

Psychosocial and Occupational Health and Safety (OHS) Risks among Gig Economy Platform Workers in Indonesia: Protocol for a Descriptive Phenomenological Study of Fatigue, Stress, and Legal Protection

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ABSTRACT

Background: Platform-mediated service work in Indonesia involves road and environmental hazards, irregular hours, digital surveillance, algorithmic management, income uncertainty, and uneven social protection. These exposures are often studied separately, limiting understanding of their interconnected occupational-health effects. **Objective:** This protocol describes a qualitative descriptive phenomenological study examining fatigue, psychosocial stress, OHS risks, algorithmic management, and legal/social protection among Indonesian gig economy platform workers. **Methods:** Adults aged ≥ 18 years with at least six months of location-based platform-work experience will be recruited using purposive maximum-variation sampling. Approximately 15–20 semi-structured interviews will be conducted, audio-recorded with consent, transcribed verbatim, de-identified, and supplemented by field notes and a reflexive log. Five sensitizing domains will guide the initial interviews: fatigue and recovery; psychosocial stress and algorithmic management; OHS hazards and safety trade-offs; social and legal protection; and coping, peer support, and worker agency. **Planned Analysis:** Data will undergo iterative descriptive phenomenological thematic analysis focusing on meaning units, cross-case variation, disconfirming cases, and emergent themes. **Ethics:** Recruitment will begin after written KEPK approval, with informed consent, confidentiality, de-identification, and secure data management procedures in place. **Expected Contribution:** The study will generate an empirically grounded account of how economic pressure, digital management, physical exposure, fatigue, and protection systems interact in everyday platform work.

INTRODUCTION

Digital labour platforms have become a visible component of Indonesia's service economy, linking consumers to ride-hailing, food-delivery, parcel-delivery, logistics, cleaning, and other on-demand services. The model can reduce barriers to labour-market entry and provide temporal flexibility, but it also shifts a substantial share of operating costs and occupational risks to workers. The International Labour Organization (ILO) describes digital platform work as a source of new work and income opportunities that exist alongside important decent-work deficits. In June 2026, the International Labour Conference adopted Convention No. 193, the first international labour standard dedicated specifically to decent work in the platform economy (ILO, 2026a, 2026b).

For location-based platform workers, occupational risk is multidimensional. Workers may spend prolonged periods in traffic and adverse weather, repeatedly handle smartphones, maintain static riding or sitting postures, skip meals or breaks, work at night, and absorb the economic effects of fuel costs, vehicle maintenance, injuries, and periods of low demand. Indonesian research has repeatedly identified fatigue as an important concern. Manuel and Wirawan (2020) reported fatigue among 68.1% of 306 online motorcycle-taxi riders in Jabodetabek and Denpasar, with work stress and short sleep among the associated factors. In Denpasar, Sahadewa et al. (2024) further examined fatigue in online motorcycle-taxi drivers, while Restuputri et al. (2026) found that longer working hours and heavier digital workload predicted greater fatigue among Indonesian platform drivers and that fatigue was closely associated with mental-health-related symptoms.

Psychosocial hazards are also increasingly documented. Merijanti et al. (2024), in a study of 218 online motorcycle-taxi drivers in the Jakarta metropolitan area, found that emotional burden and workplace influence were positively associated with depressive symptoms, whereas meaning of work and role clarity were protective correlates. Wulani et al. (2022) showed that social and occupational resources can shape work stress among drivers, and Purwanto and Lestari (2024) reported that social support, work stress, and work-life balance were related to psychological well-being among online motorcycle-taxi drivers in Surakarta. These findings suggest that platform work cannot be understood only as an issue of traffic safety or individual resilience; it is also a psychosocial work-environment problem.

A central feature of platform work is algorithmic management. Platforms can use tracked data to allocate jobs, set or display prices, monitor location and acceptance behaviour, rank performance, manage incentives, and impose or recommend operational rules. The ILO defines algorithmic management as the use of algorithmic systems to organize, assign, monitor, supervise, and evaluate work (ILO, 2026c). Vignola et al. (2023) argue that such systems can influence workload, schedule stability, income security, decision authority, socio-emotional rewards, interpersonal relations, and organizational trust. A 2024 survey of 487 location-based platform workers in Taiwan similarly found that stronger platform-mediated labour control was associated with burnout and poorer mental health, partly through increased job demands (Cheng et al., 2024).

Recent synthesis research strengthens the rationale for an in-depth Indonesian study. Margerison (2025) identified 45 empirical studies on platform-mediated gig work and health and concluded that the literature documents physical and mental health problems but remains dominated by cross-sectional and qualitative designs, with limited causal evidence. The review specifically highlighted the need to understand how distinctive platform features such as worker



ratings, algorithmic control, surveillance, and economic insecurity shape health. ILO's 2025 global report on AI and digitalization likewise emphasizes that algorithmic management and digital labour platforms can create new OHS risks and require proactive risk assessment, worker participation, and adaptive governance (ILO, 2025).

The legal and social-protection context is equally important. In Indonesia, platform workers are commonly organized through partnership arrangements rather than conventional employment relationships. Izzati and Kwang (2025) argue that neither conventional labour law nor ordinary partnership concepts adequately capture the dependent and asymmetric nature of platform work, producing a regulatory gap in worker protection. Fairwork Indonesia's 2025 ratings also found low overall scores across evaluated platforms and continued weaknesses in fair conditions and other decent-work principles (Fairwork, 2025). At the same time, platform workers classified as non-wage earners can access employment social security programmes. BPJS Ketenagakerjaan explicitly includes online motorcycle-taxi drivers among Bukan Penerima Upah (BPU) participants eligible for Work Accident Insurance (JKK) and Death Benefits (JKM), while Government Regulation No. 50 of 2025 temporarily reduced JKK and JKM contributions for BPU participants, including transport-sector workers (BPJS Ketenagakerjaan, 2026; Government of Indonesia, 2025). Access, continuity of participation, contribution responsibility, and workers' understanding of these protections remain important empirical questions.

These occupational, psychosocial, digital, and legal dimensions are usually studied separately. Quantitative studies can estimate associations or prevalence but cannot fully explain how workers interpret fatigue, make safety trade-offs, experience automated control, or decide who is responsible when occupational harm occurs. Descriptive phenomenology is therefore appropriate because it seeks to understand the meaning and structure of lived experience while remaining close to participants' accounts. The present study is designed to explore the lived experiences of Indonesian service-sector gig workers regarding: (1) fatigue and recovery; (2) psychosocial stress and algorithmic management; (3) OHS hazards and safety trade-offs; (4) access to social and legal protection; and (5) informal coping, peer support, and worker agency. Its novelty lies in examining these domains as an interconnected system rather than as isolated outcomes.

METHODS

1. Study Design and Research Positioning

This study is designed as a qualitative descriptive phenomenological inquiry. The approach is appropriate for exploring how workers experience and give meaning to fatigue, stress, occupational hazards, algorithmic control, and protection in everyday platform work. Analysis will follow the meaning-oriented process described by Sundler et al. (2019), which emphasizes openness to the phenomenon, reflective engagement with the data, and development of themes that describe essential meanings. The study will be reported using the Consolidated Criteria for Reporting Qualitative Research (COREQ) for interviews and focus groups (Tong et al., 2007). Sensitizing concepts from the OHS and algorithmic-management literature may guide interview prompts, but they should not be used to force participants' accounts into predetermined categories.

2. Setting, Participants, and Sampling

The field study should be conducted in one or more Indonesian urban areas with substantial app-mediated service activity. The final manuscript must state the actual study locations, recruitment period, and relevant local context. Eligible participants are adults aged at least 18 years who have performed location-based service work through a digital platform for at least six months, for example ride-hailing, food delivery, parcel delivery, logistics, or app-mediated home services. Platform office employees and individuals unable to provide informed consent should be excluded. Purposive maximum-variation sampling should seek diversity in age, sex, platform type, primary versus supplementary income status, years of platform experience, typical working hours, and participation in social-security programmes. An initial target of approximately 15–20 interviews is reasonable for a focused phenomenological inquiry, with the final sample determined by information richness and adequacy of meaning rather than statistical power.

3. Recruitment and Data Collection

Participants may be recruited through driver communities, service-worker networks, meeting points, online worker groups, and participant referral. Recruitment should not be controlled by platform management. Semi-structured interviews of approximately 45–75 minutes should be conducted in Bahasa Indonesia or another language preferred by the participant, in a private face-to-face setting or secure online format. The interview guide should cover a typical workday, work-hour decisions, fatigue and sleep, bodily symptoms, traffic and weather exposure, smartphone use, incentive and rating systems, customer interactions, account penalties or deactivation concerns, accident and near-miss experiences, violence or harassment, access to health care and social security, perceived legal responsibility, coping practices, and peer support. With permission, interviews should be audio-recorded, transcribed verbatim, de-identified, and supplemented by field notes.

4. Researcher Reflexivity and Bracketing

Because phenomenological interpretation can be shaped by researcher assumptions, the research team should maintain a reflexive log from recruitment through analysis. Before interviewing, researchers should document prior assumptions about platform flexibility, worker autonomy, legal status, and OHS responsibility. During analysis, these assumptions should be revisited so that participants' accounts remain primary. Team discussions should explicitly distinguish what was stated by participants from what is inferred using occupational-health or legal theory.

5. Data Analysis

Analysis should proceed iteratively. First, researchers should read transcripts repeatedly to obtain a sense of the whole. Second, meaning units relevant to the phenomenon should be identified and condensed without losing experiential meaning. Third, similarities, differences, tensions, and negative cases should be compared across participants. Fourth, preliminary patterns should be grouped into descriptive themes and subthemes. Finally, researchers should formulate a coherent description of the essential structure of the experience, supported by anonymized quotations from



actual transcripts. Qualitative software may be used for data management, but coding decisions and theme development remain interpretive tasks of the research team (Sundler et al., 2019).

6. Trustworthiness

Credibility should be supported through prolonged engagement with the data, purposive variation, peer debriefing, attention to disconfirming cases, and participant clarification when appropriate. Dependability should be enhanced through a documented audit trail of coding and theme revisions. Confirmability should be supported through reflexive notes and team review. Transferability should be addressed by providing a detailed description of participants, platforms, locations, work patterns, and regulatory context so readers can judge the relevance of findings to other settings.

7. Ethics and Data Management

Ethical approval must be obtained before recruitment. The final manuscript must insert the name of the approving ethics committee and approval code: [INSERT ETHICS COMMITTEE AND APPROVAL NUMBER]. Participants should receive an information sheet explaining voluntariness, confidentiality, recording, data use, the right to skip questions, and the right to withdraw before anonymized analysis is finalized. Identifying details should be removed from transcripts and quotations. Audio files and consent records should be stored separately from de-identified transcripts in access-controlled storage. Questions about accidents, financial distress, account sanctions, or violence should be asked sensitively, and a referral pathway should be prepared if a participant becomes distressed.

RESULTS

1. Protocol Development and Analytic Framework

As this manuscript reports a study protocol, the Results section presents outputs of protocol development rather than participant-level empirical findings. The evidence-mapping process identified nine key sources relevant to fatigue, psychosocial stress, algorithmic management, occupational safety, legal and social protection, and worker resources. These sources were translated into interview prompts and analytic questions (Table 1) while preserving an inductive descriptive-phenomenological stance. The resulting framework comprises six sensitizing domains: work organization and income pressure; fatigue and recovery; algorithmic management and psychosocial stress; OHS risk-taking and safety trade-offs; protection and responsibility; and social support, coping, and worker agency. These domains guide data collection and early analytic attention but are not treated as predetermined themes.

Table 1. Evidence Base Used to Construct the Initial Interview Guide

Source	Population / design	Key evidence	Relevance to phenomenological inquiry
Manuel & Wirawan (2020)	306 online motorcycle-taxi riders; cross-	68.1% reported fatigue; work stress and short sleep were associated factors.	Explore how workers recognize fatigue, normalize long hours, and

Source	Population / design	Key evidence	Relevance to phenomenological inquiry
	sectional; Jabodetabek and Denpasar		decide when to rest.
Wulani et al. (2022)	89 online motorcycle-taxi drivers; survey; Surabaya	Coworker support and autonomy were linked to occupational commitment, which in turn related to lower work stress.	Explore social resources, autonomy, belonging, and peer support.
Sahadewa et al. (2024)	Online motorcycle-taxi drivers; Denpasar	Examined demographic and work-related factors associated with fatigue.	Probe work duration, bodily symptoms, recovery, and perceived fatigue causes.
Merijanti et al. (2024)	218 drivers; cross-sectional; Jakarta metropolitan area	Emotional burden and workplace influence were positively associated with depressive symptoms; role clarity and meaning of work were protective correlates.	Probe emotional demands, control, role ambiguity, and meaning of work.
Purwanto & Lestari (2024)	244 drivers; quantitative; Surakarta	Social support, work stress, and work-life balance were related to psychological well-being.	Explore family-work tensions, support, stress, and recovery.
Fairwork (2025)	Platform ratings; Indonesia	Evaluated platforms received low overall scores, with continuing concerns across fair conditions, contracts, management, and representation.	Explore how workers experience platform responsibility, fairness, complaints, and representation.
Izzati & Kwang (2025)	Legal analysis; Indonesia	Identified a regulatory gap between conventional employment law and partnership concepts for platform workers.	Explore workers' understanding of status, rights, responsibility, and legal uncertainty.
Restuputri et al. (2026)	100 Indonesian platform drivers; ergonomic study	Longer working hours and heavier digital workload predicted fatigue; 14% had high- to-very-high fatigue and fatigue was associated with mental- health symptoms.	Explore digital workload, pressure, fatigue, anxiety, and work-hour decisions.



Source	Population / design	Key evidence	Relevance to phenomenological inquiry
ILO Convention No. 193 (2026)	International labour standard	Establishes principles on decent work, classification, OHS prevention, algorithmic management, violence/harassment, and worker protection in the platform economy.	Use as a policy lens when interpreting responsibility and protection, without imposing legal conclusions on participant narratives.

2. Six Sensitizing Domains for Interviewing and Analysis

a. Flexibility and Potential Self-Intensification

Platform work is commonly described as flexible because workers can choose when to log on. The interviews will explore whether that flexibility remains meaningful when income targets, peak-hour demand, incentive thresholds, debt, household obligations, or unpredictable order volume encourage workers to remain available longer than intended. The purpose is to understand how workers describe the boundary between autonomy and economic pressure without assuming in advance that either experience predominates.

b. Fatigue as an Embodied and Potentially Normalized Experience

Fatigue will be explored as a bodily, emotional, and cognitive experience rather than only as a score. Interview prompts will address sleep restriction, drowsiness, musculoskeletal discomfort, headache, heat exposure, hunger, loss of concentration, irritability, and brief rest practices. Analysis will examine how workers recognize warning signs, judge whether fatigue is still tolerable, and decide when to continue or stop working under changing economic and app-mediated pressures.

c. Algorithmic Management and Psychosocial Stress

Interviews will explore how workers experience ratings, task allocation, incentive rules, cancellations, customer evaluations, account restrictions, income volatility, and the perceived transparency or opacity of automated decisions. Attention will be given to uncertainty, frustration, anxiety, helplessness, mistrust, autonomy, opportunity, and any other emotions or meanings raised by participants. Algorithmic management will therefore be treated as a sensitizing domain rather than as a prespecified explanation of stress.

d. Safety Trade-offs under Traffic, Weather, and Time Pressure

For location-based workers, OHS risk is closely linked to mobility. Interviews will explore smartphone interaction while moving, speed and route decisions, night work, rain and heat, pressure to complete orders quickly, unsafe pickup or delivery locations, near misses, accidents, and situations in which workers continue despite perceiving danger. Analysis will focus on how participants themselves explain safety decisions under economic and time pressure.

e. Legal and Social-Protection Uncertainty

Interviews will examine how workers understand their status as partners or independent earners, who they believe is responsible for occupational harm, what protection they perceive as available through platforms or BPJS Ketenagakerjaan, and what barriers they encounter when

seeking support. The purpose will not be to test legal knowledge or impose a legal classification, but to understand the lived consequences of uncertainty over rights, obligations, procedures, and responsibility.

f. Peer Solidarity, Coping, and Worker Agency

Driver communities and informal networks may function as emergency support systems, sources of practical information, emotional support, financial help, and collective problem solving. Interviews will examine these functions alongside individual coping, rest practices, strategic app use, worker resistance, and other forms of agency. Analysis will remain open to evidence that peer support is either protective, insufficient, or experienced differently across participants.

Table 2. Preliminary Sensitizing Framework for Interviewing and Analysis

Sensitizing domain	Illustrative prompts / concepts	Planned analytic use
Work organization and income pressure	income targets; peak hours; incentives; order scarcity; multi-apping; debt/household obligations	Explore when flexibility is experienced as autonomy, pressure, or both; retain emergent explanations.
Fatigue and recovery	sleep; drowsiness; pain; heat/rain; meals; rest; cognitive lapses	Describe how fatigue is recognized, normalized, concealed, managed, and linked to work decisions.
Algorithmic management	ratings; matching; pricing; penalties; deactivation; opacity; customer evaluation	Explore how app-mediated decisions shape perceived control, uncertainty, dignity, opportunity, and stress.
OHS risk-taking	smartphone distraction; speed; unsafe weather; night work; near misses; violence	Examine how participants explain safety trade-offs under economic, temporal, and environmental pressure.
Protection and responsibility	partner status; BPJS; insurance; accident claims; complaints; due process	Explore perceived responsibility, access barriers, procedural experiences, and uncertainty without imposing legal conclusions.
Social support and agency	driver community; emergency help; peer learning; coping; collective voice	Identify how formal and informal resources shape protection, coping, resistance, and worker agency.

Taken together, the protocol-development process produced a coherent interview and analytic framework that links economic pressure, embodied fatigue, digitally mediated control, physical OHS hazards, formal protection, and informal worker resources. The framework is intentionally provisional: individual domains may be revised, merged, expanded, or rejected after field interviews, and unanticipated meanings will be retained when they are grounded in participants' accounts. This separation between protocol-development outputs and later empirical themes is intended to reduce the risk of presenting literature-derived expectations as study findings.



DISCUSSION

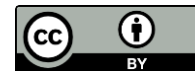
The principal contribution of this protocol is its integrated framing of platform work as a system in which physical exposure, economic insecurity, digitally mediated control, and uncertainty about protection may converge within the same workday. Existing studies have often examined fatigue, psychosocial well-being, algorithmic control, or legal status as separate problems. The descriptive phenomenological design is intended to examine how workers themselves connect these dimensions in everyday decisions about working time, rest, income, and safety, without imposing a single causal explanation in advance.

Fatigue is a central domain because Indonesian studies have documented a substantial burden of fatigue among online motorcycle-taxi workers and have linked fatigue-related outcomes with long working hours, sleep restriction, work stress, and digital workload (Manuel & Wirawan, 2020; Sahadewa et al., 2024; Restuputri et al., 2026). The planned qualitative inquiry extends this literature by focusing on how fatigue is recognized, normalized, concealed, and managed in context. This is important because a prevalence estimate alone cannot explain why a worker continues operating despite drowsiness, pain, heat exposure, reduced concentration, or the perceived need to meet an income target.

The protocol also treats algorithmic management as a potential psychosocial and occupational-health exposure rather than merely a technical feature of platform work. Indonesian evidence has linked emotional burden, role clarity, social support, work-life balance, and occupational commitment with mental well-being among drivers (Merijanti et al., 2024; Purwanto & Lestari, 2024; Wulani et al., 2022), while research among location-based platform workers in Taiwan found associations between stronger platform-mediated labour control, increased job demands, burnout, and poorer mental health (Cheng et al., 2024). Research from the app-worker perspective further shows how algorithmic HRM control is experienced through platform-mediated work allocation, evaluation, and multiparty employment relations (Duggan et al., 2023). By exploring ratings, task allocation, incentives, penalties, customer evaluations, account restrictions, and opacity of automated decisions, the study can examine whether workers experience digital control as pressure, opportunity, uncertainty, loss of autonomy, or a combination of these meanings.

A further contribution is the explicit connection between psychosocial conditions and concrete OHS trade-offs. For location-based workers, decisions about speed, smartphone use, route choice, night work, rest, and work during rain or heat occur within time-sensitive and income-sensitive conditions. The interview design therefore asks not only whether hazards occur, but how workers interpret and negotiate them. This approach is consistent with the ILO's emphasis on proactive risk assessment, worker participation, and attention to new OHS risks associated with digitalization and algorithmic management (ILO, 2025).

The legal and social-protection dimension is deliberately framed with nuance. Platform workers in Indonesia may access BPJS Ketenagakerjaan programmes as Bukan Penerima Upah participants, including Work Accident Insurance and Death Benefits, yet questions remain regarding awareness, affordability, continuity, claims, and perceived responsibility (Government of Indonesia, 2025; BPJS Ketenagakerjaan, 2026). At the same time, legal scholarship has described a regulatory gap between conventional employment law and partnership arrangements for platform workers (Izzati & Kwang, 2025). Convention No. 193 provides an emerging international policy



benchmark for issues including OHS, algorithmic management, violence and harassment, classification, and worker protection, but it is used here as an interpretive policy lens rather than as binding Indonesian law (ILO, 2026b; ILO, 2026d).

Peer communities and informal coping are included because worker agency may partly shape how occupational risks are managed in practice. Driver groups can potentially provide emergency assistance, information, emotional support, and collective problem-solving, but the protocol does not assume that such support is always sufficient or protective. Exploring both formal and informal resources should help distinguish individual coping from structural protection and clarify where responsibility is perceived to lie among workers, platforms, social-security systems, and public institutions.

The study may have practical relevance for occupational-health programmes if the eventual findings show that risks are experienced as interconnected rather than isolated. In that case, prevention strategies may need to combine fatigue and recovery management, safer work organization, clearer digital procedures, access to social protection, mechanisms for worker participation, and attention to environmental and traffic hazards. These implications remain prospective at the protocol stage and must be refined from the empirical themes and participant quotations generated after ethical approval and data collection.

This protocol has several methodological strengths. Descriptive phenomenology is well suited to detailed accounts of lived experience, and maximum-variation sampling can capture contrasts across platform types, income dependence, work duration, and social-security participation. The use of reflexive logging, an audit trail, peer debriefing, attention to disconfirming cases, and contextual reporting strengthens transparency and trustworthiness. However, purposive qualitative sampling will not produce statistically representative prevalence estimates or causal effects; recall and social-desirability bias may influence accounts of risky behaviour; and multi-platform work may complicate attribution of experiences to a single platform or algorithm.

After ethics approval and fieldwork, the empirical manuscript should report participant characteristics, data-collection context, themes and subthemes derived from the transcripts, disconfirming cases, and anonymized quotations before drawing substantive conclusions. The future Discussion should then compare those empirical themes directly with Indonesian and international literature. Maintaining this distinction between the present protocol framework and later findings is essential to avoid treating literature-informed sensitizing concepts as if they had already been observed in participants.

CONCLUSIONS

This protocol provides a methodologically explicit basis for investigating psychosocial and occupational health and safety risks among gig economy platform workers in Indonesia. Its six provisional sensitizing domains connect work organization and income pressure, fatigue and recovery, algorithmic management and psychosocial stress, safety trade-offs, legal and social protection, and worker coping and agency within a single phenomenological inquiry. The framework is designed to guide interviews without predetermining the final themes, and no participant-level empirical claims are made at the protocol stage. Following ethical approval, the study will generate findings from actual worker narratives, cross-case variation, disconfirming



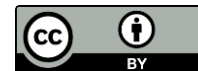
accounts, and anonymized quotations. This approach is expected to provide a defensible foundation for understanding how digital management, economic pressure, physical hazards, fatigue, and protection systems are experienced together in everyday platform work and for informing subsequent OHS research and policy discussion.

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