (JDS) is an instrument developed by Hackman & Oldham (1975) to measure levels of work motivation and job satisfaction. The JDS consists of 15 items divided into five dimensions: skill variety, task identity, task significance, autonomy, and feedback. To assess employee job satisfaction, this study employed the Indonesian-language version of the JDS, which has been proven valid and reliable with a Cronbach's Alpha value greater than 0.90 (Lingga, 2021). The level of job satisfaction is calculated using the Motivational Potential Score (MPS) formula. Based on the MPS calculation, employees are categorized as having low motivation (score 1–16), moderate motivation (score 17–43), or high motivation (score 44–125). The Likert scale used in the JDS ranges from "Never" to "Always," with response values from 1 to 5.

The Job Insecurity Scale (JIS) is a multidimensional measurement tool developed by Ashford et al. (1989), based on the theoretical framework of Greenhalgh and Rosenblatt (1984). It consists of 54 items divided into five dimensions: the importance of job aspects (17 items), threats to losing those job aspects (17 items), the importance of job loss (10 items), threats of job loss (10 items), and powerlessness in the face of threats (3 items). In a study by Maulana (2012), the validity and reliability of the JIS were tested, yielding a Cronbach's Alpha value of 0.852, which is greater than the acceptable threshold of 0.60. This result indicates that the instrument is consistent and suitable for research on job insecurity in the Indonesian context. The Likert scale used in the JIS ranges from 1 to 5, where 1 represents "Very unlikely" and 5 represents "Very likely."

2.5 Data analysis

Univariate data analysis is used to describe the characteristics of both the dependent and independent variables. In addition, univariate analysis is conducted to examine the distribution and frequency of each research variable. Bivariate data analysis is used to determine the statistical relationship between two variables.

In this study, the Chi-Square test was used to examine the relationship between two categorical variables. If the expected value is less than 5, the researcher used Fisher's Exact Test as an alternative. The existence of a relationship between variables is indicated by a p-value (Asymp. Sig/asymptotic significance) of ≤ 0.05, which is equal to or less than the established level of significance (Santoso, 2003). The strength of the association between variables is assessed using the Prevalence Odds Ratio.

Multivariate analysis is used to examine which independent variable has the greatest influence on the dependent variable, in this case, the level of presenteeism. This analysis helps identify or predict which exposure among the independent variables is most closely related to the outcome. To achieve this objective, the study employs Multiple Logistic Regression. If the bivariate analysis yields a p-value (Asymp. Sig/asymptotic significance) greater than 0.25, the independent variable is excluded from the multivariate analysis. The variable with the highest Prevalence Odds Ratio (Exp B) is identified as the most influential factor affecting the dependent variable.

3. Results and Discussion

3.1 Univariate analysis

The distribution of the gender variable was obtained through questionnaire responses categorized as male and female. Based on the analysis, the majority of employees were male, accounting for 76.6% (157) of the respondents. The age variable was also collected via

questionnaire and categorized into two groups: under 34 years old and 34 years old or older. The results showed that 109 employees (53.2%) were aged 34 years or older.

Regarding the level of education, data were collected through self-reported questionnaires and categorized as high school (SMA/MA or equivalent) and diploma/bachelor's/master's degree holders. The analysis indicated that the majority of employees, 71.7% (147), held a diploma, bachelor's, or master's degree. Marital status, categorized as single or married, revealed that 160 employees (78%) were married.

Table 3. Distribution and frequency of respondents

Category	Frequency (N = 205)	Percentage (%)
Dependent Variable		
Presenteeism		
High	122	59.5
Low	83	40.5
Independent Variable		
Sex		
Man	157	76.6
Woman	48	23.4
Age		
< 34 Years Old	96	46.8
≥ 34 Years Old	109	53.2
Education Level		
High School/Equivalent	58	28.3
Diploma/Bachelor/Master	147	71.7
Marital Status		
Unmarried/Not Married	45	22
Married	160	78
Workaholic		
Workaholic	159	77.6
Not *Workaholic*	46	22.4
Job Satisfaction		
High	62	30.2
Moderate	110	53.7
Low	33	16.1
Work Insecurities		
High	29	14.1
Moderate	149	72.7
Low	27	13.2

In terms of workaholism, based on the Bergen Work Addiction Scale, 159 employees (77.6%) exhibited workaholic behavior. Regarding job satisfaction, measured using the Job Diagnostic Survey, 110 employees (53.7%) reported a moderate level of job satisfaction. Finally, job insecurity, as measured by the Job Insecurity Scale, indicated that 149 employees (72.7%) experienced a moderate level of job insecurity. The following of Table 3 presents the distribution and frequency related to the level of presenteeism, respondent characteristics, workaholism, job satisfaction, and job insecurity. Furthermore, based on the measurement of presenteeism using the Stanford Presenteeism Scale-6 (SPS-6), the majority of employees fell into the high presenteeism category, totaling 122 employees (59.5%).

3.2 Bivariate analysis

The following presents the results of the analysis conducted using the Chi-Square test to determine the relationship between the independent variables (respondent characteristics, workaholism, job satisfaction, and job insecurity) and the dependent variable (presenteeism). The relationship between respondent characteristics and the level of presenteeism at Institution X in 2023 was analyzed using the Chi-Square test. For gender,

the results showed that out of 157 male employees, 98 (62.4%) were categorized as having a high level of presenteeism. In contrast, only 24 (50%) of the 48 female employees fell into the high presenteeism category. The statistical test yielded a p-value of 0.172, indicating no significant relationship between gender and presenteeism level. The Prevalence Odds Ratio (POR) was 1.661 (95% CI = 0.9–3.2), suggesting that male employees were 1.661 times more likely to exhibit presenteeism compared to female employees.

Table 4. Relationship between respondents' characteristics, workaholic, job satisfaction, and job insecurity with the level of presenteeism

Variable	Presenteeism				Total		P-Value	POR (95% CI)
	High		Low					
	n	%	n	%	N	%		
Sex								
Man	98	62.4	59	37.6	157	100	0.172	1.661 (0.9 – 3.2)
Woman	24	50	24	50	48	100		ref
Age								
< 34 Years Old	58	60.4	38	39.6	96	100	0.916	1.073 (0.6 – 1.9)
≥ 34 Years Old	64	58.7	45	41.3	109	100		ref
Education Level								
High School/Equivalent	35	60.3	23	39.7	58	100	1.000	1,049 (0.6 – 2.0)
Diploma/Bachelor/Master	87	59.2	60	40.8	147	100		ref
Marital Status								
Unmarried/Not Married	26	57.8	19	42.2	45	100	0.923	0,912 (0.5 – 1.8)
Married	96	60	64	40	160	100		ref
Workaholic								
Workaholic	107	67.3	52	32.7	159	100	0.000	4.253 (2.1 – 8.6)
Not Workaholic	15	32.6	31	67.4	46	100		ref
Job Satisfaction								
High	43	69.4	19	30.6	62	100	0.039	0.326 (0.1 – 0.8)
Moderate	65	59.1	45	40.9	110	100		0.510 (0.2 – 1.1)
Low	14	42.4	19	57.6	33	100		ref
Work Insecurities								
High	19	65.5	10	34.5	29	100	0.307	1.250 (0.4 – 3.9)
Moderate	84	56.4	65	43.6	149	100		1.838 (0.8 – 4.5)
Low	19	70.4	8	29.6	27	100		ref

Regarding age, 64 (58.7%) of 109 employees aged 34 years or older were categorized as having high presenteeism, while 58 (60.4%) of 96 employees under 34 years old also showed high presenteeism levels. The p-value was 0.916, indicating no significant difference between age groups and presenteeism. The POR was 1.073 (95% CI = 0.6–1.9), showing that employees under 34 had a slightly higher likelihood—1.073 times—of exhibiting presenteeism compared to those aged 34 and above.

In terms of education level, 87 (59.2%) of the 147 employees with a diploma, bachelor's, or master's degree fell into the high presenteeism category, while 35 (60.3%) of the 58 employees with only a high school or equivalent qualification also demonstrated high presenteeism. The p-value was 1.000, showing no significant relationship between education level and presenteeism. The POR was 1.049 (95% CI = 0.6–2.0), indicating that

employees with only high school education were 1.049 times more likely to experience presenteeism compared to those with higher educational attainment.

With regard to marital status, out of 160 married employees, 96 (60%) were categorized as having high presenteeism. Meanwhile, 26 (57.8%) of the 45 employees who were unmarried or not currently married also exhibited high presenteeism levels. The p-value was 0.923, confirming that there was no significant relationship between marital status and presenteeism. The POR was 0.912 (95% CI = 0.5–1.8), meaning that married employees were 0.912 times less likely to exhibit presenteeism compared to their unmarried counterparts.

In examining the relationship between workaholism and presenteeism, the analysis showed that 107 (67.3%) of 159 workaholic employees fell into the high presenteeism category, whereas only 15 (32.6%) of 46 non-workaholic employees did. The statistical test resulted in a p-value of less than 0.001, indicating a significant relationship between workaholic behavior and presenteeism. The POR was 4.253 (95% CI = 2.1–8.6), demonstrating that workaholic employees were 4.253 times more likely to exhibit presenteeism than those who were not workaholic.

The relationship between job satisfaction and presenteeism revealed that 43 (69.4%) of 62 employees with high job satisfaction and 65 (59.1%) of 110 employees with moderate job satisfaction were categorized as having high presenteeism. The statistical analysis produced a p-value of 0.039, indicating a significant relationship between job satisfaction and presenteeism. Using the low satisfaction category as a reference, the POR showed that employees with high job satisfaction were 0.326 times less likely to exhibit presenteeism, while those with moderate job satisfaction were 0.510 times less likely to do so.

Lastly, the analysis of the relationship between job insecurity and presenteeism indicated that 19 (65.5%) of 29 employees with high job insecurity, 84 (56.4%) of 149 employees with moderate job insecurity, and 19 (70.4%) of 27 employees with low job insecurity fell into the high presenteeism category. The p-value was 0.307, suggesting no significant relationship between job insecurity and presenteeism. Using the low job insecurity group as a reference, the POR showed that employees with high job insecurity were 1.250 times more likely to experience presenteeism, while those with moderate job insecurity were 1.838 times more likely to do so compared to employees with low job insecurity.

3.3 Multivariate analysis

Multivariate analysis was conducted to identify the independent variables that most significantly influence the dependent variable, which is the level of presenteeism. A multiple logistic regression test using a predictive model was employed to determine and predict the exposure of independent variables that have the strongest association with presenteeism. Based on candidate selection from the bivariate analysis using the Chi-Square test, three independent variables met the selection criteria with a P-value < 0.25. These variables were gender (P = 0.172), workaholism (P < 0.000), and job satisfaction (P = 0.039). The following table presents the bivariate selection results prior to proceeding with the multivariate analysis stage.

Table 5. Bivariate sorting

Independent Variable	P-Value	Description
Sex	0.172	Candidate
Age	0.916	Not Candidate
Education Level	1.000	Not Candidate
Marital Status	0.923	Not Candidate
Workaholic	0.000	Candidate
Job Satisfaction	0.039	Candidate
Work Insecurities	0.307	Not Candidate

Then, all independent variables that met the criteria as candidates were simultaneously tested using Multiple Logistic Regression to determine the P-value for each variable. Variables with a P-value greater than 0.05 were eliminated one by one from the model. If the change in the Prevalence Odds Ratio (POR) exceeded 10%, the variable was reintroduced into the model. Conversely, if the change in POR was less than 10%, the variable was excluded from the model.

Table 6. Multivariate modeling

Independent Variable	P-Value	POR	95% CI	
			Lower	Upper
Sex	0.396	1.353	0.674	2.718
Workaholic	0.001	3.541	1.705	7.357
Job Satisfaction	0.358	-	-	-
Job Satisfaction (1)	0.153	0.505	0.198	1.289
Job Satisfaction (2)	0.282	0.631	0.273	1.459

Based on Table 7, the variable gender was removed from the model due to having the highest P-value. In the second multivariate modeling step, the change in the Prevalence Odds Ratio (POR) after excluding the gender variable was examined. Since the change in POR was less than 10%, it indicates that the gender variable can be excluded from the final model.

Table 7. Modeling and changes in POR without gender variables

Independent Variable	Before		After		POR Changes
	P-Value	POR	P-Value	POR	(%)
Workaholic	0.001	3.541	0.000	3.703	-4.57498
Job Satisfaction	0.358	-	0.357	-	-
Job Satisfaction (1)	0.153	0.505	0.151	0.504	0.19802
Job Satisfaction (2)	0.282	0.631	0.305	0.647	-2.53566

Based on Table 8, job satisfaction was the next variable removed from the model. However, the gender variable was no longer included in the analysis, as it had been eliminated in the previous modeling step. In the third multivariate modeling iteration, the change in the Prevalence Odds Ratio (POR) exceeded 10%. Therefore, the job satisfaction variable was reintroduced into the model.

Table 8. Modeling and POR changes without job satisfaction variables

Independent Variable	Before		After		POR Changes
	P-Value	POR	P-Value	POR	(%)
Workaholic	0.001	3.703	0.000	4.253	-14.85282

Based on the results of the multiple logistic regression test, all variables with a P-value greater than 0.05 were excluded. The final model indicates that the workaholic variable ($P < 0.001$) is the most dominant factor influencing the level of presenteeism. The analysis showed that the Prevalence Odds Ratio (POR) for the workaholic variable was 3.703, meaning that employees who exhibit workaholic behavior are 3.7 times more likely to have a high level of presenteeism compared to those who do not, after controlling for the job satisfaction variable.

Table 9. Last modeling

Independent Variable	B	P-Value	POR/ Exp (B)	95% CI	
				Lower	Upper
Workaholic	1.309	0.000	3.703	1.795	7.638
Job Satisfaction	-	0.357	-	-	-
Job Satisfaction (1)	-0.685	0.151	0.504	0.198	1.284
Job Satisfaction (2)	-0.436	0.305	0.647	0.281	1.488

3.4 Discussion of research analysis results

3.4.1 Discussion of the distribution and frequency of presenteeism levels at Institution X

In the present study utilizing the SPS-6, it was found that 59.5% of employees fell into the high presenteeism category. This relatively high level of presenteeism indicates that employees tend to continue working despite being unwell. Such behavior may be influenced by various factors, including the work context, personal characteristics, and professional experiences (Johns, 2011).

Research by Taifor et al. (2011) suggests that employees with a strong sense of responsibility often demonstrate high levels of commitment and strive to perform at their best. This aligns with preliminary findings indicating that employees at Institution X tend to exhibit strong responsibility and loyalty, which may contribute to presenteeism. However, further analysis is necessary to identify the underlying causes of this elevated presenteeism. Therefore, this study also explores the relationships and most dominant factors influencing presenteeism levels at Institution X in 2023.

3.4.2 Discussion on the distribution and frequency of respondent characteristics, workaholism, job satisfaction, and job insecurity at Institution X

Based on the results of the univariate analysis, it was found that out of 205 respondents, the majority of non-permanent employees (PPNPN) at Institution X were aged 34 years or older (53.2%) and predominantly male (76.6%). This is likely due to the fact that employees at Institution X tend to have long tenures, resulting in a workforce dominated by individuals aged 34 and above. Generally, men are expected to be the primary breadwinners, which may explain the higher proportion of male employees compared to women, who are more commonly engaged in domestic roles.

The analysis also revealed that most respondents held diploma, bachelor's, or master's degrees (71.7%). The high level of educational attainment suggests that employees possess sufficient knowledge to effectively perform their duties. Additionally, a large proportion of employees were married (78%). However, marital status does not appear to hinder employees from contributing positively to the organization.

The findings from the Bergen Work Addiction Scale (BWAS) indicated that 67.3% of employees exhibited workaholic tendencies, suggesting a stable inclination toward compulsive and excessive work behavior. Despite the high prevalence of workaholism, it does not seem to negatively affect job satisfaction, as 53.7% of employees reported a moderate level of job satisfaction. This indicates that employees are generally able to perform their work adequately. Similarly, job insecurity was reported at a moderate level by 72.7% of respondents. This prevalence reflects employees' ability to manage job insecurity and feel secure in their work environment, with roles that are generally aligned with their skill sets.

3.4.3 Discussion on the relationship between respondent characteristics, workaholism, job satisfaction, and job insecurity with the level of presenteeism at institution X

3.4.3.1 Relationship between gender and presenteeism rate at Institution X

In this study, gender was not found to have a significant relationship with the level of presenteeism (P = 0.172). However, male employees (62.4%) demonstrated a higher prevalence of presenteeism compared to female employees. This may be influenced by the dominance of male employees in the workplace and their tendency to neglect their health. According to Luksyte et al. (2022), male employees are more inclined to maintain their performance and exploit their health than female employees.

Meanwhile, women often bear a greater dual role—working while caring for their families—which increases their vulnerability to health problems that may affect

presenteeism (Kwon, 2020). Another factor that may support employees' attendance at work is work attitude. Bakker et al. (2009a) stated that employee work attitudes such as motivation, job satisfaction, organizational commitment, and values attached to the job strongly influence work attendance. However, dual-role workers may experience fatigue and reduced job commitment (Kwon, 2020). The lack of a significant relationship found in this study suggests that all employees—regardless of gender—maintain good work attitudes, irrespective of their roles outside of work. Similarly, the study by Shan et al. (2021) also found no significant relationship between presenteeism and gender (P = 0.07). Gender differences do not hinder employees from attending work despite experiencing health problems. Work attendance also reflects employees' work discipline and their awareness of and compliance with company rules without external pressure (Pranitasari & Khotimah, 2021). However, each individual responds to and handles health issues differently. Therefore, gender should not be considered a direct or primary cause of presenteeism.

3.4.3.2 Relationship between age and presenteeism rate at Institution X

In the results of this study, age was not found to be significantly associated with the level of presenteeism (P = 0.916). This finding indicates that age differences are not a significant factor in the occurrence of presenteeism. Similarly, the study by Vänni et al. (2018) also showed no significant difference in presenteeism across different age groups. This suggests that both younger and older employees may be influenced by different driving factors when deciding whether to attend work. Employees under the age of 34 (classified as early adulthood) may engage in presenteeism due to their emerging roles as household managers or their growing responsibilities at work (Aprilia et al., 2020). Obligations and financial needs often motivate younger employees to be more diligent in their work. On the other hand, employees aged 34 and older are more susceptible to health issues, which may make them more likely to exhibit presenteeism.

However, older employees are often believed to be better adapted to their work environment (Brahmasari & Suprayetno, 2008). The absence of a relationship between age and presenteeism suggests that each age group has varying tendencies for presenteeism that are not necessarily determined by age alone. Therefore, age should not be considered a consistently influential variable in presenteeism. Similar to gender differences, individuals across various age groups may have their own approaches to dealing with illness and deciding whether to attend work.

3.4.3.3 Relationship between education level and presenteeism rate at Institution X

In this study, the prevalence of presenteeism decreased as the level of education increased. Employees with a high school education or equivalent (60.3%) exhibited higher levels of presenteeism compared to those with associate, bachelor's, or master's degrees (59.2%). However, the analysis showed no significant difference between educational level and presenteeism (P = 1.000). Similarly, research by Shan et al. (2021) also found no significant relationship between education level and presenteeism (P = 0.955). Employees with higher education tend to possess greater knowledge, which may lead to a better awareness of their health. This aligns with the findings of Yunatan et al. (2023), which suggest that higher education enables employees to develop broader perceptions and attitudes that enhance their performance.

However, with higher education often comes increased roles and responsibilities in the workplace. Meanwhile, employees with lower educational attainment may have other motivations for determining their work attendance. Ornek & Kolac (2020) noted that employees tend to strive to feel competent at work, regardless of educational background. This indicates that differences in educational level cannot be considered a direct cause of presenteeism. Each employee holds a sense of responsibility toward their job, supported by various individual and organizational factors. The findings of this study suggest that

educational level alone does not determine presenteeism; rather, it interacts with a range of other contributing factors.

3.4.3.4 The relationship between marital status and presenteeism rate at Institution X

The analysis results indicate that marital status is not associated with the level of presenteeism (P = 0.923). This finding is consistent with the study by Agina & Abuelnasr (2021), which also reported no substantial difference in presenteeism based on marital status (P = 0.811). This suggests that whether employees are married or unmarried, they consider both personal and family responsibilities when making decisions about attending work. One possible reason employees engage in presenteeism may be due to company policies regarding the high cost of absenteeism (Garrow, 2016).

At Institution X, for example, employees may receive warning letters or face termination if their absenteeism exceeds the allowable limit. Such consequences are significant considerations, as they can directly impact employees' ability to meet their financial needs. Additionally, employees with family responsibilities or those who are married may place a higher value on their jobs, which contributes to a strong commitment to their work (Pertiwi & Mulyana, 2019). According to Bekker et al. (2009), employee commitment plays a significant role in influencing attendance. Therefore, employees at Institution X may choose to come to work due to their strong commitment and fear of losing both income and employment.

3.4.3.5 The relationship between workaholic and presenteeism level in Institution X

In this study, workaholism was found to be significantly associated with the level of presenteeism (P < 0.001). Similar findings were reported by Mazzetti et al. (2019), who also found a significant relationship between workaholism and presenteeism (P < 0.001). Employees classified as workaholics tend to exhibit perfectionist tendencies, often preferring to complete tasks on their own (Girardi et al., 2015). Additionally, contract-based employees at Institution X, particularly non-permanent staff (PPNPN), operate under fixed-term agreements. These contractual obligations may lead to higher performance pressures compared to permanent employees, compelling them to demonstrate greater work effort. Such behavior reflects that presenteeism may occur both voluntarily and involuntarily (Garrow, 2016). The emergence of workaholic tendencies can be driven by competitiveness, escapism, and addiction (Seybold & Salomone, 1994).

Bakker et al. (2009) suggested that workaholism may also serve as a coping strategy for dissatisfaction in personal relationships. Despite its drawbacks, workaholism can sometimes be perceived positively, as it may indicate high energy, a strong sense of responsibility, and competence (Sussman, 2012). At Institution X, employees' strong sense of responsibility is another factor contributing to workaholic behavior and their decisions to attend work even when unwell. When employees are unable to disengage from work and consistently exceed normal workloads, they are more likely to be present at work despite being sick. Repeated poor habits and a lack of opportunities to recover may negatively affect their health and, in turn, threaten the quality of their work due to suboptimal performance.

3.4.3.6 The relationship between job satisfaction and presenteeism level at Institution X

The analysis showed that job satisfaction was significantly associated with the level of presenteeism (P = 0.039). This finding is consistent with the study by Rodríguez-Cifuentes et al. (2020), which also found a significant relationship between job satisfaction and presenteeism (P = 0.001). The majority of employees at Institution X reported moderate job satisfaction and were categorized as having high levels of presenteeism. This behavior may be driven by a sense of professionalism and the perceived obligation to be present at work, even when feeling unwell, as suggested by Garrow (2016). A conducive work environment can also influence employees' job satisfaction (Susanto et al., 2014). A supportive and

positive workplace can help employees achieve the level of satisfaction they desire. According to Karanika-Murray & Biron (2020), when properly managed, presenteeism can have beneficial effects on workers' health and performance. Therefore, to minimize potential losses and harness the productive aspects of presenteeism behavior, managerial support is needed to foster a positive organizational culture.

3.4.3.7 The relationship between job insecurity and presenteeism level at Institution X

The analysis results indicated that there was no significant relationship between job insecurity and presenteeism (P = 0.307). This finding aligns with the study by Jung et al. (2020), which also found no significant association between job insecurity and working while ill (P = 0.941). These findings suggest that job insecurity is not a primary factor contributing to presenteeism. In general, job insecurity is a subjective feeling that arises due to perceived threats in the workplace (Tuban & Indrawati, 2017).

Employees at Institution X tend to experience low job insecurity (70.4%), meaning they generally feel secure in their work environment. One factor supporting this sense of job security is the availability of sick leave, which influences employees' decisions not to work when ill. Additionally, Tuban & Indrawati (2017) found that low levels of job insecurity are associated with employees' ability to effectively fulfill their roles at work. This suggests that Institution X has successfully aligned employee capabilities with job demands (person-job fit). Furthermore, a sense of security in the workplace may also reflect harmonious relationships among employees (Susanto et al., 2014).

3.5 Discussion related to factors that dominate the presenteeism level at Institution X

This study employed a predictive model in which all independent variables were considered important. To identify the most dominant factor influencing presenteeism, the researcher conducted a multivariate analysis using multiple logistic regression. The final model indicated that the variable *workaholism* (P < 0.001) was the most dominant factor associated with presenteeism at Institution X in 2023. This finding is supported by the analysis showing that *workaholism* had the highest Prevalence Odds Ratio (POR) of 3.703. Employees who exhibited workaholic behavior were 3.7 times more likely to engage in presenteeism. These findings are consistent with the study by Mazzetti et al. (2019), which found a significant relationship between workaholism and presenteeism (P < 0.001). According to Andreassen et al. (2010), individuals who consistently overwork may be driven by unmet needs. The demand to consistently demonstrate high performance, particularly due to contractual work arrangements and annual performance evaluations, leads non-permanent employees (PPNPN) to engage in presenteeism. This is one of the reasons why employees find it difficult to detach from work, often exceeding performance expectations. Furthermore, preliminary findings indicated that relatively low income levels were another contributing factor, as PPNPN employees often seek additional income from external work-related activities. A strong sense of responsibility for their work also contributes to workaholic behavior, encouraging employees to work even when experiencing health issues.

Additionally, job satisfaction was found to have a weaker association with presenteeism. In achieving desired job performance, job satisfaction is a crucial factor for employees. Job satisfaction is also an indicator of workplace well-being (Polishchuk et al., 2022), and high satisfaction levels can increase employee discipline (Sukirman, 2011). Employees at Institution X with high job satisfaction (POR = 0.504) were less likely to engage in presenteeism compared to those with moderate job satisfaction (POR = 0.647). These POR values suggest that higher job satisfaction reduces the likelihood of presenteeism. In contrast, employees with lower job satisfaction may engage in presenteeism to fulfill their responsibilities and obligations, reflecting a sense of professionalism. These findings are consistent with preliminary observations indicating that presenteeism at Institution X is often driven by a strong sense of responsibility and loyalty.

Based on the analysis, variables such as gender, age, education level, marital status, and job insecurity were not significantly associated with presenteeism. In contrast, *workaholism*, when controlled for job satisfaction, emerged as the most dominant factor affecting presenteeism. The occurrence of presenteeism among PPNPN employees illustrates that even in government institutions with structured working hours, employees may still choose to work while ill due to the need to meet their obligations and financial needs. This indicates that presenteeism is often voluntary and unintentional, in line with the findings of Garrow (2016). Therefore, addressing presenteeism requires both effort and management support to ensure employees can maintain productivity without compromising their health. By optimizing performance and understanding the associated risks, organizations can benefit from workaholic employees—such as having a highly committed and productive workforce that is capable of facing work challenges and achieving organizational goals. Moreover, employees may also avoid incurring out-of-pocket medical expenses not covered by health insurance.

4. Conclusions

A total of 122 respondents (59.5%) were classified as having a high level of presenteeism. This indicates that the majority of non-permanent employees (PPNPN) at Institution X tend to continue working despite being in poor physical health. This unhealthy behavior can have adverse effects on their health and may increase the organization's long-term risks and losses. From the univariate analysis, it was found that the majority of respondents were male employees (76.6%), aged 34 years or older (53.2%), held a diploma, bachelor's, or master's degree (71.7%), and were married (78%). Additionally, 77.6% of employees exhibited workaholic behavior, 53.7% reported a moderate level of job satisfaction, and 72.7% experienced a moderate level of job insecurity.

According to the bivariate analysis, only two variables were significantly associated with the level of presenteeism: workaholism ($P < 0.001$) and job satisfaction ($P = 0.039$). Meanwhile, other variables showed no significant relationship with presenteeism, including gender ($P = 0.172$), age ($P = 0.916$), education level ($P = 1.000$), marital status ($P = 0.912$), and job insecurity ($P = 0.307$). The results of the multivariate analysis revealed that workaholic behavior ($P < 0.001$), when controlled for job satisfaction ($P = 0.357$), was the dominant factor influencing the level of presenteeism. This suggests that job satisfaction may encourage employees to engage in workaholic behavior, which in turn increases the likelihood of them continuing to work even when they are unwell (presenteeism).

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Biography of Author

Karomah Devi Astiningrum, Student at Program of Public Health, Faculty of Health Sciences, Universitas Pembangunan Nasional "Veteran" Jakarta, Jakarta, Special Capital Region of Jakarta 12450, Indonesia.

- Email: karomahdevi@gmail.com
- ORCID: N/A
- Web of Science ResearcherID: N/A
- Scopus Author ID: N/A
- Homepage: N/A