

12-31-2024

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Recommended Citation

Mohd Suadi Nata DH, Mohamad Jamil PAS, Muhammad Rawee MN. A Growing Concern: Long Commutes and Mental Fatigue Among Workers. Makara J Health Res. 2024;28.

A Growing Concern: Long Commutes and Mental Fatigue Among Workers

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Abstract

Background: Commuting stress is a growing concern for workers with long daily journeys between home and work. This study explores the effects of commuting on workers' mental and physical health, focusing on stress, mental fatigue, and productivity at work.

Methods: The research conducted in Selangor, Malaysia, involved 212 commuters who completed a survey that included sociodemographic and commuting information, the Depression Anxiety and Stress Score (DASS-21), and a mental fatigue questionnaire.

Results: The findings revealed that a significant proportion of workers experienced stress from their commuting routines: approximately 74.5% reported that commuting had a detrimental effect on their mental health, while 82.1% experienced mental fatigue, which directly impacted their ability to concentrate and perform effectively at work. The DASS-21 results showed that 14.2% experienced mild depression, 16% had moderate anxiety, and 11.4% reported mild stress. A significant positive correlation was found between commuting distance and anxiety ($r = 0.35, p < 0.05$), stress ($r = 0.32, p < 0.01$), and mental fatigue ($r = 0.42, p < 0.05$).

Conclusions: Commuting stress adversely affects concentration, productivity, and well-being. The study suggests adopting telework, flexible work hours, and workplace mental health initiatives to mitigate these negative effects.

Keywords: commuting, fatigue, mental health, occupational stress

INTRODUCTION

Occupational stress is a growing concern in modern workplaces, particularly for employees who endure long commutes between their homes and jobs. Extensive travel times, especially in densely populated urban areas, can exacerbate stress. This situation leads to both physical and mental health challenges. The combination of time spent in traffic, delays, and lack of control over travel conditions has been shown to negatively affect workers' mental health and overall well-being. Research indicates that long working hours and excessive commuting time are associated with depressive symptoms in employees. However, this relationship between commuting duration and mental health has been observed only in a cross-sectional context.^{1,2} These factors not only disrupt the mental state of employees but also negatively impact their productivity at work, leading to poor job satisfaction and reduced workplace efficiency.³ It is important to understand the differences between

mental health, mental fatigue, and occupational stress as they are related but distinct. Mental health refers to a person's overall emotional, psychological, and social well-being, influencing how they handle stress, interact with others, and make decisions. Mental fatigue is a temporary state of exhaustion caused by prolonged mental effort or stress, such as long work hours or commutes. Occupational stress refers to job pressures and demands that make it difficult for someone to cope, such as a heavy workload, conflicts with coworkers, or challenging work conditions, including lengthy commutes. These factors can lead to mental fatigue, and over time, it can affect mental health.

The connection between commuting and occupational stress has been well-documented in various studies. One key factor contributing to commuting stress is the length of the commute. Studies have found that longer commutes, particularly those lasting over an hour, are associated with higher levels of stress, anxiety, and depression.⁴ The physical and mental fatigue associated with long commutes is particularly evident in urban areas, where traffic congestion exacerbates stress levels that contribute to mental fatigue and a decline in cognitive functioning over time.³ The detrimental effects of extended commute times are increasingly evident, and urbanization adds to the challenges that commuters face. Mental fatigue has become a widespread concern among working adults as

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it holds significant implications for both mental health and workplace performance. Research shows that 10%–40% of traffic accidents are linked to driving fatigue caused largely by mental exhaustion, especially in high-pressure jobs.⁵ Moreover, every 10 additional minutes of commuting time increases the likelihood of experiencing depression by 1.1%, which demonstrates the cumulative negative effects of extended travel on mental well-being.⁶ The loss of personal time due to long commutes further limits opportunities for self-care and leisure, contributing to increased feelings of depression and reduced life satisfaction. As organizations aim for higher performance, the impact of commuting on employees' mental health is a critical issue. Prolonged commuting is linked to increased stress, mental fatigue, and reduced cognitive function, as 82.1% of commuters report that mental fatigue negatively affects their job performance. If not addressed, this daily strain can lead to long-term health problems like burnout and cardiovascular issues. These findings highlight the urgent need for organizations to consider the impact of commuting on employee well-being to sustain both mental health and productivity.^{3,7} The relationship between commuting time and mental fatigue has been a topic of increasing interest in workplace health research. Approximately 74.5% of the study participants acknowledged that their commute had a detrimental impact on their mental health.^{1,8} This finding aligns with global research that suggests that long commutes are one of the most significant contributors to occupational stress, directly influencing employees' mental and physical well-being.^{3,8}

Recognizing the negative impact of commuting on productivity, employers are increasingly implementing remedial measures in the workplace. Many organizations are adopting flexible work policies such as telecommuting options and staggered work hours, to help employees avoid rush-hour traffic.² This action has been shown to improve mental health outcomes, reduce absenteeism, and enhance employee satisfaction, thereby benefiting both individuals and organizations. Research on commuting modes has shown that taking the bus and bicycling can improve mood compared to traveling by car. In contrast, walking and cycling were found to increase stress levels the most while using a shuttle bus was associated with the lowest stress levels.⁴

While previous studies have examined the effects of commuting on mental health that focusing on stress and fatigue, it explores the combined impact of commuting stress, mental fatigue and occupational stress within a single framework is limited. The literature has in most cases addressed these variables separately or in different contexts without fully exploring how commuting-related factors such as duration and transportation modes interact to affect workers' mental well-being. This study seeks to fill this gap by investigating the role that commuting stress plays in mental fatigue and occupational stress to provide

a deeper understanding of the unique challenges that commuters face.

METHODS

The study was approved by the ethics committee (MSU-RMC-02/FR01/07/L1/021). A cross-sectional design was employed to evaluate the relationship between commuting and occupational stress among 212 workers. Cross-sectional designs are useful for studying the prevalence of outcomes or characteristics at a specific point in time.⁹ They are particularly effective for examining how commuting factors such as commute duration, transportation mode, and traffic conditions relate to stress, anxiety, and mental health. This design helps identify correlations between variables and provides a snapshot of the effects of commuting on mental health. However, it is limited in its ability to establish cause-and-effect relationships, which should be explored in future studies.

The study population consisted of full-time workers from urban areas who commuted to work daily during normal working hours. Participants were between 18 and 60 years old, employed full-time, and commuted at least five days a week as required by the study. Exclusion criteria included individuals who worked remotely full-time, had a diagnosed mental health condition prior to the study, or worked outside of regular working hours (e.g., shift workers). This selection process ensured that the sample represented individuals whose commuting patterns were aligned with standard office hours. In this study, the stratified random sampling technique was employed by distributing the survey via online Google Forms and in printed form. It ensured that participants were selected from a diverse demographic pool that was categorized into distinct subgroups based on the inclusion criteria. This approach helps reduce selection bias and guarantees that the sample reflects the diversity of the target population.

The Depression Anxiety Stress Scale (DASS-21)¹⁰ was used in its original format to assess mental health outcomes in this study. This validated tool consists of three subscales, depression, anxiety, and stress, each with seven items rated on a 4-point Likert scale ranging from "Did not apply to me at all" to "Applied to me very much, or most of the time." The scores for each subscale were calculated by summing the item scores and multiplying the total by 2. The interpretation of scores was as follows: for depression, 0–9 (normal), 10–13 (mild), 14–20 (moderate), 21–27 (severe), 28+ (extremely severe); for anxiety, 0–7 (normal), 8–9 (mild), 10–14 (moderate), 15–19 (severe), 20+ (extremely severe); and for stress, 0–14 (normal), 15–18 (mild), 19–25 (moderate), 26–33 (severe), 34+ (extremely severe). With higher scores that reflect more severe symptoms of depression, anxiety, and stress, the DASS-21 provides a reliable measure of psychological distress, allowing for consistent comparison across studies.

In addition, the items used to measure mental fatigue were adapted from the existing Multimodal Commuting Stress Questionnaire¹¹ with modifications to capture better the specific impact of long commutes on workers' mental well-being. These items included statements such as: "I feel mentally drained after my commute," "I have difficulty concentrating or focusing on tasks after commuting," and "I need to take a break before starting my work because of mental exhaustion from commuting." Additional items assessed broader mental health concerns, including "I forget things more easily," "I experience slow speech or difficulty articulating thoughts," and "I find it difficult to cope with stress after my commute." Participants rated these statements on a Likert scale that ranged from "strongly disagree" to "strongly agree." The prevalence of mental fatigue and its impact on work readiness was assessed by counting the number of participants who selected "strongly agree" for each statement. The modified Commuting Stress Questionnaire was tailored for the Malaysian context through a process of content validation conducted by subject matter experts. This ensured that the items reflected the cultural nuances and commuting experiences specific to Malaysia. Additionally, a pilot test was conducted to evaluate the clarity, reliability, and validity of the adapted tools. The pilot study results showed that the instruments were clear and well-understood by the participants, and the wording and structure of the survey required no significant changes. Along with the DASS-21, the modified Multimodal Commuting Stress Questionnaire was further validated for use in this study, yielding high internal consistency (Cronbach's $\alpha > 0.80$ for all scales), which confirms that both instruments were reliable and valid for this population. These steps were critical to ensuring that the instruments accurately measured the intended outcomes, making the findings of this study more robust and contextually relevant.

Data collection was conducted using both online surveys (Google form) and in-person questionnaires depending on logistical feasibility and participant preference. The forms platform was chosen for not only its ease of use and accessibility but also its security features. The data collected through the platform is encrypted to ensure the confidentiality of the participants' responses. Additionally, access to the survey data is restricted to authorized personnel only, for safeguarding participant privacy. Google Forms is widely accessible that can allow participants to complete the survey on a variety of devices. It is therefore a convenient choice for individuals with different levels of technological access. This combination of security and accessibility strengthens the logistical feasibility of the study, ensuring that the data collection process is both secure and inclusive. Before participating, all respondents were informed of the aims of the study, and informed consent was obtained. The survey was designed to take between 15 and 20 minutes to complete to ensure that it was concise yet comprehensive enough to capture the necessary data.

The data analysis was performed using the Statistical Package for the Social Sciences version 25. Descriptive statistics were used to summarize the demographic and commuting data, including means, standard deviations, and frequencies. The relationships between commuting factors and mental health outcomes were analyzed using Pearson's correlation. This approach facilitated a comprehensive understanding of the impact of commuting on stress, anxiety, and depression levels among urban workers.

RESULTS

Table 1 outlines the demographic characteristics of the 212 study participants. Most respondents ($N = 83$, 39.2%) were aged between 18 and 25 years old. Additionally, women comprised a larger proportion of the respondents ($N = 119$, 56.1%) than men ($N = 93$, 43.9%). In terms of occupation, most of the participants were office workers (41.5%), followed by hospital employees (21.2%) and academicians (21.7%). Only hospital employees who worked during regular office hours were included in the analysis. Hospital workers with irregular or shift-based hours (e.g., doctors and nurses on rotating shifts) were excluded from the sample to ensure that the study focused on individuals who experience typical commuting stressors associated with office hours. The income distribution varied: 9.9% earned below RM1000, 35.4% earned between RM2001 and RM3000, and 27.8% earned more than RM3000.

Table 1 also provides a detailed overview of the participants' commuting experiences. The majority (79.2%) used cars to commute; motorcycles were less common (20.8%). As for the duration of the commute, 41% traveled for more than 2 hours each way, 37.7% commuted between 1 and 2 hours, and 21.2% had commutes of less than 30 minutes. In terms of distance, 50% of the participants traveled between 21 and 40 km, 30% traveled less than 20 km, and 20% covered more than 40 km. Traffic conditions were generally moderate to heavy (42.5%) reported moderate traffic and 38.6% reported heavy traffic. These results suggest that long commuting times and distances combined with poor traffic conditions are likely to contribute significantly to commuting-related stress and mental fatigue, potentially impacting participants' mental health and well-being.

Table 2 shows the distribution of DASS-21 scores, showing that most respondents fall within the normal range for depression (78%), anxiety (63%), and stress (87%). However, anxiety stands out as the most prevalent concern; 25.5% of participants reported mild symptoms and 11.8% experienced moderate anxiety, 14.2% reported mild depression, 8.5% experienced mild stress, and 4.6% reported moderate stress. These findings reveal that anxiety is the most common mental health issue among participants, illustrating the need for further research into

the factors that contribute to this elevated anxiety within the group.

Table 2 also presents the results of the Commuting Stress Questionnaire and the significant effects of commuting on participants. Brain drains emerged as the most prominent effect: 82.1% of participants reported feeling mentally drained after their commute. Brain drain was followed closely by the impact on mental health (74.5%) of respondents indicated that commuting affected their mental health. Additionally, 73.1% expressed the need to take a break before starting work because of mental exhaustion, highlighting the toll that commuting takes on workers' readiness to engage in their tasks. Other notable effects included difficulty concentrating, which was reported by 60.5% of participants, and forgetfulness, which affected 51.9%. These results suggest that commuting-related mental fatigue can significantly impair

cognitive performance at work. Difficulty articulating thoughts and difficulty managing stress were less prevalent: 37.3% and 49.1% of participants, respectively, reported these issues.

Table 3 demonstrates significant positive correlations between commuting distance and various psychological variables, including anxiety ($r = 0.35, p < 0.05$), stress ($r = 0.32, p < 0.01$), and mental fatigue ($r = 0.42, p < 0.05$). Furthermore, anxiety exhibits strong correlations with both stress ($r = 0.55$) and mental fatigue ($r = 0.48$). These results suggest that longer commuting distances are associated with increased levels of anxiety, stress, and mental fatigue among participants. The implications of these findings underscore the need for interventions designed to alleviate the psychological burdens associated with lengthy commutes, which would enhance overall mental well-being and work performance.

TABLE 1. Demographic and commuting information of the respondents (N = 212)

Variables	N	%
Age		
18–25	83	39.2
26–33	78	36.8
34–40	31	14.6
Over 40	20	9.4
Sex		
Male	93	43.9
Female	119	56.1
Occupation		
Office	88	41.5
Construction	15	7.1
Hospital	45	21.2
Transportation	18	8.5
Academician	46	21.7
Income (RM)		
Below RM1000	21	9.9
RM1000–RM2000	57	26.9
RM2001–RM3000	75	35.4
More than RM3000	59	27.8
Mode of transportation		
Car	168	79.2
Motorcycle	44	20.8
Duration of commute		
Commute <30 minutes	45	21.2
Commute 1–2 hours	80	37.7
Commute > 2 hours	87	41.0
Commuting distances		
Less than 20 km	63	30.0
21–40 km	106	50.0
More than 40 km	43	20.0
Traffic condition		
Light traffic	40	18.9
Moderate traffic	90	42.5
Heavy traffic	82	38.6

TABLE 2. Percentage of DASS-21 and prevalence of mental fatigue effects

Variable	N	%
DASS-21 Questionnaire		
Depression		
Mild	30	14.0
Moderate	15	7.0
Normal	165	78.0
Severe	2	1.0
Anxiety		
Mild	53	25.0
Moderate	25	12.0
Normal	134	63.0
Severe	0	0.0
Stress		
Mild	17	8.0
Moderate	11	5.0
Normal	184	87.0
Severe	0	0.0
Commuting Stress Questionnaire		
Mental health impact	158	74.5
Brain drain	174	82.1
Difficulty concentrating	128	60.5
Need to take a break before starting work	155	73.1
Forgetfulness	110	51.9
Difficulty articulating thought	79	37.3
Difficulty managing stress	104	49.1
Workplace accidents or errors	111	52.4

TABLE 3. Correlation (r) of commuting with selected variables (N = 212)

Variables	Commuting hours	Anxiety	Stress	Depression	Mental fatigue
Commuting hours	1.00	0.35*	0.32**	0.21	0.42*
Anxiety	0.35*	1.00	0.55	0.43	0.48*
Stress	0.32**	0.55	1.00	0.46	0.45
Depression	0.21	0.43	0.46	1.00	0.39
Mental fatigue	0.42*	0.48	0.45	0.39	1.00

Pearson Correlation; * Correlation is significant at the 0.05 level (2-tailed); ** Correlation is significant at the 0.01 level (2-tailed)

DISCUSSION

The demographic characteristics of the study population provide a valuable context for understanding the factors that influence the relationship between commuting and mental health. A large proportion of participants were young adults who often face distinct challenges such as lower financial stability and longer, more stressful commutes as they seek employment opportunities. Younger workers may also have limited access to resources like flexible working hours or remote work options, which could mitigate the psychological strain associated with commuting. In terms of occupation, office workers comprised the largest group, followed by hospital employees and academicians, which indicates that commuting patterns and their mental health impacts may vary based on the nature of the work. For example, office workers are more likely to have consistent commuting routines, whereas hospital staff may face irregular working hours, which may be an additional stressor. Income distribution also plays a significant role because it can influence the means of commuting. Lower-income individuals often opt for more cost-effective but time-consuming transport options that potentially increase mental fatigue and stress.^{6,11,12} These findings highlight the importance of developing tailored interventions that address the diverse challenges that commuters face, underscoring the need for policies that consider demographic factors such as age, gender, occupation and income to reduce commuting-related stress and promote mental well-being effectively.⁶

A substantial proportion of participants reported using cars for their daily commute. Car commuting is associated with several stress-inducing factors, including traffic congestion, delays, and unpredictable travel times, which can be a mental burden. The isolation of driving alone can contribute to feelings of loneliness, while the mental strain of navigating busy roads demands constant attention, making the experience exhausting.¹³ By contrast, public transport offers a more relaxed commuting environment where passengers can engage in activities like reading or listening to music, fostering social interactions and reducing feelings of isolation. Additionally, public transport typically follows set schedules, providing predictability and relieving commuters of the responsibilities associated with driving, such as vehicle maintenance and traffic rules.

The finding that 41% of participants commuted for over two hours daily underscores the significant time investment required for commuting, which may contribute to increased stress and fatigue. This extended commute time can reduce personal and leisure time, leading to physical and mental exhaustion. As noted by previous studies, prolonged commutes are often linked to increased stress levels. This extended commuting time is strongly linked to several negative outcomes, including increased fatigue, job dissatisfaction, and other related factors.¹⁴ Prolonged commutes have been widely associated with higher levels of stress and mental health challenges as they reduce personal time and disrupt work-life balance. With longer travel times, individuals have fewer opportunities to rest, relax, or engage in leisure activities, which leads to mental and physical exhaustion.

Anxiety was more prevalent than depression and stress within the study population. One explanation for this higher prevalence of anxiety may lie in the anxiety disorders themselves. Anxiety often arises as a response to uncertainty and perceived threats in the environment.¹⁴ Furthermore, the symptoms of anxiety tend to be more immediate and intense which may explain why participants recognize anxiety more quickly than depression or stress.¹⁵ This increased sensitivity to environmental stressors, such as the challenges and uncertainties associated with long commutes, might play a role in the increased prevalence of anxiety in this study.

The study finds significant positive correlations between commuting distance and anxiety, stress and mental fatigue. These moderate to strong correlations highlight the role of traveling long distances each day in mental health struggles. One possible explanation for this link is the cumulative time lost to commuting. As the distance increases, so does the time spent in transit leaving less time for personal activities, rest, or recovery. This loss of personal time can contribute to feelings of frustration, burnout, and reduced well-being, which can exacerbate stress and anxiety.¹⁵ Additionally, long commutes frequently involve exposure to traffic congestion, delays, and unpredictable travel times, all of which can increase stress levels. The uncertainty of the duration of the commute, combined with the cognitive and emotional demands of navigating congested roads or crowded public transport, can exacerbate anxiety. For individuals who already cope with high-stress work environments, the added pressure of commuting further intensifies feelings of being

overwhelmed, contributing to elevated anxiety and mental fatigue.

Anxiety, stress, and mental fatigue are closely linked, with each one making the others worse in a continuous cycle. Anxiety may act as an initial trigger that leads to increased stress responses, which results in mental fatigue when sustained over time.¹³ This sequence of events underscores the exacerbating effect of commuting-related stress on mental health. Continuous exposure to stressors from both the commuting experience and work-related pressures can create a feedback loop that significantly impairs cognitive function, emotional regulation, and overall productivity. Consequently, addressing commuting-related stress in a comprehensive manner that considers both its direct and indirect effects on mental health is critical to improving employee well-being and optimizing workplace performance.

Mental fatigue is closely linked to commuting-related stress and anxiety, as shown in our study, where 82.1% of participants reported experiencing brain fatigue, and 73.1% felt the need to take breaks before starting their workday. Long commutes place significant cognitive demands on individuals, requiring them to navigate complex environments, cope with unpredictable traffic, and adhere to tight schedules. This cognitive overload can lead to mental depletion, making it difficult for individuals to transition smoothly into their work roles.¹³ Stressors such as delays and congestion exacerbate this situation, triggering a physiological stress response that amplifies anxiety levels. This creates a feedback loop in which heightened stress fuels anxiety, leading to greater mental fatigue.¹⁵ The impact of this mental fatigue on workplace performance is evident as fatigued employees often struggle with concentration, decision-making, and overall productivity.¹⁶ The fact that 73.1% of workers reported needing a break before work suggests that many employees arrive at their jobs already mentally exhausted, which could affect their engagement and effectiveness. Over time, this chronic mental strain could contribute to longer-term health issues such as burnout and decreased job satisfaction.

The correlation matrix also reveals that mental fatigue was linked closely with commuting distance and anxiety. Mental fatigue impairs cognitive functioning, hindering workers' ability to concentrate and work efficiently, often leading to decreased productivity, an issue of considerable concern for employers.¹⁷ Furthermore, longer commute times correlate with higher odds ratios for depression, anxiety, and fatigue.⁶ Additionally, research in Latin America found that every 10 extra minutes of commuting time was associated with a 0.5% increase in the likelihood of screening positively for depression.¹⁸ Also, workers who experience mental fatigue are more likely to experience workplace accidents. Given these findings, it is essential for organizations to

implement measures such as flexible working hours or telecommuting options to help reduce the mental and physical strain associated with long commuting times.¹⁷ Addressing these issues could improve mental well-being and productivity among the workforces.

CONCLUSIONS

This study highlights the significant impact of long commutes on workers' mental health, revealing strong correlations between commuting stress and increased levels of anxiety, stress, and mental fatigue. A considerable proportion of participants reported experiencing mental fatigue, which affected their work performance and underscored the detrimental effects of prolonged commuting times. Notably, commute time was positively correlated with higher levels of anxiety, stress, and mental fatigue, which suggests that longer commutes contribute significantly to mental health challenges. As commute times continue to increase in modern work environments, the need for organizational interventions becomes increasingly urgent. Nonetheless, along with its contributions, the study has limitations. It relies on self-reported data and excludes participants who use public transportation, a group of commuters who may experience stressors different from those who drive. The study also lacks data on the use of transportation by participants, specifically whether they are drivers or passengers, a detail that might further influence stress and mental fatigue. The strengths of the study are its large, diverse sample and the use of validated tools to assess mental health outcomes. Proactive measures such as flexible work arrangements, mental health support programs, and efforts to improve commuting conditions are critical in mitigating the negative psychological effects of long commutes. By addressing these mental health burdens, organizations can improve employee well-being, reduce burnout, and enhance productivity. These findings emphasize the importance of policy changes that support commuters and foster a healthier work culture that benefits individuals and organizations. Future research and workplace policies should focus on strategies to alleviate commuting-related stressor that workers are happier and more productive.

CONFLICT OF INTEREST

None declared.

FUNDING

No funding for this study.

Received: September 27, 2024 | Accepted: December 23, 2024

REFERENCES

1. Halonen JI, Pulakka A, Vahtera J, Pentti J, Laström H, Stenholm S, et al. Commuting time to work and behaviour-related health: A fixed-effect analysis. *Occup Environ Med.* 2020;77:77–83.
2. Dragano N, Burr H, Formazin M, Schulz A, Rose U. Lange Arbeits- und Pendelzeiten als Risikofaktoren für eine depressive Symptomatik: Quer- und Längsschnittanalysen [Long Working and Commuting Times as Risk Factors for Depressive Symptoms: Cross-Sectional and Longitudinal Analyses]. *Gesundheitswesen.* 2023;85:1016–26. German.
3. Ma L, Ye R. Does daily commuting behavior matter to employee productivity? *J Transp Geogr.* 2019;76:130–41.
4. Zhang X, Ma L. Impact of commuting on mental well-being: Using time-stamped subjective and objective data. *Transp Res Part F Traffic Psychol Behav.* 2024;107:395–412.
5. Kunasegaran K, Ismail AMH, Ramasamy S, Gnanou JV, Caszo BA, Chen PL. Understanding mental fatigue and its detection: A comparative analysis of assessments and tools. *PeerJ.* 2023;11:e15744.
6. Lee HC, Yang EH, Shin S, Moon SH, Song N, Ryoo JH. Correlation of commute time with the risk of subjective mental health problems: 6th Korean Working Conditions Survey (KWCS). *Ann Occup Environ Med.* 2023;35:e9.
7. Ma L, Liu Y, Sun X, Ye R. Impact of commuting time on self-reported work productivity: A quasi-longitudinal examination. *Travel Behav Soc.* 2024;37:100837.
8. Haider M, Kerr K, Badami M. Does commuting cause stress? The public health implications of traffic congestion. *SSRN.* 2013;2013:2305010.
9. Fowler RM, Couper FJ, Lepkowski MJ, Singer E, Tourangeau R. *Survey Methodology.* 2nd ed. Hoboken, NJ: John Wiley & Sons; 2009.
10. Lovibond SH, Lovibond PF. *Manual for the Depression Anxiety Stress Scales.* 2nd ed. Sydney: Psychology Foundation; 1995.
11. Useche SA, Marin C, Llamazares FJ. “Another (hard) day moving in the city”: Development and validation of the MCSS, a multimodal commuting stress scale. *Transp Res Part F Traffic Psychol Behav.* 2023;95:143–59.
12. Norgate SH, Cooper-Ryan AM, Lavin S, Stonier C, Cooper CL. The impact of public transport on the health of work commuters: A systematic review. *Health Psychol Rev.* 2020;14:325–44.
13. McKendrick R, Harwood A. Cognitive workload and workload transitions elicit curvilinear hemodynamics during spatial working memory. *Front Hum Neurosci.* 2019;13:405.
14. Alqahtani IM, Al-Garni AM, Abumelha MS, Alsagti SA, Alshehri FAD, Alqahtani AA, et al. Prevalence of depression, anxiety, and stress among the general population during COVID-19 pandemic: A systematic review. *J Family Med Prim Care.* 2023;12:1030-1037.
15. Zhang X, Li Q, Wang Y. Impact of commuting time on employees' job satisfaction—An empirical study based on China's Family Panel Studies (CFPS). *Sustainability.* 2023;15:14102.
16. Harvey SB, Wessely S, Kuh D, Hotopf M. The relationship between fatigue and psychiatric disorders: Evidence for the concept of neurasthenia. *J Psychosom Res.* 2009;66:445–54.
17. Liu J, Ettema D, Helbich M. Systematic review of the association between commuting, subjective wellbeing and mental health. *Travel Behav Soc.* 2022;28:59–74.
18. Wang X, Rodríguez DA, Sarmiento OL, Guaje O. Commute patterns and depression: Evidence from eleven Latin American cities. *J Transp Health.* 2019;14:100607.