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Precarity, Health Vulnerability, and Community-Based Interventions: A Focus Group Study on the Need and Readiness for Occupational Health Posts Among Online Taxi Bike Drivers in Samarinda, Indonesia

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ABSTRACT

Introduction: Workers in informal online transport platforms face layered occupational health risks, yet remain largely outside formal protection systems. This study explores how drivers' lived experiences of work-related symptoms and road accidents shape their perceived need for, and readiness to engage in, a community-based Occupational Health Post (OHP/Pos UKK) in Samarinda.

Methods: A qualitative descriptive phenomenological approach was used to capture drivers' everyday experiences of occupational health and safety. Forty-nine drivers were recruited through regional WhatsApp groups and participated in five Focus Group Discussions (FGDs). To assess implementation feasibility, a community meeting involving 16 stakeholders was also conducted. All data were transcribed and inductively coded using OpenCode software.

Results: Four themes emerged: (1) common occupational health symptoms, (2) timing and causes of road accidents, (3) limited awareness of OHPs, and (4) conditional willingness to serve as OHP cadres. Drivers frequently reported fatigue, musculoskeletal pain, and digestive problems, with accidents occurring mostly at night when exhaustion peaked. Although knowledge of OHPs was limited, many expressed interest in regular health monitoring and community involvement, provided that roles were flexible and supported by adequate training. Stakeholders highlighted the need for legal recognition, intersectoral coordination, and structured capacity-building.

Conclusion: The findings suggest that while drivers experience cumulative strain, they are open to collective prevention efforts if supported by legitimate, sustainable institutional frameworks.

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INTRODUCTION

The majority of drivers for online ride-hailing and delivery services are employed under precarious and mostly informal agreements that create overlapping pathways of occupational vulnerability. Their exposures are brought about by lengthy work hours, income insecurity, little control over their working environment, and regular contact with the public and traffic, which together create cumulative physical burden, psychosocial stress, and weariness that can jeopardize their health and safety, rather than being isolated hazards (1–16).

The proliferation of online motorcycle taxi services in Indonesia has altered urban mobility while increasing the vulnerability of employment and exposure to traffic-related hazards. According to evidence, attentiveness, smoking, and weariness are all associated with a higher risk of accidents (17–20), indicating that a driver's health and work-related exhaustion are related to their vulnerability to accidents. These trends suggest that occupational safety for online drivers is influenced by structural restrictions common in informal platform work, where safety mechanisms are few, as well as by individual conduct.

Although protective measures like breaks, hydration, and ergonomic techniques can lessen exposure in this situation, their practicality is frequently restricted by the income insecurity and time constraints imposed by the platform. Untreated occupational stress can lead to decreased vigilance, poor decision-making, and persistent symptoms, all of which have effects on road safety and service reliability that go beyond the person (21). Framing online driving as informal platform work emphasizes a systemic protection gap, where health dangers are mostly managed through individual coping strategies as opposed to institutional assistance.

While road accidents remain a leading cause of injury and fatality in urban transport systems (22,23), informal sector workers—such as online drivers—remain structurally excluded from institutional OHS mechanisms. The Occupational Health Post (OHP), or *Pos Upaya Kesehatan Kerja* (Pos UKK) in Indonesia, represents a community-based occupational health model intended to reduce this gap through cadre-led education, routine monitoring, early detection, and referral for work-related conditions, including preparedness for work accidents (24, 25). Positioned within a precarity framework, OHPs can be understood as a localized institutional response that seeks to convert individualized coping into collective prevention and support.

Despite the presence of formal health services, what remains insufficiently understood in Samarinda is how online drivers experience and interpret occupational health risks and protection gaps, and how these lived experiences shape the perceived feasibility of community-based occupational health initiatives. OHPs offer a local-level intervention that relies on peer cadres and decentralized organization to mitigate disparities through monitoring and education (26). Accordingly, this study adopts a phenomenological orientation to examine online drivers' lived experiences of work-related health symptoms and accident exposure, and to analyze how these experiences shape their perceived need for and readiness to engage in establishing and sustaining an Occupational Health Post model.

METHOD

Research Type

Phenomenology examines people's lived experiences and has evolved into a key research paradigm in a variety of domains. In our focus groups, which are organized discussions designed to address particular areas of common worry, we used a descriptive phenomenological method (27). This approach is appropriate for learning how people, like informal employees, collectively describe, interpret, and make sense of their job experiences in a socio-cultural context. By capturing emotional processes, agreement, and disagreement between participants, focus groups allow for the emergence of rich, interaction-driven data—aspects that are important for analyzing the precarious, community-dependent employment arrangements that exist among online drivers. Descriptive phenomenology prioritizes the viewpoints of the participants and strives to maintain a close relationship with their stories through systematic bracketing and close observation of language, with interpretive statements saved for the discussion (28). Our investigation into drivers' lived experiences of occupational health symptoms and accident exposure, as well as how these experiences influence perceived need and readiness for community-based Occupational Health Posts (OHPs), was made possible by this strategy.

Population and Sample/Informants

Through WhatsApp Groups (WAG) of five local online driver networks in Samarinda, participants were recruited. The inclusion criteria were: (a) being an active online motorcycle driver for at least a year, (b) working every day in Samarinda, and (c) being willing to take part in all aspects of the research. Drivers who were only employed for a limited time or during specific seasons and those with less than six months of experience driving for the platform were among the exclusion criteria. The recruitment process was overseen by chosen regional coordinators, who located 49 potential drivers (4 groups with 10 drivers each and 1 group with 9 drivers). Due to membership availability at the time of recruiting, nine individuals were contributed by Korwil Lai. Additionally, five stakeholders were driver informants, and sixteen stakeholders, including NGO reps, *puskesmas* personnel, and health office officials, took part in a Community Meeting FGD to examine implementation concerns. The fact that mobile workers are more likely to be exposed to occupational hazards and have less access to regular health surveillance supports this intentional sampling approach (29-34).

Research Location

As part of the second year (2023) of the Higher Education Excellence Basic Research initiative, this qualitative research was carried out in Samarinda, East Kalimantan, Indonesia. After obtaining the required ethical and administrative permissions, the research team coordinated with the regional office of an online motorcycle taxi community network, which provided access to five regional driver coordinators. These five geographic clusters—Aston, Balibis, Cendana, GKAB, and MpW—served as research sites, each reflecting a diverse operational terrain relevant for informal transport workers.

Instrumentation or Tools

Data were collected using (a) a Self-Inspection Survey *(Survei Mawas Diri/*SMD) form, (b) a semi-structured FGD guide, (c) a Community Meeting guide (*Musyawarah Masyarakat Desa*/MMD), and (d) a sociodemographic questionnaire. The FGD and MMD guides were developed from prior literature on occupational risk among informal and mobile workers and the operational design of Occupational Health Posts (OHP/Pos UKK)(21,26,29,35,36). This situation necessitates attention from individuals, companies, and the government, as these risks can severely impact workers (4, 34, 37,38). All instruments were reviewed by the research team for clarity and relevance, and were pilot-tested informally with two drivers to refine wording and sequencing. The guides covered: perceived work-related health symptoms, accident experiences, coping and prevention practices, awareness of OHP/Pos UKK, and perceived readiness and conditions for cadre participation.

Data Collection Procedures

Data collection consisted of two core stages. First, a Self-Inspection Survey (Survei Mawas Diri/SMD) was administered to 49 drivers to assess baseline health awareness and recruit OHP cadre candidates. Second, a Community Meeting (*Musyawarah Masyarakat Desa*/MMD) was held with 16 stakeholders to discuss ways to implement the plan in a collaborative manner. Between June and July 2023, Samarinda hosted FGDs that were conducted in Bahasa Indonesia. A facilitator and a note-taker oversaw the sessions, which lasted around an hour. As contextual information, group dynamics and nonverbal signals were observed. Sociodemographic questionnaires were filled out by participants before the discussion. The room was equipped with numerous smartphones strategically placed to capture audio from every area. In the annex, you can find the discussion guide, which is utilized throughout all sessions. In accordance with regional moral norms, refreshments and transportation compensation were provided to encourage involvement.

Data Analysis

The audio recordings were completely transcribed, de-identified, and anonymized using the focus group numbers and participant initials. For qualitative analysis, transcripts were uploaded to Open Code. In accordance with descriptive phenomenology, we used an inductive thematic analysis technique that prioritized how respondents described their lived experiences of occupational symptoms, accident exposure, and perceived need and readiness for occupational health programs (OHPs). The original codes were created by two researchers who each performed line-

by-line coding independently. To reach an agreement, the codes were then compared and combined during conversation. Based on repeated patterns across groups, codes were iteratively categorized and refined into themes. We chose illustrative quotations that were clear and representative of each theme in order to improve transparency; quotations were identified solely by focus group number (FGD1–FGD5) in order to preserve anonymity. Saturation was iteratively evaluated throughout data collection and analysis. The coding team discovered that the data was mostly expanding upon already established categories after the fourth FGD and that no significantly new codes were surfacing (code saturation). The fifth FGD was carried out in order to verify that meanings converged and that there was sufficient regional representation (meaning saturation). Triangulation was performed using (a) methodological triangulation (SMD survey, FGDs, and community meeting), (b) investigator triangulation (involving all project researchers in code review and theme validation), and (c) theoretical triangulation through iterative comparison with prior studies and occupational precarity frameworks.

Ethical Approval

The Ethics Commission of the Faculty of Medicine, Mulawarman University, Samarinda, granted ethical approval for this study on June 8, 2023, with the number 109/KEPK-FK/VI/2023. Before taking part in the focus group discussion, each participant completed an informed consent form and received a letter of information.

FINDINGS

Characteristics of participants

In Samarinda City, five focus groups with nine to ten online motorcycle riders (a total of forty-nine) were held. Participants ranged in age from 26 to 59 years (mean age 38), and the majority were men (n = 44). All drivers were full-time workers with at least three years of experience. Educational levels included six participants with Bachelor's degrees, one with a Diploma, 37 with high school completion, and five with junior high school education. An additional Community Meeting (n = 16) included representatives from the City Health Office, four public health centers, and five regional driver coordinators. A detailed summary of participant characteristics is provided in Table 1.

Table 1. Participant Overview and Thematic Matrix

Theme	Subthemes	Illustrative Quote	Analytical Pattern
Occupational Diseases	Fatigue, pain, digestive distress	"Sometimes I forget to eat because I keep working."	Physical strain under precarity
Work Accidents	Nighttime fatigue, leg injury	"The biggest risk is feeling sleepy on the road."	Fatigue as systemic hazard
OHP Knowledge	Limited awareness, interest	"What is the Occupational Health Effort (UKK) program like? Is there any assistance provided?"	Knowledge gap yet latent demand
Cadre Readiness	Willingness, infrastructure, funding	"If the purpose is good, everyone will definitely support it."	Conditional collective agency

The analysis yielded four major themes derived from the focus group discussions: (1) occupational diseases, (2) work accidents, (3) knowledge of Occupational Health Posts (OHP), and (4) readiness to become an OHP cadre. These themes emerged from systematic coding and thematic clustering. Across themes, drivers described a pattern of cumulative health strain and accident exposure that was managed largely through individual coping, which in turn shaped strong interest in preventive support but readiness to engage in OHP activities only under clear and feasible conditions.

Occupational Diseases

There are two subcategories in the examination of occupational disorders: Two subthemes emerged within occupational diseases: (a) perceived symptoms and (b) coping strategies. Participants consistently reported fatigue, musculoskeletal pain, gastrointestinal discomfort, respiratory symptoms, hypertension, and eye strain. Drivers described coping through BPJS routine check-ups, self-medication, rest breaks, and exercise. Here are some quotes:

"Yes, the first problem is if, for example, it rains and then you get sick with a cough and cold, late eating, for example, if you are working in a crowd, you forget to eat, like this hehe, but when it is quiet, you remember. That is more or less what it is for me." (FGD2)

" Who doesn't want to be well? We can't force ourselves to be healthy, even if we have little issues like a cold, cough, or vertigo. We must take at least one full day off." (FGD1)

Workplace Accidents

There are three subcategories in the analysis of workplace accidents: Work accident experiences were categorized into: (a) timing of incidents, (b) types of injuries, and (c) insurance-related barriers. Many accidents occurred at night when fatigue impaired concentration. Leg injuries were most frequently reported. Even though BPJS Ketenagakerjaan provided benefits, members pointed out difficulties with claim documentation and contribution payments. The following are quotations for each subcategory:

"I frequently work through the night. Getting drowsy while driving is perhaps the most dangerous thing. (FGD1)

"I twisted my foot at the leg part. turning the sole 90 degrees. (FGD2)

"Taxi bike Online Apps itself has prepared the BPJS Employment so that they can cover any incidents we have." (FGD3)

Knowledge of OHP

The theme of knowledge about the OHP is divided into two subcategories based on the results of the analysis. According to the data, there was not much understanding of OHPs; only six respondents knew what they were. Nonetheless, drivers emphasized the demand for preventative health assistance, pointing out that financial burdens frequently take precedence over health concerns. Regular health monitoring was considered crucial because of ongoing exposure to traffic, the elements, and environmental threats. The results of the quote are listed below:

"I would want to inquire about the actual UKK program that involves the Posyandu and the Health Office in the field. Which programs in the field directly improve health by lowering treatment costs? What is the actual form? (FGD1)"

"Since keeping one's health is the most crucial thing for drivers, we have a lot of options because we work outside. (FGD3)"

Readiness to become an OHP Cadre

The four markers of readiness to work as OHP cadres were (a) understanding of one's role and knowledge, (b) willingness to serve, (c) availability of material resources, and (d) financial feasibility. If responsibilities were flexible and accompanied by adequate training, participants expressed a willingness to volunteer. Regional headquarters already had essential infrastructure, including tables, chairs, first aid kits, and internet connection. Funding sources suggested included driver fees and local government advocacy. Here are the quotes:

"Same; just heard it, too. Maybe if it is there, it is better so you can give information like what he said earlier." (FGD2)

"If there is a goal, it may be accomplished in the same manner that volunteers are always the language with a good cause. Friends, if the objective is better for future job, it might be even better". (FGD4)

"I'll forward it to the neighborhood association; it's alright". (FGD3)

"Ma'am, the table and chairs are finished. There is a kitchen, hand washing station, and restroom. (FGD5)

"If we wish to put such a system into place, we must first meet with others (posyandu)". (FGD2)

Four major issues emerged from the community meeting FGD's deliberation process:

Schedule for the Implementation of OHP

The timetable will correspond with the Physical Health and Sports (Kesjaor) work program of the Aston Regional Office. In order to address problems including infectious illnesses and limited medical check-ups (MCU), the program seeks to develop one OHP per health center. In the Karang Mumus Village region, for example, the "Pak Ndut OHP" has been in operation since 2020/2021 and offers services such as blood pressure, blood sugar, weight,

TB, cholesterol, and uric acid checks. Funding might come from probebaya budgets or cross-sectoral sources, even though scheduling adjustments and basic over-the-counter treatments could be necessary (*Samarinda City Public Health Center, Male*). The necessity for coordinating OHP implementation with the Physical Health and Sports (Kesjaor) program was brought out at the Community Meeting. The 'Pak Ndut OHP' and other current instances have shown that regular screenings (such as blood pressure, glucose, cholesterol) are possible with cross-sectoral support.

Legality of the Establishment of OHP

It must be legalized by a Regional Office Decree that lists the participating cadres. Public health facilities with Kesjaor programs shall screen working-age individuals for diabetes and hypertension at least once a year. Although three urban towns, including the Bandara Regional Office, currently have OHP (Wonorejo Public Health Center, Female), additional health screening depending on the public health center's operational area is required. To guarantee cadre legitimacy and program continuity, stakeholders stressed the need for official legalization via a Regional Office Decree. The Kesjaor program's public health centers are dedicated to promoting annual screenings for the productive-age group.

Collaboration with nearby villages

The OHP program is open to new concepts and has been promoted for a number of years. The regional office, which oversees the OHP's operations, must coordinate the various Kesjaor initiatives at the various public health facilities (Juanda Public Health Center, F, Female). Coordination between regional offices, community governments, and local public health centers is necessary for successful implementation. The necessity of integrated Kesjaor cooperation to support daily operations was emphasized by stakeholders.

Flow of OHP Implementation

The Kesjaor PIC will collaborate with the NCD program to supervise OHP activities, including blood pressure, TB, and weight checks. The patient will be sent to the public health center if a disease is found. Each OHP should have at least four members, who are supervised by the public health center. The Samarinda City Health Office, M, and Female are in charge of the three OHPs now operating in the city, which are run by regional offices and public health centers. The planned operating procedure for the OHP consists of an initial screening at the community post, referral to a *puskesmas* if any anomalies are found, and continuous monitoring by at least four trained cadres under the direction of the *puskesmas*. Based on deliberation results, two preparatory components were deemed necessary for the creation of OHPs: structured advocacy with local institutions and cadre training.

Training of OHP

Training was conducted in two sessions involving 50 prospective cadres. Content included cadre roles, workspace management, PPE use, coordination with health centers, basic first aid, and accurate recordkeeping. Several important subjects were covered in the training:

OHP cadres' responsibilities include supervising posts, setting up work areas, offering counseling, utilizing personal protective equipment (PPE), and liaising with public health centers.

First aid instruction for illnesses and accidents.

Guidelines for appropriately documenting and reporting OHP activities.

The process of advocacy

In order to get support for the creation of OHP in each location, the advocacy process entailed interacting with regional offices and public health clinics (puskesmas). This procedure was essential for guaranteeing the support and funding required for these projects.

DISCUSSION

Occupational illnesses manifest as physical, psychological, or emotional symptoms that are thought to be related to the working environment. These dangers are exacerbated in informal professions like online taxi driving by continuous exposure to environmental stressors, repeated physical work, and a lack of institutional protection

(39,40). When these risks are analyzed through the lens of precariousness and informal labor, they are not just biomedical outcomes but also manifestations of structurally restricted working circumstances, where income insecurity, inadequate regulatory coverage, and a lack of bargaining power influence exposure and access to preventative measures.

Most online motorbike taxi drivers put in more than eight hours a day. The average workday for 281 motorcycle taxi drivers is more than eight hours (26), frequently without having set work and break schedules. This research discovered that common symptoms such as exhaustion, gastrointestinal problems, and respiratory problems pointed to the physical repercussions of time pressure, environmental exposure, and insufficient recovery, which are typical of insecure and unregulated working circumstances (4). Within platform-mediated work, long hours are frequently sustained by economic necessity, and the resulting fatigue becomes a mechanism linking precarity to health vulnerability and accident risk. In platform-mediated employment, economic necessity often leads to extended hours, and the resulting exhaustion becomes a means of connecting precarity to health vulnerability and accident risk.

The nighttime was a time when work accidents were more likely to happen, mostly because of cumulative tiredness and poor visibility (41,42). Environmental variables like poor road lighting, insufficient signage, and traffic enforcement gaps also contribute to fatigue, although driver-related weariness is a significant factor. This discovery lends credence to an interactional interpretation, in which accident risk results from the confluence of individual weariness and infrastructural inadequacies, rather than from the driver's conduct alone.

Due to programmatic implementation and uneven policy socialization across areas, knowledge of OHPs remains restricted (43). The majority of the participants in this trial had no prior understanding of OHP principles. This restricted knowledge can be seen as an institutional visibility gap, where informal worker groups are exposed to considerable danger while still being outside regular occupational health communication channels.

OHPs function as decentralized health units that promote prevention, monitoring, and education about occupational health hazards. This study demonstrates their versatility for informal situations, especially when peer leadership and community social capital are used, even though they were first intended for formal industries (34). Theoretically, this flexibility suggests a movement away from occupational health focused on employers and toward community-based governance, which may be more in line with informal employment arrangements that lack stable workplace establishments.

A person's readiness to join the OHP cadre is more than just willingness; it also demonstrates the resilience of the community-based agency and informal sector. Participants demonstrated conditional commitment, contingent upon sufficient assistance and task flexibility. Volunteer-driven health facilitation has been shown to be effective in similar informal labor contexts in the literature (44,45). Significantly, conditional preparedness implies that the same precarity circumstances that lead to health hazards influence involvement: unless institutional help lowers opportunity costs, sporadic income and time constraints prevent ongoing participation.

In order to become a health cadre, one must not only be willing but also have the skills necessary to improve health literacy, communication, and preventative health education. In order for cadres to function as trustworthy intermediaries between informal labor organizations and health systems, organized training is necessary. Additionally, training serves as a legitimizing tool that boosts trust and role recognition among drivers and in healthcare organizations, both of which were deemed essential prerequisites for the viability of the OHP.

Interpretation of Key Findings

This research demonstrates how informal sector drivers, especially online motorcycle taxi drivers, deal with occupational vulnerabilities in precarious labor frameworks. Health issues were made worse by a lack of regular access to medical care, and they ranged from fatigue-related risks to bodily illnesses. Despite a lack of awareness of OHPs, there was widespread recognition of the necessity for locally integrated, peer-supported health infrastructures. The results, upon analysis, point to a pathway in which work precarity leads to cumulative stress and sporadic occurrences that are handled via individual coping; Although this coping mechanism fosters receptivity to community prevention mechanisms (OHPs), willingness to participate depends on legitimacy, practical scheduling, and institutional support.

Comparison with Previous Studies

By providing a phenomenological account of health vulnerabilities and grassroots preparedness for health intervention in the platform labor economy, this study adds to the body of knowledge. Our qualitative methodology, in contrast to earlier quantitative analyses or surveys, captured how drivers rationalize illness, tiredness, and accident risk as normal aspects of their job, and how these interpretations influence the perceived feasibility of community-based solutions. This builds on earlier risk-focused research by pinpointing the situations in which informal platform employees see OHPs as actionable, such as role clarity, peer organization, legal acknowledgment, and connection with local health centers, thus improving our conceptual understanding of how occupational health is governed in informal environments.

Limitations and Cautions

There are a number of restrictions to this research. Participants were initially chosen only from online drivers, which led to a uniform occupational profile and logistical challenges in arranging the schedule. The possibility of selection bias is brought up by this. Second, even if a thematic saturation point was reached, variations in health-seeking behavior and geographic settings could restrict transferability. Finally, because it is qualitative, the study's conclusions are context-specific and not statistically generalizable, but they do provide insightful and useful information for research on occupational health and informal labor. In order to examine how precarity conditions differ across contexts, future research might expand sampling to include part-time drivers, female drivers, and drivers working under different platform governance models.

Recommendations for Future Research

Future research should concentrate on the longitudinal health trajectories of platform workers, paying particular attention to the cumulative effects of ongoing stress and environmental hazards. It is advised to conduct evaluative studies on the scalability of the OHP, the retention of trained personnel, and the integration of the OHP with digital health platforms. Furthermore, further study should be conducted on gender-responsive designs, the use of assurance schemes, and comparative assessments of the governance mechanisms (platforms, local government, and community organizations) used to protect the health of informal workers.

CONCLUSION

In this study, we use a phenomenological approach to explore how online motorcycle taxi drivers in Samarinda experience and comprehend occupational health vulnerability in the context of insecure informal work. Drivers described experiencing health problems like weariness, musculoskeletal discomfort, and gastrointestinal upset, as well as accident vulnerability, particularly at night, when exhaustion and infrastructure limitations increased risk. The results show a consistent analytical trend: cumulative strain and episodic accidents are mostly handled by individual coping mechanisms, which causes a preventative gap that increases the perceived need for community-based health care. Despite limited prior awareness of OHPs, participants expressed interest and conditional readiness to serve as cadres, emphasizing role clarity, schedule flexibility, training, and logistical support. This study contributes conceptually by identifying the conditions under which a community-based Occupational Health Post model becomes feasible for informal platform workers: legitimacy, cross-sector coordination, and cadre capacity-building that reduces the opportunity costs of participation. Community meeting deliberations further emphasized the importance of legal legitimization, inter-institutional coordination, structured training, and strategic advocacy to support long-term OHP functionality and integration. Together, these findings extend occupational health scholarship by linking platform work precarity to both health vulnerability and the social conditions required for sustainable collective prevention in informal worker communities.

AUTHOR CONTRIBUTION STATEMENT

First Author: Conceptualized the study, designed the research framework, and led the data collection process through focus group discussions with online ojek drivers in Samarinda City. Drafted the initial manuscript and coordinated revisions. Second Author: Contributed to the development of research instruments, facilitated focus group sessions, and conducted data analysis. Provided critical input in interpreting findings and refining the

discussion section. Third Author: Assisted in literature review and background study, supported transcription and coding of qualitative data, and contributed to the preparation of tables and figures. Reviewed and edited the manuscript for clarity and coherence.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the conduct of this research and the publication of this article.

DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

The authors used Grammarly and ChatGPT applications to correct the language used.

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BIBLIOGRAPHY

1. Lavé A, Gondar R, Demetriades AK, Meling TR. Ergonomics and musculoskeletal disorders in neurosurgery: a systematic review. *Acta Neurochir (Wien)*. 2020;162(9):2213–2220. https://doi.org/10.1007/s00701-020-04494-4
2. Saleh Baqutayan SM. Stress and coping mechanisms: A historical overview. *Mediterr J Soc Sci*. 2015;6(2S1):479–488. https://doi.org/10.5901/mjss.2015.v6n2s1p479
3. Pardillo RS, Celiz IA, Florez J, Lavina L, Lumawag CJ, Platini R. Heroes of The Road: The Struggles of the Tricycle Drivers Amidst COVID-19 Lockdown. *J Humanit Soc Sci*. 2023;6(6):172–180. https://doi.org/10.33140/jhss.06.06.03
4. Mabry JE, Camden M, Miller A, Sarkar A, Manke A, Ridgeway C, et al. Unravelling the Complexity of Irregular Shiftwork, Fatigue and Sleep Health for Commercial Drivers and the Associated Implications for Roadway Safety. *Int J Environ Res Public Health*. 2022;19(22). https://doi.org/10.3390/ijerph192214780
5. Li J, Pega F, Ujita Y, Brisson C, Clays E, Descatha A, et al. The effect of exposure to long working hours on ischaemic heart disease: A systematic review and meta-analysis from the WHO/ILO Joint Estimates of the Work-related Burden of Disease and Injury. *Environ Int*. 2020;142:105739. https://doi.org/10.1016/j.envint.2020.105739
6. Kaur K, Gurnani B, Nayak S, Deori N, Kaur S, Jethani J, et al. Digital Eye Strain: A Comprehensive Review. *Ophthalmol Ther*. 2022;11(5):1655–1680. https://doi.org/10.1007/s40123-022-00540-9
7. Hoffmann B. Air pollution in cities: Urban and transport planning determinants and health in cities. In: *Integrating Human Health into Urban and Transport Planning: A Framework*. 2018. p. 425–441. https://doi.org/10.1007/978-3-319-74983-9_21
8. Liu Y, Lan B, Shirai J, Austin E, Yang C, Seto E. Exposures to air pollution and noise from multi-modal commuting in a Chinese city. *Int J Environ Res Public Health*. 2019;16(14):1–16. https://doi.org/10.3390/ijerph16142539
9. Alzhrani F, Al-Saleh S, Shayma A, Al-Dhafeeri A, Al-Baqami B, Al-Harbi M, et al. Community awareness of noise-induced hearing loss from portable listening devices and possible preventive measures. *J Nat Sci Med*. 2020;3(January). https://doi.org/10.4103/jnsm.jnsm_29_19

10. Soylemez E, Mujdeci B. Dual-task performance and vestibular functions in individuals with noise induced hearing loss. *Am J Otolaryngol Head Neck Med Surg*. 2020;41(6):102665. https://doi.org/10.1016/j.amjoto.2020.102665
11. Wang TC, Chang TY, Tyler R, Lin YJ, Liang WM, Shau YW, et al. Noise induced hearing loss and tinnitus—new research developments and remaining gaps in disease assessment, treatment, and prevention. *Brain Sci*. 2020;10(10):1–11. https://doi.org/10.3390/brainsci10100732
12. Bellettiere J, LaMonte MJ, Rillamas-Sun E, Kerr J, Evenson KR, Lee IM, et al. Sedentary Behavior Increases Risk for Cardiovascular Disease in Older Women: The Objective Physical Activity and Cardiovascular Health (OPACH) Study. *Circulation*. 2019;139(8):1036–1046. https://doi.org/10.1161/CIRCULATIONAHA.118.035312
13. Higgins S, Pomeroy A, Bates LC, Paterson C, Barone Gibbs B, Pontzer H, et al. Sedentary behavior and cardiovascular disease risk: An evolutionary perspective. *Front Physiol*. 2022;13(July):1–9. https://doi.org/10.3389/fphys.2022.962791
14. Kanna B, Ukudeyeva A, Faiz M, Roques E, Washington T, Ramirez L, et al. Qualitative study of knowledge, perception, behavior and barriers associated with cardiovascular disease risk among overweight and obese Hispanic taxi drivers of South Bronx, NYC. *BMC Public Health*. 2020;20(1):1–10. https://doi.org/10.1186/s12889-020-08751-0
15. Lak A, Asl SS, Maher A. Resilient urban form to pandemics: Lessons from COVID-19. *Med J Islam Repub Iran*. 2020;34(1):1–9. https://doi.org/10.34171/mjiri.34.71
16. Musselwhite C, Avineri E, Susilo Y. Editorial JTH 16 – The Coronavirus Disease COVID-19 and implications for transport and health. *J Transp Health*. 2020;16:100853. https://doi.org/10.1016/j.jth.2020.100853
17. Simamora. Menhub Minta DPR Setujui Regulasi Aturan Ojek Online. *Kumparan.com* [Internet]. 2018. Available from: https://kumparan.com/kumparanbisnis/menhub-minta-dpr-setujui-regulasi-aturan-ojek-online
18. Mu'in M, Rohmah N. Kewaspadaan Berkendara dan Kecelakaan Kerja pada Pengemudi Ojek Online. *J Ilmu Keperawatan Komunitas PPNI Jawa Teng*. 2021;4(1):19–24. https://doi.org/10.32584/jikk.v4i1.1001
19. Rosandy B. *Faktor yang Berhubungan dengan Perilaku Safety Riding pada Ojek Online Jenis X di Kota Samarinda*. Samarinda: Mulawarman University; 2019.
20. Ifroh RH, Setyowati DL, Asrianti T, Rahman W. Edukasi Upaya Pencegahan Penularan Covid-19. 2020. https://doi.org/10.31764/jmm.v5i3.4987
21. La Torre G, Sestili C, Mannocci A, Sinopoli A, De Paolis M, De Francesco S, et al. Association between work related stress and health related quality of life: The impact of socio-demographic variables. A cross sectional study in a region of central Italy. *Int J Environ Res Public Health*. 2018;15(1):1–9. https://doi.org/10.3390/ijerph15010159
22. Fevyer D, Aldred R. Rogue drivers, typical cyclists, and tragic pedestrians: a Critical Discourse Analysis of media reporting of fatal road traffic collisions. *Mobilities*. 2022;17(6):759–779. https://doi.org/10.1080/17450101.2021.1981117
23. Yan M, Chen W, Wang J, Zhang M, Zhao L. Characteristics and causes of particularly major road traffic accidents involving commercial vehicles in China. *Int J Environ Res Public Health*. 2021;18(8). https://doi.org/10.3390/ijerph18083878
24. Rini TS, Wahyuningsih AnS. Analisis Potensi Pembentukan Pos UKK pada Gaptokan Ngudi Luhur Griwoyo. *J Kesehat Masy*. 2022;10(4):504–511. https://doi.org/10.14710/jkm.v10i4.35051
25. Syahri IM, Fitria M. Keselamatan dan Kesehatan Kerja (K3) pada Nelayan di Pos Upaya Kesehatan Kerja (Pos UKK) Puskesmas Belawan. *Talent Conf Ser Trop Med*. 2018;1(1):202–206. https://doi.org/10.32734/tm.v1i1.69
26. Rohmah N, Setyowati DL, Agustini RT. The Clean and Healthy Behavior of Motorcycle Online Drivers in Samarinda, Indonesia. In: *The 22 International Conference of Public Health Sciences 2022*. 2022. p. S33. Available from: https://anyflip.com/jccrx/ooxt/basic

27. Kitzinger J. The methodology of Focus Groups: the importance of interaction between research participants. *Sociol Health Illn*. 1994;16(1):103–121. https://doi.org/10.1111/1467-9566.ep11347023
28. Matua GA, Van Der Wal DM. Differentiating between descriptive and interpretive phenomenological research approaches. *Nurse Res*. 2015;22(6):22–27. https://doi.org/10.7748/nr.22.6.22.e1344
29. Li M, LF. Rights Basis and System Building of Occupational Injury Protection for Employers in New Business Forms. *Hum Rts*. 2021;20:985. Available from: https://heinonline.org/HOL/LandingPage?handle=hein.journals/jrnlhmch20&div=69&id=&page=
30. Zulkifly SS. Work-Related Safety and Health Issues among Food and Parcel Delivery Riders. 2016. Available from: https://www.intechopen.com/books/advanced-biometric-technologies/liveness-detection-in-biometrics
31. Arief Y, Fauji MR, Arifin RF, Hidayat B. A Community Intervention in Covid-19 Pandemic: Occupational Health and Safety for Moslem Online Transportation. *Psikis J Psikol Islam*. 2021;7(2):161–168. https://doi.org/10.19109/psikis.v7i2.10138
32. Chung EK, Park SY, Sohn YW. Effects of occupational drivers' traffic accident history on risk perception, work attitudes, and unstable driving. *Transp Res Rec*. 2021;2675(10):734–744. https://doi.org/10.1177/03611981211012695
33. Grasmo SG, Liaset IF, Redzovic SE. Home care workers' experiences of work conditions related to their occupational health: a qualitative study. *BMC Health Serv Res*. 2021;21(1):1–13. https://doi.org/10.1186/s12913-021-06941-z
34. Sukismanto S, Hartono H, Sumardiyono S, Andayani TR. Family Support to Improve Knowledge, Attitude, and Practices of Occupational Health and Safety (OHS) in the Informal Sector. *Malaysian J Med Heal Sci*. 2023;19(2):175–181. https://doi.org/10.47836/mjmhs.19.2.26
35. Koranyi I, Jonsson J, Rönnblad T, Stockfelt L, Bodin T. Precarious employment and occupational accidents and injuries – A systematic review. *Scand J Work Environ Health*. 2018;44(4):341–350. https://doi.org/10.5271/sjweh.3720
36. Nurhafizhah T, Susilowati IH, Maulana A, Habibullah MF. Safety and Fatigue Risk Factors among Online Motorcycle Drivers in Depok City, Indonesia. *KnE Life Sci*. 2018;4(5):702. https://doi.org/10.18502/kls.v4i5.2600
37. Caldwell JA, Caldwell JL, Thompson LA, Lieberman HR. Fatigue and its management in the workplace. *Neurosci Biobehav Rev*. 2019;96:272–289. https://doi.org/10.1016/j.neubiorev.2018.10.024
38. Yener S, Arslan A, Kilinç S. The moderating roles of technological self-efficacy and time management in the technostress and employee performance relationship through burnout. *Inf Technol People*. 2021;34(7):1890–1919. https://doi.org/10.1108/ITP-09-2019-0462
39. García-Herrero S, Mariscal MA, García-Rodríguez J, Ritzel DO. Working conditions, psychological/physical symptoms and occupational accidents. Bayesian network models. *Saf Sci*. 2012;50(9):1760–1774. https://doi.org/10.1016/j.ssci.2012.04.005
40. Pérez ER, Benavides FG, Levecque K, Love JG, Felt E, Van Rossem R. Differences in working conditions and employment arrangements among migrant and non-migrant workers in Europe. *Ethn Health*. 2012;17(6):563–577. https://doi.org/10.1080/13557858.2012.730606
41. Gandhi KD, Mansukhani MP, Silber MH, Kolla BP. Excessive Daytime Sleepiness: A Clinical Review. *Mayo Clin Proc*. 2021;96(5):1288–1301. https://doi.org/10.1016/j.mayocp.2020.08.033
42. Maynard S, Filtness A, Miller K, Pilkington-Cheney F. Bus driver fatigue: A qualitative study of drivers in London. *Appl Ergon*. 2021;92:103309. https://doi.org/10.1016/j.apergo.2020.103309
43. Khair MDH, Sriatmi A, Kurniawan B. Analisis Perbedaan Proses Pembentukan Pos Upaya Kesehatan Kerja (UKK) di Kota Semarang. *J Kesehat Masy*. 2023;6(4):1–23. Available from: http://ejournal3.undip.ac.id/index.php/jkm

44. Pacini A, Stickland A, Iniguez K, Di Malta G. Implementation of home practice support strategies for older adults attending an online mindfulness based cognitive therapy course: An adaptive intervention protocol. In: *Proceedings of the 5th UK Implementation Science Research Conference*. London: Implementation Science; 2023. https://doi.org/10.1186/s13012-023-01270-7
45. Susanto T, Rahmawati I, Wantiyah. Community-based occupational health promotion programme: an initiative project for Indonesian agricultural farmers. *Health Educ*. 2020;120(1):73–85. https://doi.org/10.1108/HE-12-2018-0065