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Occupational and Psychosocial Risk Factors for Depression Among Truck Drivers: A Systematic Review

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ADMINISTRATIVE INFORMATION

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Review Stage at time of this submission - Preliminary searches.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 14 September 2025 and was last updated on 14 September 2025.

INTRODUCTION

Review question / Objective Primary objective: To determine the association between occupational and psychosocial exposures and depression among adult professional truck/HGV/lorry drivers. Exposures include work-organization factors (e.g., shift, night or rotating schedules; long working or driving hours; time or dispatch pressure) and psychosocial stressors (e.g., job strain and high demand–low control, effort–reward imbalance, low job control, low social support or isolation, work–family conflict, harassment, precarious employment, sleep problems and fatigue). Comparators are drivers with lower or no exposure to these factors or alternative exposure categories. The outcome is depression diagnosed using DSM/ICD criteria or measured with validated scales (PHQ-9, CES-D, HADS-D, BDI, DASS-Depression), reported as caseness or continuous symptom severity.

Secondary objectives include: (1) identifying which work-organization factors show the strongest associations with depression; (2) evaluating psychosocial determinants and assessing dose–response relationships where exposure gradations are reported; (3) exploring heterogeneity by haul type (long vs short), geographical region, sex, age and employment arrangement; (4) examining how study design (cohort, case–control, cross-sectional), measurement methods and risk of bias influence observed associations; and (5) conducting random-effects meta-analysis and meta-regression where three or more comparable studies per exposure–outcome pair exist. Overall, the review asks: In adult professional truck drivers, how do occupational and psychosocial risk factors, compared with lower or no exposure, affect the probability or severity of depression?.

Rationale Depression is a common mental disorder marked by persistent low mood, loss of interest or pleasure, cognitive and somatic

symptoms and impaired functioning. Globally about 5.7 % of adults experience depressive disorders, with substantial personal and economic burden. Professional truck drivers may be at elevated risk because their work involves long and irregular hours, night and rotating shifts, chronic sleep disruption, fatigue, isolation, time and dispatch pressure and low job control. These occupational and psychosocial stressors have been linked to poorer mental health outcomes. A broad systematic review published in 2020 evaluated general mental health and cardiometabolic risk among truck drivers but did not focus on depression or synthesise evidence on specific work-related predictors (Guest et al., 2020). Since then, new primary studies have examined associations between job strain, sleep problems, social isolation, time pressure and depressive symptoms in this population. The evidence remains fragmented, methodologically varied and largely cross-sectional. A targeted systematic review focusing on depression and modifiable occupational and psychosocial risk factors is therefore needed to map the post-2020 evidence base, identify predictors to guide workplace interventions and policy, and highlight methodological gaps for future longitudinal research. Clarifying which exposures are most strongly associated with depression could inform sector-specific mental-health strategies, improve driver wellbeing, enhance road safety and support workforce retention in freight transport.

Condition being studied Depression is a common mental disorder characterised by persistent low mood, loss of interest or pleasure, cognitive and somatic symptoms such as impaired concentration and sleep disturbance, and reduced functioning. In professional truck drivers, depression may be precipitated or exacerbated by occupational and psychosocial stressors including long and irregular work schedules, night or rotating shifts, chronic sleep disruption and fatigue, tight delivery and dispatch deadlines, low job control, effort–reward imbalance, low social support, social isolation, work–family conflict, harassment and precarious employment. This review considers depression diagnosed clinically or identified using validated self-report scales (e.g., PHQ-9, CES-D, HADS-D, BDI, DASS-Depression) in adult truck/HGV/lorry drivers.

METHODS

Search strategy Electronic databases including PubMed/MEDLINE, PsycINFO, and Web of Science will be searched from inception to the search date without language restrictions. The search strategy will combine terms for professional truck drivers (e.g., "truck driver*", "lorry driver*", "HGV driver*", "heavy goods vehicle*", "commercial driver*", "road transport worker*", "trucker*", "long-haul driver*") with terms for depression and depressive symptoms (e.g., depress*, "depressive disorder*", "depressive symptom*", PHQ-9, CES-D, HADS-D, BDI, DASS-Depression) and terms for occupational and psychosocial exposures (e.g., shift work, night shift, rotating shift, long working hours, extended driving hours, time or dispatch pressure, job strain, demand–control, effort–reward imbalance, low job control, low social support, isolation, loneliness, work–family conflict, sleep problems, fatigue, harassment, bullying, precarious employment). Boolean operators and truncation will be used, for example: ("truck driver*" OR "lorry driver*" OR "HGV driver*" OR "heavy goods vehicle*" OR "commercial driver*" OR trucker*) AND (depress* OR "depressive symptom*" OR "depressive disorder*") AND (shift OR "night shift" OR "long working hours" OR "job strain" OR "effort–reward imbalance" OR "low social support"). The strategy will be adapted for each database. Authors may be contacted for additional data if necessary.

Participant or population Adults (≥18 years) whose primary occupation is professional truck, heavy goods vehicle (HGV) or lorry driving in road freight transport. Includes long-haul and short-haul drivers, employed or self-employed (owner-operators), of any sex and from any country. Eligible studies must explicitly identify participants as truck/HGV/lorry drivers or provide a separable subgroup of such drivers. Excludes non-truck professional drivers (e.g., bus, taxi, ride-hail, light van) unless data for the truck-driver subgroup are reported separately; mixed samples where truck-driver data cannot be disaggregated; former or retired drivers not currently practicing; and general population or motorist samples where professional truck drivers are not specified.

Intervention Occupational and psychosocial risk factors such as shift or night or rotating work, long working or driving hours, time or dispatch pressure, job strain (high demand–low control), effort–reward imbalance, low job control, low social support, isolation or loneliness, work–family conflict, harassment or bullying, organizational injustice, precarious employment or income insecurity, sleep problems (poor sleep quality, short sleep), excessive daytime sleepiness and fatigue, and work-related ergonomic stressors (e.g., whole-body vibration). Exposure definitions and measurement instruments (e.g., Job Content

Questionnaire, ERI scales, Pittsburgh Sleep Quality Index, Epworth Sleepiness Scale) will be recorded.

Comparator Lower or no exposure to the specified occupational or psychosocial risk factors or alternative exposure categories/quantiles defined by the primary studies (e.g., day vs night shift, shorter vs longer working hours, low vs high job strain, high vs low social support). Comparisons with other occupational groups (e.g., other types of drivers) will be recorded if reported but will not constitute the primary contrast.

Study designs to be included Observational studies including cohort, case-control and cross-sectional designs. Qualitative research, case reports or series, editorials, commentaries and reviews will be excluded.

Eligibility criteria Original research published in peer-reviewed journals or conference proceedings with available full text and quantitative data on both occupational/psychosocial exposures and depression outcomes in adult truck drivers. Exclude review articles, editorials, commentaries, letters, case reports or series, qualitative-only studies and conference abstracts without sufficient data or without separate truck-driver data.

Information sources Electronic databases (PubMed/MEDLINE, PsycINFO, Web of Science).

Main outcome(s) Depression, as diagnosed by a clinician according to DSM or ICD criteria or assessed using validated depression scales (PHQ-9, CES-D, HADS-D, BDI, DASS-Depression). Outcomes include dichotomous diagnoses (presence vs absence) and continuous symptom scores. Effect measures include odds ratios, risk ratios, hazard ratios or mean differences and their confidence intervals estimating the association between occupational/psychosocial exposures and depression.

Additional outcome(s) No additional outcomes are prespecified beyond depression. Information on related mental health conditions (e.g., anxiety, stress) will be collected descriptively if reported but will not form primary or secondary outcomes.

Data management Search results will be exported into reference management software (e.g., EndNote or Zotero) and duplicates removed. Titles and abstracts will be screened independently by two reviewers using systematic review management software (e.g., Covidence or Rayyan). Full texts of potentially relevant records will be retrieved and assessed for eligibility by two reviewers. Discrepancies will be resolved by discussion or a third reviewer. Data extraction will be performed independently and in duplicate using piloted extraction forms in a spreadsheet or systematic review software. Extracted data will include bibliographic details, study characteristics, participant characteristics, exposure definitions, outcome measures, effect estimates and risk of bias assessments.

Quality assessment / Risk of bias analysis For randomized controlled trials, we will use the Cochrane Risk of Bias 2 tool. For non-randomized observational studies (e.g., cohort, case-control, cross-sectional), we will use validated checklists such as the NIH Quality Assessment Tool, JBI critical appraisal checklists, or AXIS tool, as appropriate. If the review includes a range of study designs, we may use the QualSyst tool to ensure consistent appraisal across designsTwo reviewers will independently assess the methodological quality and risk of bias of included studies. For cohort and case-control studies we will use the Newcastle–Ottawa Scale, evaluating selection, comparability and outcome/exposure domains. For cross-sectional studies we will use the Joanna Briggs Institute critical appraisal checklist. Disagreements will be resolved by discussion or consultation with a third reviewer. The risk of bias results will be presented in summary tables and considered when interpreting findings and conducting sensitivity analyses.

Strategy of data synthesis We will conduct a narrative synthesis of study characteristics and findings, grouped by exposure categories and study design. We will not perform quantitative meta-analysis. Effect estimates (e.g., OR, RR, β) will be presented as reported and, where feasible, mapped to a common direction of effect (harm/benefit/unclear) and summarized in structured tables. Following Synthesis Without Meta-analysis (SWiM) principles, we will: (i) pre-specify grouping variables (haul type, region, sex, age, employment status, study design, and risk of bias); (ii) describe consistency and variability of findings across groups; and (iii) use simple vote-counting by direction of effect with attention to study precision (e.g., sample size, confidence intervals) without statistical pooling. Heterogeneity will be explored qualitatively by differences in exposure definitions, outcome measures, populations, and settings. Sensitivity summaries will be presented after excluding studies at high risk of bias and (if applicable) studies with very small samples or abstract-only reports. We will not apply funnel plots or Egger's tests, as these are specific to meta-analysis; instead, we will discuss potential

publication and selective-reporting biases narratively (e.g., inclusion of grey literature, search coverage). If, contrary to expectation, highly comparable data emerge that would justify pooling, we will submit a protocol amendment before undertaking any meta-analysis.

Subgroup analysis Subgroup analyses will be performed where sufficient data allow to explore differences in associations by haul type (long-haul vs short-haul), geographical region (e.g., North America, Europe, Asia), sex (male vs female), age categories, employment status (employee vs owner-operator), and study quality or risk-of-bias category. We will also examine subgroups by exposure measurement (e.g., objective vs self-reported) and outcome measurement (diagnosis vs self-report scales) where possible.

Sensitivity analysis We will assess the robustness of conclusions via narrative sensitivity checks by: (1) excluding studies at high risk of bias; (2) excluding very small samples or abstract-only reports; (3) restricting to studies using validated outcome measures and objective (or pre-specified) exposure definitions; (4) restricting to adjusted estimates (vs unadjusted); (5) excluding studies that do not adjust for key confounders (e.g., age, sex); (6) removing duplicate populations or overlapping samples; and (7) reclassifying borderline exposure categories to test stability of groupings. We will report whether these restrictions change the overall pattern (direction/consistency) of results. No leave-one-out or model-based checks are planned because we are not conducting meta-analysis.

Language restriction Only English studies with full text-retrieved will be included in the study.

Country(ies) involved China.

Other relevant information None

Keywords truck drivers; lorry drivers; HGV drivers; depression; depressive symptoms; occupational risk factors; psychosocial risk factors; job strain; shift work; sleep.

Dissemination plans Findings will be submitted for publication in a peer-reviewed journal. Open-access publication and preprint posting will be considered to maximise accessibility and impact.

Contributions of each author
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