

## Do role overload and negative emotions lead healthcare workers to cyberloafing?

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### ABSTRACT

Cyberloafing is a serious problem in the workplace, including in the health sector. Role overload is a significant stressor that contributes to its onset. Referring to the stressor emotion counterproductive work behavior model, this study aimed to determine the effect of role overload on cyberloafing behavior mediated by negative emotions. This research involved 230 health workers (doctors, nurses, and midwives) in Indonesia as participants. Data was collected using the role overload scale, the Job- Related Affective Well-Being Scale, and the cyberloafing scale (minor and serious) and was analyzed through IBM SPSS Statistics 25 PROCESS Macro Hayes v4.1. The results showed that through negative emotions, role overload both directly and indirectly predicts serious cyberloafing. On the other hand, the role overload did not significantly predict minor cyberloafing; rather, it did so indirectly through the mediator's unpleasant emotions. This research implies how the government could create policies to manage excessive workloads by regulating working hours, providing incentives, and ensuring equitable distribution of healthcare facilities. Organizations could regularly evaluate workloads and offer stress management programs. Healthcare workers could adopt effective stress management techniques and seek professional support when necessary while also communicating openly about role overload.

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### Introduction

Health workers serve as the spearhead of public health ([Hukormas, 2018](#)). Their work is very tiring and stressful due to high work demands ([Ugwu et al., 2017](#)) and high risk and only qualified people can be involved therein ([Angioha et al., 2020](#)). To cope with stress, frustration, and anxiety associated with their demanding jobs, health workers may turn to personal internet use as a form of distraction or emotional relief ([Krishna & Agrawal, 2023](#)). Most health workers use gadgets, not only for tasks like opening emails, but also for other things like posting photos, sending messages, watching videos on YouTube, and various other activities that are not related to work during working hours ([Ross, 2018](#)).

The practice of employees utilizing the company's internet network for leisurely activities is known as cyberloafing ([Lim, 2002](#); [Blanchard & Henle, 2008](#); [Ozler & Polat, 2012](#)). Cyberloafing refers to the practice of employees using their work time to engage in non-work-

related activities on the internet. This behavior can include browsing social media, checking personal emails, online shopping, or engaging in other leisure activities while on the job ([Dudija & Miranti, 2024](#)). Cyberloafing can be categorized into two types: minor and serious cyberloafing. Minor cyberloafing involves non-work-related internet usage that is generally considered less harmful. This includes activities such as sending and receiving personal emails, browsing general news websites, checking social media (e.g., Facebook, Twitter), and online shopping for non-work-related items. Meanwhile, serious cyberloafing encompasses more risky or potentially illegal internet activities during work hours, which is considered a serious problem and detrimental to many parties. This includes playing online games, accessing adult content or gambling sites, and engaging in illegal downloading or streaming ([Fateh Ur Rahman & Shah, 2020](#)).

Research indicates that just 30% of 50 millennial employees can finish projects on time, with the other 30% experiencing delays due to excessive internet use during working hours ([Diamata & Fajrianti, 2018](#)). According to a different survey, between 60 and 80 percent of employees cyberloaf at work ([Ross, 2018](#)). Cyberloafing behavior can decrease productivity and harm companies in terms of costs incurred ([Lim, 2002](#)). In terms of health workers, it harms patient safety ([Ross, 2018](#)).

We are focusing this research on health workers in Indonesia. Several cases of violations committed by unscrupulous health workers had gone viral on the internet such as a beautician played online games while working, causing the patient's face to be injured ([Harahap, 2021](#)), a nurse was busy playing gadgets and was indifferent to the patient who finally died after giving birth ([Natalia, 2021](#)), and a midwife played TikTok while holding a patient's baby while pinching the baby's cheek ([Purnamasari, 2018](#)). Ironically, those committing the violations were health workers who served as the spearhead of public health ([Hukormas, 2018](#)) who must have high job demands both physically and emotionally ([Ugwu et al., 2017](#)). Moreover, the nature of their work is also dangerous and requires qualified people only ([Angioha et al., 2020](#)). We, therefore, were interested in taking context and focusing on health workers in Indonesia.

Unfortunately, there are still very few studies that fully address the psychological factors that lead to cyberloafing among healthcare professionals. Prior research has only demonstrated that loneliness and stress are the main causes of cyberloafing among healthcare professionals ([Pangani & Munyenyembe, 2024](#)). According to the stressor-emotion paradigm, unpleasant emotions do contribute to the initiation of unproductive job practices. In terms of psychology, people who consider different things to be stresses typically see them as demands that elicit unpleasant feelings. Uncontrollable negative emotions cause people to act in a variety of unproductive ways at work ([Spector & Fox, 2005](#)). We used three variables, namely role overload as the predictor, negative emotions as the mediator, and cyberloafing as the outcome. Given that cyberloafing consists of two dimensions, minor and serious, in this study, we built two separate mediation models to explain the dynamics of role overload and negative emotions in the two types of cyberloafing.

Cyberloafing may come from perceptions and attitudes, personality traits, habits, addiction to the internet, demographic factors, willingness to get involved, and personal code of ethics ([Ozler and Polat, 2012](#)). It may also emerge due to organizational sanctions and work stressors such as role conflict, role ambiguity, and role overload ([Henle and Blanchard, 2008](#)). Referring to the counterproductive work behavior's stressor-emotional model, counterproductive work behavior (CWB) is caused by an individual's inability to manage negative emotions when faced with work pressure. Work duties and responsibilities that are perceived as pressure tend to trigger negative emotions such as feelings of anger, annoyance, anxiety, sadness, etc. Individuals who are unable to control negative emotions tend to release

them by acting counterproductive to work (Spector & Fox, 2005). In this regard, Bauer and Spector (2015) suggested that employees who have negative emotions can commit production deviations (Spector *et al.*, 2006). In this study, we relate it to cyberloafing as a variable that is allied with CWB (Lim, 2002).

Based on the stressor-emotion model (Spector & Fox, 2005), cyberloafing may occur due to job stressors. An important job stressor is role overload, which is defined as a condition in which an individual lacks the resources to fulfil his/her work commitments, obligations, and requirements (Peterson *et al.*, 1995). Role overload is considered as exhausting as it is perceived as situational demands that exceed one's personal capabilities. Role overload can therefore result in a range of stress responses, from minor psychological distress like anxiety to more severe ones like depression (Tang & Vandenberghe, 2021). Previous research found that role overload was associated with reduced work performance, physical and psychological health and burnout (Huang *et al.*, 2022; Tang & Vandenberghe, 2021).

Employees who experience role overloads are likely to commit to cyberloafing. However, research on how role overload affects cyberloafing revealed different results. Previous research found that employees are more likely to engage in cyberloafing as a coping mechanism for reducing work-related stress when they encounter a higher level of role overload (Rosalinda *et al.*, 2023). This implies that employees may utilize their personal internet as a way to decompress from their job demands. In contrast, other found that role overload has no discernible effect on cyberloafing (Hardiani, *et al.*, 2018). This research aims to address the gaps and contribute to extending the existing knowledge on cyberloafing among employees by investigating the relationship between role overload and cyberloafing and the underlying mechanisms explaining this relationship

According to the stressor-emotion model (Spector & Fox, 2005), individuals monitor and evaluate environmental events, and note that some situations are viewed as job-related stressors that endanger their well-being. This results in unpleasant emotional reactions such as anger or anxiety, which in turn lead to strain that manifests behaviourally (such as smoking or CWB), physically (such as headaches, increased blood pressure), or psychologically (such as job dissatisfaction or intention to leave). Role overload occurs when employees have too much work to do on a tight schedule that does not match their abilities. This situation is then perceived as a stressor that might lead to CWB, including cyberloafing as it is viewed as a threat. Previous research found that employees are more likely to engage in cyberloafing as a coping mechanism for reducing work-related stress when they encounter a higher level of role overload. They may utilize their internet as a way to decompress from their job demands (Rosalinda *et al.*, 2023). Thus, the hypotheses built from this explanation are: (H1) role overload predicts minor cyberloafing among health workers and (H2) role overload predicts serious cyberloafing among health workers.

Negative emotions frequently occur in reaction to pressures at work, which has a detrimental impact on productivity. Stressors can cause negative emotional reactions, which can then affect an employee's conduct and attitudes toward their work (Jasiński & Derbis, 2022). Employees may feel overburdened if they are assigned more work than they can complete in the allotted working hours. Feelings of overwhelm can be made worse by the pressure to achieve deadlines without sufficient resources (Hardiani *et al.*, 2018). This disparity has a detrimental effect on work performance and causes a great deal of psychological strain (Tang & Vandenberghe, 2021). Bauer & Spector (2015) state that employees who experience negative emotions can commit production deviations. Thus, hypotheses built from this assumption were: (H3) negative emotions predict minor

cyberloafing among health workers and (H4) negative emotions predict serious cyberloafing among health workers.

When employees feel they have been required to do more than they can properly handle, they are perceived to be experiencing role overload, which may lead to CWB. This association is mediated by negative affect ([Spector & Fox, 2005](#)). According to Tariq *et al.* (2024), role overload is commonly perceived as a stressor that results in retreat tendencies. Previous research found that job stressors trigger negative emotions which in turn affect CWB ([Zhang \*et al.\*, 2019](#)). Furthermore, research indicates that job uncertainty, a particular kind of role stressor, causes negative feelings that further reduce workers' motivation to take part in constructive activities outside of their primary duties, hence raising CWB ([Nugraheni & Wahyuni, 2016](#)). Conversely, workers who experience high levels of role stress may act out by withdrawing from work-related activities or acting aggressively toward coworkers as a way to vent their negative feelings ([Yu \*et al.\*, 2021](#)). Based on the stressor-emotion model, we used negative emotions as a mediating variable between role overload and cyberloafing. Thus, we expected that: (H5) negative emotions mediate the relationship between role overload and minor cyberloafing among health workers (H6) negative emotions mediate the relationship between role overload and serious cyberloafing among health workers.

## Method

This study used a quantitative research method with a cross-sectional approach and using scales to collect the data.

### Participants

Using a purposive sampling technique, we involved 273 participants. Of them, 43 were indicated as outliers, thus having to be eliminated. The final number of participants analyzed, therefore, was 230. The subjects in this study should meet the preset criteria: (1) currently being a doctor/nurse/midwife providing health services directly to patients, not administrative or teaching staff, and (2) working at hospitals, health centers, clinics, or independent practice. Based on the data, 187 (68.50%) were women, 112 (44.69%) were nurses, 96 (35.16%) were doctors (general practitioners, dentists, specialists, etc.), and 55 (20.15%) were midwives. As many as 115 participants (42.12%) were aged between 26-30 years. The data came from 19 of 33 provinces in Indonesia. The respondents' profiles in this study, including gender, age, occupation, workplace institution, and tenure, can be seen in Table 1.

**Table 1**

*Detailed Description of Research Subjects*

Research participants	Frequency	Percentage (%)
Gender		
Male	86	31.50%
Female	187	68.50%
Age		
20-25 years	44	16.12%
26-30 years	115	42.12%
31-35 years	76	27.84%
>35 years	38	13.92%

**Table 1**  
(Continued)

Job		
Midwifery Staff (Midwives)	55	20.15%
Nursing Staff (Nurses)	122	44.69%
Medical Staff (General practitioners, dentists, specialist dentists, etc).	96	35.16%
Job Institution		
Clinic	70	25.64%
Private Practice	30	10.99%
Community Health Center	89	32.60%
Hospital	84	30.77%
Work period		
over 6 months	31	11.36%
between 1 and 2 years	88	32.23%
between 3 and 4 years	122	44.69%
more than 5 years	30	10.99%
more than 12 years	1	0.37%
more than 16 years	1	0.37%
Province		
West Java	79	28.90%
East Java	19	7.00%
Central Java	12	4.40%
South Kalimantan	71	26.00%
Central Kalimantan	2	0.70%
West Kalimantan	19	7.00%
East Kalimantan	3	1.10%
North Sumatra	5	1.80%
South Sumatra	7	2.60%
West Sumatra	3	1.10%
South Jakarta	14	5.10%
East Jakarta	2	0.70%
West Jakarta	9	3.30%
South Sulawesi	2	0.70%
Riau	2	0.70%
Banten	17	6.20%
Lampung	5	1.80%
East Nusa Tenggara	1	0.40%
Aceh	1	0.40%

### **Instruments**

We tested the instruments on 100 health workers before distributing it to research participants. The trial was carried out on 3 groups of health workers according to the criteria

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previously mentioned. The distribution of the questionnaires was carried out online using the Google form.

Role overload was assessed using a subscale the role stressor scale that specifically measure role overload developed by Peterson *et al.* (1995) and had been adapted into Indonesian by Febriana (2020). The number of role overload items was 5, all of which were favorable, with a Likert scale type with 5 answer choices: 1) Strongly Disagree, 2) Disagree, 3) Disagree, 4) Agree, and 5) Strongly Agree. The reliability value of this measuring instrument was 0.84. All items exceed the threshold value of the item-total correlation coefficient, which is 0.57 to 0.73. The statement items on this scale are “I feel overwhelmed by my roles”, “I have been given too much responsibility”, “my workload is too heavy.”

Cyberloafing was assessed using the Cyberloafing scale developed by Blanchard and Henle (2008) to measure minor and serious cyberloafing. The instrument was first adapted into Bahasa Indonesia based on the guidelines for adapting measuring instruments from the International Test Commission (ITC). This instrument was a Likert scale type consisting of 22 items, one of which failed at the trial stage, leaving 21 favourable items. Participants may respond to one of 5 answer choices ranging from 1) Never, 2) Rarely, 3) Sometimes, 4) Quite often, and 5) Very often. The reliability of the scale was 0.95. All items exceed the threshold value of the item-total correlation coefficient, which is 0.39 to 0.81. Based on the article by Blanchard and Henle (2008), the reliability value for minor cyberloafing is 0.86 and for serious cyberloafing is 0.80. Examples of minor cyberloafing items include “checking non-work-related e-mail”, “checking online personals”, “shopped online personal goods”. Examples of serious cyberloafing items include “participated in chat rooms”, “downloaded music”, “read blogs.”

We used the Job-Related Affective Well-Being Scale (JAWS) specific for the dimension of negative emotions to measure negative emotions. The scale had been adapted into Bahasa Indonesia by Febriana (2020). Despite the two subscales, the calculation was still made into one score. This instrument was a type of Likert scale consisting of ten favourable items with 5 answer choices: 1) Never, 2) Rarely, 3) Sometimes, 4) Quite often, and 5) Very often. The reliability value of this measuring instrument was 0.93. All items exceed the threshold value of the item-total correlation coefficient, which is 0.63 to 0.83. One of the items in this negative emotion scale was “my job makes me feel angry”, “my job makes me feel anxious”, “my job makes me feel bored.”

### ***Procedure***

We received ethical approval from the Faculty of Medicine of Universitas Lambung Mangkurat No. 75/KEPK-FK ULM/EC/III/2022). We used Google Forms to distribute the questionnaires. Participants were recruited via online and completed the anonymous questionnaires voluntarily

### ***Data Analysis***

Data analysis was performed using the IBM SPSS Statistics 25 application. The stages for conducting data analysis were divided into the assumption test and the hypothesis test using the mediation model regression analysis process proposed by Hayes. We tested the Hayes mediation regression model twice on two models based on the type of cyberloafing. In testing the hypotheses, we used data whose outliers had been removed with a multivariate outliers detection technique, namely the Mahalanobis distances, cook’s distances, and leverage distances. As a result, 43 people were deleted, leaving 230 people.

**Results**

In the assumption analysis stage, we conducted a residual normality test and found a normal distribution (normal probability plot; the dots spread out and coincided around the diagonal). We also carried out a linearity test and found that it was linear (Sig. <0.05). No multicollinearity was found for all the predicting variables (VIF < 10); heteroscedasticity was also not found. In the next analysis stage, we performed Pearson's bivariate correlation analysis (see Table 2). Overall, there were significant positive relationships between the variables.

**Table 2.**  
*Correlation and Descriptive Statistics*

		$\alpha$	Scale	Mean	SD	1	2	3	4
1	Role Overload	0.78	1-5	9.54	2.97	-	0.66**	0.64**	0.73**
2	Minor Cyberloafing	0.92	1-5	24.00	7.38		-	0.59**	0.85**
3	Serious Cyberloafing	0.77	1-5	16.70	4.23			-	0.67**
4	Negative Emotions	0.79	1-5	21.19	7.22				-

Note: \*\* $p < 0.01$ .

**Hypothesis Testing**

We used PROCESS v4.1 by Andrew F. Hayes using Model 4; 5000 bootstraps. We tested Model 4 twice based on the type of cyberloafing (minor vs serious). Figure 1 shows that role overload not significantly predict minor cyberloafing (direct effect) with  $\beta = 0.09$ ;  $t(228) = 1.73$ ;  $p = 0.09$ , and 95% CI [-0.03; 0.47] (H1 was not accepted). The analysis results proved a significant effect of negative emotions on minor cyberloafing with  $\beta = 0.78$ ;  $t(228) = 15.27$ ;  $p < 0.001$ , and 95% CI [0.70; 0.90] (H3 was accepted). The analysis results also showed that role overload significantly predicted minor cyberloafing under the mediation of negative emotions with  $\beta = 0.58$ ; BootSE = 0.06, and BootCI 95% [0.47; 0.69] (H5 was accepted). In Figures 1 and 2, we find that significant negative emotions were predicted by role overload with  $\beta = 0.73$ ;  $t(228) = 16.31$ ;  $p < 0.001$ , and 95% CI [1.57; 1.99]. Both role overload and negative emotions significantly predicted minor cyberloafing  $R^2 = 0.72$ ;  $F(1, 23) = 297.95$ ;  $p < 0.001$ . So, as much as 72.4% of the variance of the two very significant predictors explained minor cyberloafing.

**Figure 1.**

*Schematic of Hypothesis Test Results between Role Overload (X), Minor Cyberloafing (Y1), and Negative Emotions (M)*

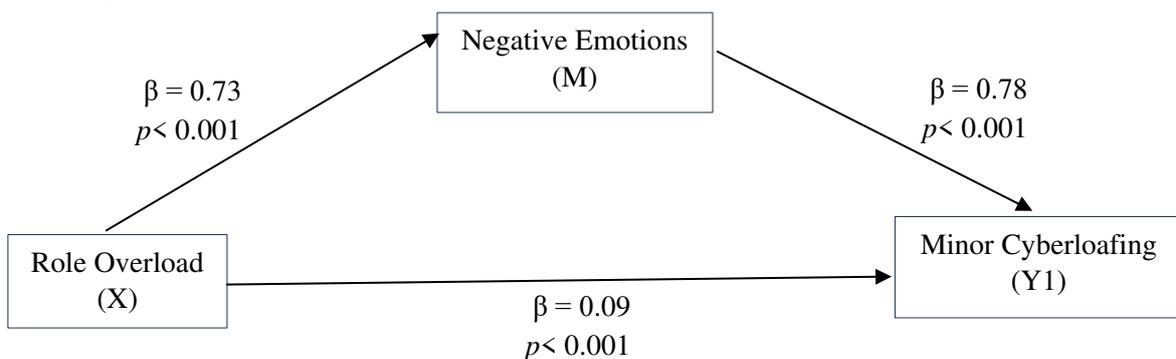
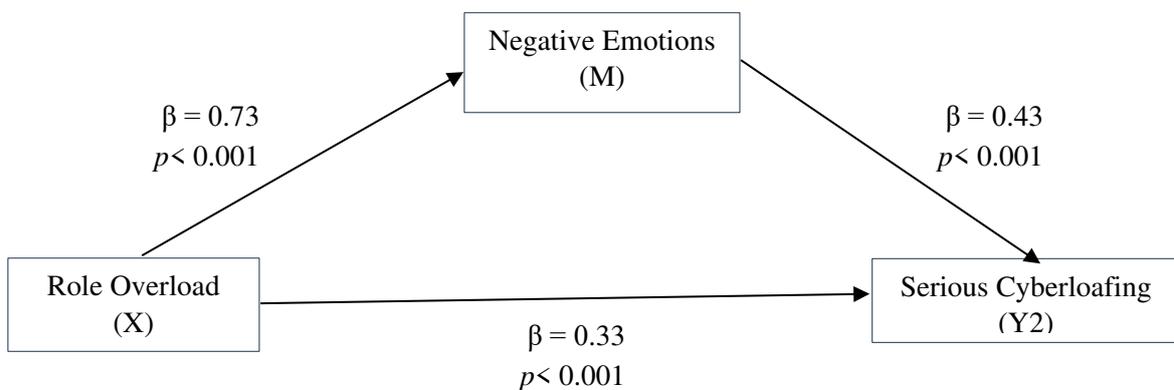


Figure 2 shows that role overload significantly predicted serious cyberloafing with  $\beta = 0.33$ ;  $t(228) = 4.71$ ; 95% CI [0.27; 0.66] (H2 was accepted). The analysis results showed a significant effect of negative emotions on serious cyberloafing with  $\beta = 0.43$ ;  $t(228) = 6.16$ ;  $p < 0.001$ ; 95% CI [0.17; 0.35] (H4 was accepted). The results of another hypothesis test found that role overload very significantly predicted serious cyberloafing under the mediation of negative emotions with  $\beta = 0.32$ ; BootSE = 0.06; CI 95% [0.21; 0.44] (H6 was accepted). Both role overload and negative emotions very significantly predicted serious cyberloafing  $R^2 = 0.49$ ;  $F(1,228) = 111.12$ ;  $p < 0.001$ . So, 49.5% of the variance of the two very significant predictors explained serious cyberloafing.

### Figure 2.

*Schematic of Hypothesis Test Results between Role Overload (X), Serious Cyberloafing (Y2), and Negative Emotions (M)*



### Discussion

This study aimed to determine the effect of role overload on cyberloafing among health workers in Indonesia under the mediation of negative emotions. Health workers who experience role overload may experience negative emotions such as anger, boredom, and anxiety, which can trigger them to engage in cyberloafing such as visiting sports websites, responding to personal chats, shopping online, playing online games, and various other behaviors that are not related to their work. according to stressor-emotion model proposed by Spector and Fox (2005), when a person encounters a situation that is considered unfair, he/she will have negative emotions, which, if not handled properly, can trigger CWB. However, on the other side, according to Vitak *et al.* (2011), cyberloafing can serve as a reliever of boredom, fatigue, or stress, increases job satisfaction, recovery, and recreation, and makes employees happy; It can be said that cyberloafing is a kind of stress coping to deal with work stressors, including role overload (Henle & Blanchard, 2008).

Based on the analysis, we found that role overload predicted serious cyberloafing both directly and indirectly through the mediation of negative emotions. Conversely, we revealed that role overload only predicts minor cyberloafing through the indirect effect of the mediator of negative emotions. These findings indicated that in the context of healthcare workers in Indonesia, they tend to engage in minor cyberloafing as a form of emotional release when facing stress due to role overload. Minor cyberloafing, such as sending and receiving personal emails, browsing general news websites, and checking social media, can function as a temporary escape or coping mechanism to reduce negative feelings that allow individuals to manage their emotional state during periods of stress.

This study highlights that while role stress can lead to emotional exhaustion, which in turn encourages cyberloafing, the direct effects of role stress on cyberloafing are less significant. This aligns with the idea that negative emotions mediate the relationship between role overload and cyberloafing behaviors ([Lu et al., 2024](#)). In addition, Jamaluddin's study ([2023](#)) found a tendency to release instant gratification or diversion from piling tasks, further strengthening the cycle of using cyberloafing as a strategy to overcome work stress. This research proposes that cyberloafing can serve as a coping strategy for employees facing work stressors such as role ambiguity, conflict, and overload. It was found that emotional exhaustion mediates the relationship between these stressors and job-related strain. The study emphasizes that while role overload can lead to increased cyberloafing, it does so indirectly through emotional responses rather than a direct effect. Similarly, Zhang et al. ([2024](#)) study explains that observing colleagues engaging in cyberloafing can normalize this behavior within a team, leading to collective engagement in the activity as a response to role stressors. This social reinforcement can strengthen the indirect effect of negative emotions on minor cyberloafing behavior.

Serious cyberloafing occurs more frequently among healthcare workers than minor cyberloafing due to several interconnected factors, including a study by Alqahtani et al. ([2022](#)) showing that stress due to significant work pressure, such as high patient load and emotional demands, causes healthcare workers to engage in serious cyberloafing as a coping mechanism, allowing workers to escape their stressful environment for a while. This study confirms that healthcare workers may engage in more serious forms of cyberloafing when their obligations are too heavy. On the other hand, a study by Aciksoz et al. ([2024](#)) suggests that the culture in healthcare environments may inadvertently encourage serious cyberloafing. In environments where employees feel underappreciated or overworked, they may turn to more substantial online distractions, such as engaging in social media or watching videos, rather than simply engaging in minor activities such as checking email or browsing the news. This behavior may be exacerbated by the lack of strict policies regarding internet use during work hours. In addition, the ease of access to technology can lead to deeper distractions that draw employees' attention away from their tasks for longer periods of time. Serious cyberloafing often involves engaging with content that requires more time and focus, such as streaming services or extensive social media interactions ([Sarioğlu & Dedesin, 2021](#)). Another reason why serious cyberloafing is more common is that healthcare workers may perceive that there are fewer sanctions or negative consequences for serious cyberloafing compared to mild cyberloafing. If employees believe that they can engage in serious online activities without immediate consequences, they may be more likely to engage in these behaviors during work hours. This perception may lead to a culture where serious cyberloafing becomes commonplace ([Sarioğlu & Dedesin, 2021](#)).

Furthermore, role overload significantly predicts serious cyberloafing both directly and indirectly through the mediation of negative emotions. This is in line with several studies, including Alqahtani et al. ([2022](#)), which examine how stressors specific to nursing, such as high workloads and emotional demands, contribute to cyberloafing behaviors. It highlights that nurses often resort to cyberloafing as a coping mechanism for workplace stress, which aligns with the idea that role overload can lead to increased cyberloafing through negative emotions. Likewise, the study of Pangani and Munyenembe ([2024](#)) found that increased stress levels were significantly correlated with increased cyberloafing behavior, indicating that negative emotional states can drive healthcare workers to engage

in non-work-related online activities during work hours. On the other hand, the study of Zein El Din and Baddar (2019) shows how personality traits influence cyberloafing among nurses. It indicates that those with higher levels of procrastination are more likely to engage in serious cyberloafing, supporting the notion that personal characteristics combined with workplace stressors can lead to increased non-productive online behavior. The results of the analysis of direct and indirect effects in this study were in accordance with Zhang *et al.*'s (2019) finding that role overload has an indirect effect on CWB through negative emotions as the mediating variable. Similarly, the study by Ng and Yang (2023) shows that employees who perceive themselves as experiencing a career plateau at a stagnant point are likely to engage in CWB when they experience negative emotions. Likewise, the study by Yu *et al.* (2021) proves that workers who experience job insecurity as a stressor can trigger negative emotions that lead to reluctance to perform extra-role work behavior. So, it can be concluded that role overload can affect cyberloafing behavior (both minor and serious) through negative emotions.

Health workers tend to carry out cyberloafing behavior when they get role overload. According to Moffan *et al.* (2020), the higher the work stress experienced by a person, the higher his/her possibility of engaging in cyberloafing behavior. This is not in line with the research by Henle and Blanchard (2008) and Hardiani *et al.* (2018) who found that when experiencing role overload, a person tends not to perform behavior that is not related to work; role overload, therefore, do not affect cyberloafing behavior. Based on the analysis of the direct effect, role overload has a very significant effect on cyberloafing (both minor and serious) without using negative emotions as a mediator. This is inversely proportional to the research of Zhang *et al.* (2019) that stated that role overload does not have a significant effect on CWB without the presence of a mediating variable. The discrepancy between the results of this study and those of previous studies in the analysis of the effect of role overload and cyberloafing was because of the difference of the subjects observed. Henle and Blanchard (2008) studied MBA students at Southeastern University; Hardiani *et al.* (2018) studied employees of PT PLN (Persero) Construction Management Center in Semarang; Zhang *et al.* (2019) studied employees in general in China. Meanwhile, we studied doctors/nurses/midwives in Indonesia who provide health services directly to patients which make them have more roles, workloads, responsibilities, and busier activities than those in other fields. Besides, their works are dangerous and require qualified workers only (Angioha *et al.*, 2020). This is supported by the statement of Ugwu *et al.* (2017) that health workers are one of the six most tiring and stressful jobs. In addition, the research location and the criteria for this study were different from those of previous studies. This research covered 19 provinces in Indonesia and focused on cyberloafing (both minor and serious), which had been defined as internet-based violations, not on more general variables like CWB. Another difference was in the analytical method used, where previous research used SEM for factor analysis, while this research used Hayes' mediation model regression analysis. Therefore, the results of this study were naturally irrelevant to previous theories and provided a new contribution to the theory of the effect of role overload on cyberloafing.

The results showed that health workers who get role overload tend to have negative emotions such as anger, frustration, and various other negative feelings. These results were in line with research conducted by Eissa and Lester (2017) that said that role overload can increase frustration, which is of negative emotions. According to research, employees who experience job overload are more likely to experience anxiety and sadness. For example, role overload was associated with worse psychological health outcomes for low-ranking government employees, according to a study (Huang *et al.*, 2022). Additionally, role overload

increases psychological strain through a number of processes. For instance, feelings of frustration and inadequacy might result from an imbalance between demands and resources, and these emotions are important precursors to negative emotions like sadness ([Tang & Vanderberghe, 2021](#)). frequently researched in conjunction with other job stressors like role conflict and role ambiguity. Together, these stresses lead to emotions of stress and discontent at work ([Hardiani et al., 2018](#)). Such a situation can happen because the high demands of their work both physically and emotionally ([Ugwu et al., 2017](#)). Moreover, their works are dangerous and require qualified people only ([Angioha et al., 2020](#)). Because of that pressure, they tend to feel negative emotions which, if not handled properly, can lead them to further behavior, such as deviance at work.

Other studies showed that when having negative emotions, such as feeling anxious and depressed, health workers may tend to carry out cyberloafing behavior, such as participating in chat rooms and playing online games. This is in line with several studies on counterproductive work behavior, including Adelia *et al.*, ([2024](#)) that higher levels of negative affectivity have been found to be directly associated with employees' intentions to leave their jobs. For example, it has been demonstrated that emotional tiredness, a factor frequently linked to negative affectivity, considerably reduces job satisfaction and raises the possibility that workers would think about quitting their positions. Another study discovered that those who have high levels of negative affectivity frequently perform worse, especially under pressure. What is known as "passive performance"—characterised by disengagement or a lack of initiative—can result from this loss in effort and involvement with tasks ([Shaya et al., 2024](#)). Furthermore, a study examining coworker incivility found that such negative interactions can lead to feelings of workplace loneliness, which in turn fosters withdrawal behavior. The findings suggest that employees who experience incivility are likely to withdraw not only due to the immediate emotional impact but also because of the resulting loneliness and disconnection from their work environment ([Zhu, et al., 2024](#)). On the other side, Henle & Blanchard ([2008](#)) stated that cyberloafing is a way to cope with stress when dealing with job stressors, while Moffan *et al.* ([2020](#)) said that cyberloafing is a way for employees to escape or reduce the negative emotions they have at work.

The results of this study certainly enriched the literature on the influence of these three variables, especially cyberloafing which is still rarely researched and, most importantly, enriched the recent literature on the stressor-emotion model of Spector and Fox ([2005](#)) that says that a person, when experiencing pressure at work, tends to have negative emotions, which, if not handled properly, can lead to further behavior in the form of deviation at work. Likewise, in this study, when experiencing role overload, health workers tend to have negative emotions such as anger, depression, and various other negative feelings. When these emotions are not handled properly, they tend to carry out cyberloafing behaviors, such as reading websites, playing online games, and various other behaviors, such as surfing the internet, which are certainly not for work purposes. Therefore, the government needs to design policies related to regulating healthcare workers' workloads and developing their capacity. Similarly, organizations need to make practical efforts such as conducting regular workload evaluations and creating a positive and supportive work culture where healthcare workers feel valued and supported. In addition, organizations also need to pay attention to the mental health issues of healthcare workers, such as providing an Employee Assistance Program to offer psychological support to each worker.

The practical implications of this research are that the government is expected to create better policies for handling excessive workloads, such as regulating shift working hours and providing additional incentives for healthcare workers that exceed regular working hours. Furthermore, the government must establish sufficient healthcare facilities across all regions

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to ensure an equitable distribution of healthcare workers' workloads, rather than concentrating them in a single facility. The government is also expected to pay more attention to psychological support for healthcare workers. Nevertheless, organizations are expected to conduct regular evaluations of healthcare workers' workloads. If the workload is found to be excessive, they will likely hire additional staff. Additionally, in terms of managing employee stress, they are expected to provide programs such as counseling and relaxation therapy training that can independently help healthcare workers when facing stress. For healthcare workers, they need to learn more effective methods of stress management, like independent relaxation techniques. If self-management proves insufficient, they should seek support from professionals such as psychologists or psychiatrists. Additionally, when experiencing role overload, they should learn to be open with supervisors or colleagues to ask for help.

This study used the correlational method only, thus requiring more in-depth research using experimental and longitudinal methods. Another limitation was that the research sample did not fully represent national data because it only came from 19 out of 33 provinces throughout Indonesia. We also recommended that future research broaden the criteria of the research subjects to be more general than health workers, such as the general public.

## Conclusion

This study found that role overload has an influence on the cyberloafing behavior (both minor and serious) of health workers in Indonesia under the mediation of negative emotions. We found that role overload can only predict minor cyberloafing through the mediating effect of negative emotions, demonstrating the presence of full mediation. Compared to the indirect effect through negative emotions, the direct effect of role overload on serious cyberloafing seems to be stronger. The fact that the difference is so slight, however, indicates that both the direct and mediated routes play a significant role in the explanation of severe cyberloafing. On the other hand, role overload has a stronger predictive indirect impact on minor cyberloafing through bad emotions; the direct effect is not significant. Consequently, the indirect pathway is a more important predictor of minor cyberloafing as unpleasant emotions explain the role-overload and cyberloafing relationships.

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## Declarations

**Author contribution.** The first author contributed to conceiving and designing the study, collecting data, analyzing data, writing the draft of the manuscript and finalizing the manuscript. The second author as corresponding author contributes to carrying out communication and administrative tasks required for manuscript publication, supervising research design, reviewing the manuscript and data analysis, and also writing the draft of the manuscript. The third author contributed to data analysis and writing the draft of the manuscript.

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