

THE IMPACT OF ORGANIZATIONAL ERGONOMIC
RISK FACTORS ON MUSCULOSKELETAL
DISORDERS AND DRIVING FATIGUE TOWARDS
NEAR MISS ACCIDENT AMONGST MALAYSIAN
EXPRESS BUS DRIVERS

YUSOF BIN HASHIM

DOCTOR OF PHILOSOPHY

UNIVERSITI MALAYSIA PAHANG



SUPERVISOR'S DECLARATION

I hereby declare that I have checked this thesis and in my opinion, this thesis is adequate in terms of scope and quality for the award of the degree of Doctor of Philosophy.

A handwritten signature in black ink, appearing to read 'Dr. Mohd. Hasnun Arif Bin Hassan', is written above a horizontal line.

(Supervisor's Signature)

Full Name : DR. MOHD. HASNUN ARIF BIN HASSAN

Position : SENIOR LECTURER

Date : 22/07/2020



STUDENT'S DECLARATION

I hereby declare that the work in this thesis is based on my original work except for quotations and citation which have been duly acknowledged. I also declare that it has not been previously or concurrently or submitted for any other degree at Universiti Malaysia or any other institutions.

A handwritten signature in black ink, appearing to read 'Yusof Hashim', is written above a horizontal line.

(Student's Signature)

Full Name : YUSOF BIN HASHIM

ID Number : PPT11004

Date : 22/07/2020

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ABSTRAK

Kesilapan manusia telah dikenalpasti sebagai faktor penyumbang utama bagi kelaziman kemalangan bas ekspres di Malaysia. Walau bagaimanapun, kajian ke atas faktor asas yang menyumbang kepada kesilapan membuat keputusan oleh pemandu tidak ditangani secara meluas. Kajian semasa di Malaysia atau luar negara menunjukkan bahawa faktor risiko ergonomik organisasi mempunyai pengaruh yang signifikan terhadap gejala muskuloskeletal (MSDs) dan keletihan memandu yang akhirnya membawa kepada berlakunya nyaris kemalangan atau kemalangan. Walau bagaimanapun, kebanyakan kajian adalah berdasarkan stres ergonomik individu manakala stres ergonomik wujud dalam kumpulan atau kelompok dalam sesebuah sistem pengangkutan. Perbezaan dalam situasi ini mewujudkan jurang pengetahuan yang memerlukan penyelidikan lanjut. Oleh itu, kajian ini direka untuk merapatkan jurang pengetahuan. Sebuah soal selidik dilaporkan sendiri (self-reported) telah dibangunkan berdasarkan beberapa contoh soal selidik daripada penyelidik sebelum ini dengan mengambil beberapa pengubahsuaian kepada item pembolehubah pendam. Soal selidik ini telah diedarkan kepada “purposive” responden di empat buah terminal bas ekspres utama di Semenanjung Malaysia; Kuantan, Kuala Terengganu, Kota Bharu dan Pudu Raya di Kuala Lumpur. Pakej statistik SPSS versi 20 + dan kaedah PLS-SEM digunakan untuk menganalisis data. Penemuan penyelidikan menunjukkan bahawa faktor keadaan kerja (WCF) dan faktor tempat kerja ergonomik (EWP) membentuk penentu yang dominan keatas gejala muskuloskeletal (MSDs), keletihan memandu (DF) dan insiden nyaris kemalangan (NMA). Walau bagaimanapun, faktor iklim keselamatan organisasi (OSCF) adalah penentu kurang dominan. Kepada industri pengangkutan, penemuan kajian ini menyumbang kepada peningkatan dalam kefahaman faktor risiko ergonomik organisasi sebagai bahaya (hazards) pekerjaan di tempat kerja. Pengenalpastian bahaya dan pengurusan kawalan risiko bahaya adalah sangat penting dalam menentukan keselamatan di tempat kerja.

ABSTRACT

Human error has been identified as the main contributing factors for the prevalence of Malaysian express bus accidents. However, studies on the underlying factors that contribute to error making decision by the express bus drivers are not widely addressed. Current studies either in Malaysia or overseas indicate that an organizational ergonomic risk factor has a significant influence on musculoskeletal disorder (MSDs) symptoms and driving fatigue which ultimately leads to the occurrence of near miss accidents. However, most of the studies are based on individual ergonomic stressors whereas the ergonomic stressors exists in groups or clusters in the transport system. The difference in this situation creates knowledge gaps that requires further research. Therefore, this study is designed to bridge the knowledge gap. The "Self-Reported" questionnaire was developed with some adaptation from previous research questionnaires. Data are collected from the purposive respondent (n = 278). The respondents are from four major express bus terminals in West Malaysia; Kuantan, Kuala Terengganu, Kota Bahru and Pudu Raya in Kuala Lumpur. The statistical package SPSS version 20+ and PLS-SEM methods are used to analyze the data. The research findings show that the working condition factors (WCF) and ergonomic workplace factors (EWP) formed the dominant determinants on musculoskeletal disorders (MSDs) symptoms, driving fatigue (DF) and near miss accident (NMA). However the organizational safety climate factor (OSCF) was least dominant. In transport industries the research findings contribute to an increase in understanding of organizational ergonomic risk factors as occupational hazards at workplaces. Hazards identification and hazards risk control management are very essential in determining safety at workplace.

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LIST OF SYMBOLS

α	Cronbach-alpha
N	Numbers of items assigned to the factor
σ_i^2	Variance of indicator i
σ_t^2	Variance of the sum of all assigned indicators' scores
ϵ_r	Random error
ϵ_s	Systematic error
x_t	True value
x_m	Measurement value
λ_i^2	Squared loading of indicator i of a constructs
$\text{Var}(\epsilon_i)$	Squared measurement error of indicators i
ρ_i	Path coefficient between construct Y_1 and Y_3
$se_{\rho_{13}}$	Bootstrap standard error

LIST OF ABBREVIATIONS

ASEAN	South East Asian Countries
BMI	Body mass index
CCOHS	Canadian Centre for Occupational Health and Safety
CISQ	Checklist Individual Strength
DFE	Driving fatigue factors
DUI	Driving Under Influence
LBP	Low back pain
LVs	Latent variables
MIROS	Malaysian Institute Of Road Safety Research
MSDs	Musculoskeletal disorder
NMA	Near miss accident
OCCF	Occupational factor
OSCF	Organisational safety climate factors
OSF	Occupational stress factor
PDRM	Royal Malaysian Police
PLS-SEM	Partial Least Square-Structural Equation Modelling
PSYF	Psychosocial factors
ROT	Rule of Thumb
RTD	Road Transport Department
SDF	Socio-demographic factors
SHE	Safety Health Environment
SPAD	Public Transport Commission (Malaysia)
VIF	Variance indicator factor
WBV	Whole Body Vibration
WHO	World Health Organization
WRMSD	Work-related musculoskeletal disorder

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REFERENCES

- Ab Hamid, M. R., Sami, W., & Sidek, M. H. M. (2017). Discriminant validity assessment: Use of Fornell & Larcker criterion versus HTMT criterion. In *Journal of Physics: Conference Series* (Vol. 890, p. 12163). IOP Publishing.
- Adamo, D. E., Martin, B. J., & Johnson, P. W. (2002). Vibration-induced muscle fatigue, a possible contribution to musculoskeletal injury. *European Journal of Applied Physiology*, 88(1–2), 134–140.
- Aguirre-Urreta, M. I., Marakas, G. M., & Ellis, M. E. (2013). Measurement of composite reliability in research using partial least squares: some issues and an alternative approach. *ACM SIGMIS Database: The DATABASE for Advances in Information Systems*, 44(4), 11–43.
- Ahmad Noor Syukri, Z. A., Siti Atiqah, M. F., Fauziana, L., & Abdul Rahmat, A. M. (2012). MIROS crash investigation and reconstruction: annual statistical report 2007-2010.
- Åkerstedt, T., & Kecklund, G. (2001). Age, gender and early morning highway accidents. *Journal of sleep research*, 10(2), 105-110.
- Akinpelu, A. O., Oyewole, O. O., Odole, A. C., & Olukoya, R. O. (2011). Prevalence of musculoskeletal pain and health seeking behaviour among occupational drivers in Ibadan, Nigeria. *African Journal of Biomedical Research*, 14(2), 89–94.
- Albers, J., Estill, C., & MacDonald, L. (2005). Identification of ergonomics interventions used to reduce musculoskeletal loading for building installation tasks. *Applied Ergonomics*, 36(4 SPEC. ISS.), 427–439.
<https://doi.org/10.1016/j.apergo.2004.07.005>
- Albert, W. J., Everson, D., Rae, M., Callaghan, J. P., Croll, J., & Kuruganti, U. (2014). Biomechanical and ergonomic assessment of urban transit operators. *Work*, 47(1), 33–44.
- Albertsson, P., & Falkmer, T. (2005). Is there a pattern in European bus and coach incidents? A literature analysis with special focus on injury causation and injury mechanisms. *Accident Analysis & Prevention*, 37(2), 225–233.
- Alperovitch-Najenson, D., Katz-Leurer, M., Santo, Y., Golman, D., & Kalichman, L. (2010). Upper body quadrant pain in bus drivers. *Archives of Environmental & Occupational Health*, 65(4), 218–223.
- Anderson, R. (1992). The back pain of bus drivers. Prevalence in an urban area of California. *Spine*, 17(12), 1481–1488.
- Autor, D. H., Levy, F., & Murnane, R. J. (2003). The skill content of recent technological change: An empirical exploration. *The Quarterly Journal of Economics*, 118(4), 1279–1333.

- Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, 16(1), 74–94.
- Balkin, T. J., Horrey, W. J., Graeber, R. C., Czeisler, C. A., & Dinges, D. F. (2011). The challenges and opportunities of technological approaches to fatigue management. *Accident Analysis & Prevention*, 43(2), 565–572.
- Balogh, I., Ørbæk, P., Ohlsson, K., Nordander, C., Unge, J., Winkel, J., ... Group, M. S. S. (2004). Self-assessed and directly measured occupational physical activities— influence of musculoskeletal complaints, age and gender. *Applied Ergonomics*, 35(1), 49–56.
- Bank, H. S. D. (1998). Canadian Centre for Occupational Health and Safety.
- Bernal, D., Campos-Serna, J., Tobias, A., Vargas-Prada, S., Benavides, F. G., & Serra, C. (2015). Work-related psychosocial risk factors and musculoskeletal disorders in hospital nurses and nursing aides: a systematic review and meta-analysis. *International Journal of Nursing Studies*, 52(2), 635–648.
- Bernold, L. E., & AbouRizk, S. M. (2010). Productivity in a Healthy and Safe Work Environment. *Managing Performance in Construction*, 223–262.
- Bollen, K. A., & Long, J. S. (1992). Tests for structural equation models: introduction. *Sociological Methods & Research*, 21(2), 123–131.
- Bongers, P. M., de Winter, C. R., Kompier, M. A. J., & Hildebrandt, V. H. (1993). Psychosocial factors at work and musculoskeletal disease. *Scandinavian Journal of Work, Environment & Health*, 297–312.
- Bovenzi, M. (2009). Metrics of whole-body vibration and exposure–response relationship for low back pain in professional drivers: a prospective cohort study. *International Archives of Occupational and Environmental Health*, 82(7), 893–917.
- Burdorf, A., & Van Der Beek, A. (1999). Exposure assessment strategies for work-related risk factors for musculoskeletal disorders. *Scandinavian Journal of Work, Environment & Health*, 25–30.
- Burdorf, A., Rossignol, M., Fathallah, F. A., Snook, S. H., & Herrick, R. F. (1997). Challenges in assessing risk factors in epidemiologic studies on back disorders. *American Journal of Industrial Medicine*, 32(2), 142–152.
- Byrne, B. M. (2013). *Structural equation modeling with Mplus: Basic concepts, applications, and programming*. Routledge.
- Callaghan, W., Wilson, B., Ringle, C. M., & Henseler, J. (2007). Exploring causal path directionality for a marketing model using Cohen’s path method.
- Campbell, I. (2002). Extended working hours in Australia. *Labour & Industry: A Journal of the Social and Economic Relations of Work*, 13(1), 91–110.

- Cartwright, S., Cooper, C. L., & Barron, A. (1996). The company car driver, occupational stress as a predictor of motor vehicle accident involvement. *Human Relations*, 49(2), 195–208.
- Chen, G. X., Fang, Y., Guo, F., & Hanowski, R. J. (2016). The influence of daily sleep patterns of commercial truck drivers on driving performance. *Accident Analysis & Prevention*, 91, 55–63.
- Chidambaram, R. (2017). Examination of obstructive sleep apnea at regular intervals: an essential requirement for drivers in Malaysia. *The Malaysian Journal of Medical Sciences: MJMS*, 24(1), 121.
- Chin, W. W. (2010). How to write up and report PLS analyses. In *Handbook of partial least squares* (pp. 655–690). Springer.
- Chin, W. W., Marcolin, B. L., & Newsted, P. R. (2003). A partial least squares latent variable modeling approach for measuring interaction effects: Results from a Monte Carlo simulation study and an electronic-mail emotion/adoption study. *Information Systems Research*, 14(2), 189–217.
- Chua, J. H., Chrisman, J. J., & Bergiel, E. B. (2009). An agency theoretic analysis of the professionalized family firm. *Entrepreneurship Theory and Practice*, 33(2), 355–372.
- Chuan, C. L., (2006). Sample size estimation using Krejcie and Morgan and Cohen statistical power analysis: A comparison. *Jurnal Penyelidikan IPBL*, 7, 78–86.
- Chung, Y.-S., & Wong, J.-T. (2011). Developing effective professional bus driver health programs: An investigation of self-rated health. *Accident Analysis & Prevention*, 43(6), 2093–2103.
- Clarke, S., & Ward, K. (2006). The role of leader influence tactics and safety climate in engaging employees' safety participation. *Risk Analysis*, 26(5), 1175–1185.
- Cohen, A. L. (1997). Elements of ergonomics programs: a primer based on workplace evaluations of musculoskeletal disorders. (Vol. 97). DIANE Publishing.
- Cohen, J. (1992). Statistical power analysis. *Current Directions in Psychosocial Science*, 1(3), 98–101.
- Connor, J., Norton, R., Ameratunga, S., Robinson, E., Civil, I., Dunn, R., Jackson, R. (2002). Driver sleepiness and risk of serious injury to car occupants: population based case control study. *Bmj*, 324(7346), 1125.
- Cooper Ph. D, M. D. (2000). Towards a model of safety culture. *Safety Science*, 36(2), 111–136.
- Craig, A., Tran, Y., Wijesuriya, N., & Boord, P. (2006). A controlled investigation into the psychosocial determinants of fatigue. *Biological Psychology*, 72(1), 78–87.

- Crizzle, A. M., Bigelow, P., Adams, D., Gooderham, S., Myers, A. M., & Thiffault, P. (2017). Health and wellness of long-haul truck and bus drivers: a systematic literature review and directions for future research. *Journal of Transport & Health*.
- David, G. C. (2005). Ergonomic methods for assessing exposure to risk factors for work-related musculoskeletal disorders. *Occupational Medicine*, 55(3), 190–199.
- David, G., Woods, V., Li, G., & Buckle, P. (2008). The development of the Quick Exposure Check (QEC) for assessing exposure to risk factors for work-related musculoskeletal disorders. *Applied Ergonomics*, 39(1), 57–69.
- Deeney, C., & O’Sullivan, L. (2009). Work related psychosocial risks and musculoskeletal disorders: potential risk factors, causation and evaluation methods. *Work*, 34(2), 239–248.
- Di Milia, L., Smolensky, M. H., Costa, G., Howarth, H. D., Ohayon, M. M., & Philip, P. (2011). Demographic factors, fatigue, and driving accidents: An examination of the published literature. *Accident Analysis & Prevention*, 43(2), 516–532.
- Dobbie, K. (2002). *Fatigue-related crashes: An analysis of fatigue-related crashes on Australian roads using an operational definition of fatigue*.
- Drost, E. A. (2011). Validity and reliability in social science research. *Education Research and Perspectives*, 38(1), 105.
- Duke, J., Guest, M., & Boggess, M. (2010). Age-related safety in professional heavy vehicle drivers: A literature review. *Accident Analysis & Prevention*, 42(2), 364–371.
- Ellis, J. G., Deary, V., & Troxel, W. M. (2015). The role of perceived partner alliance on the efficacy of CBT-I: preliminary findings from the Partner Alliance in Insomnia Research Study (PAIRS). *Behavioral Sleep Medicine*, 13(1), 64–72.
- F. Hair Jr, J., Sarstedt, M., Hopkins, L., & G. Kuppelwieser, V. (2014). Partial least squares structural equation modeling (PLS-SEM) An emerging tool in business research. *European Business Review*, 26(2), 106–121.
- Fornell, C., & Bookstein, F. L. (1982). Two structural equation models: LISREL and PLS applied to consumer exit-voice theory. *Journal of Marketing Research*, 440–452.
- Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of Marketing Research*, 382–388.
- Gastaldi, M., Rossi, R., & Gecchele, G. (2014). Effects of driver task-related fatigue on driving performance. *Procedia-Social and Behavioral Sciences*, 111, 955–964.
- Gefen, D., Straub, D., & Boudreau, M.-C. (2000). Structural equation modeling and regression: Guidelines for research practice. *Communications of the Association for Information Systems*, 4(1), 7.

- Gnoni, M. G., Andriulo, S., Maggio, G., & Nardone, P. (2013). "Lean occupational" safety: an application for a near-miss management system design. *Safety Science*, 53, 96–104.
- Goodhue, D., Lewis, W., & Thompson, R. (2006). PLS, small sample size, and statistical power in MIS research. In *System Sciences, 2006. HICSS'06. Proceedings of the 39th Annual Hawaii International Conference on* (Vol. 8, p. 202b–202b). IEEE.
- Gorodzeisky, A. (2011). Focus groups as a tool in the construction of questionnaires: the case of discriminatory attitudes. *Quality & Quantity*, 45(6), 1217–1231.
- Griffin, M. A., & Neal, A. (2000). Perceptions of safety at work: a framework for linking safety climate to safety performance, knowledge, and motivation. *Journal of Occupational Health Psychology*, 5(3), 347.
- Groenesteijn, L., Vink, P., de Looze, M., & Krause, F. (2009). Effects of differences in office chair controls, seat and backrest angle design in relation to tasks. *Applied Ergonomics*, 40(3), 362–370.
- Gudergan, S. P., Ringle, C. M., Wende, S., & Will, A. (2008). Confirmatory tetrad analysis in PLS path modeling. *Journal of Business Research*, 61(12), 1238–1249.
- Guldenmund, F. W. (2000). The nature of safety culture: a review of theory and research. *Safety Science*, 34(1–3), 215–257.
- Hackman, J. R., & Oldham, G. R. (1976). Motivation through the design of work: Test of a theory. *Organisational Behavior and Human Performance*, 16(2), 250–279.
- Haenlein, M., & Kaplan, A. M. (2004). A beginner's guide to partial least squares analysis. *Understanding Statistics*, 3(4), 283–297.
- Hair Jr, J. F., Wolfinbarger, M., Money, A. H., Samouel, P., & Page, M. J. (2015). *Essentials of business research methods*. Routledge.
- Hair, J. F. (2010). Black, WC, Babin, BJ, & Anderson, RE (2010). *Multivariate Data Analysis*, 7.
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, 19(2), 139–152.
- Hair, J. F., Sarstedt, M., Ringle, C. M., & Mena, J. A. (2012). An assessment of the use of partial least squares structural equation modeling in marketing research. *Journal of the Academy of Marketing Science*, 40(3), 414–433.
- Henseler, J., & Chin, W. W. (2010). A comparison of approaches for the analysis of interaction effects between latent variables using partial least squares path modeling. *Structural Equation Modeling*, 17(1), 82–109.
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2012). Using partial least squares path modeling in advertising research: basic concepts and recent issues. *Handbook of Research on International Advertising*, 252.

- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115–135.
- Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of partial least squares path modeling in international marketing. In *New challenges to international marketing* (pp. 277–319). Emerald Group Publishing Limited.
- Hizal Hanis, H., & Sharifah Allyana, S. M. R. (2009). The construction of road accident analysis and database system in Malaysia. In *14th IRTAD Conference* (pp. 16–17).
- Horne, J. A., & Reyner, L. A. (1995). Driver sleepiness. *Journal of Sleep Research*, 4(s2), 23–29.
- Hosseinpour, M., Yahaya, A. S., & Sadullah, A. F. (2014). Exploring the effects of roadway characteristics on the frequency and severity of head-on crashes: Case studies from Malaysian Federal Roads. *Accident Analysis & Prevention*, 62, 209–222
- Huang, G. D., Feuerstein, M., & Sauter, S. L. (2002). Occupational stress and work-related upper extremity disorders: Concepts and models. *American Journal of Industrial Medicine*, 41(5), 298–314.
- Hurrell, J. J. (2001). Psychosocial factors and musculoskeletal disorders. In *Exploring Theoretical Mechanisms and Perspectives* (pp. 233–256). Emerald Group Publishing Limited.
- Hystad, S. W., Saus, E.-R., Sætrevik, B., & Eid, J. (2013). Fatigue in seafarers working in the offshore oil and gas re-supply industry: effects of safety climate, psychosocial work environment and shift arrangement. *International Maritime Health*, 64(2), 72–79.
- Jaffar, N., Abdul-Tharim, A. H., Mohd-Kamar, I. F., & Lop, N. S. (2011). A literature review of ergonomics risk factors in construction industry. *Procedia Engineering*, 20, 89–97.
- Jex, S. M. (1998). Stress and job performance. Thousand Oaks, CA: Sage.
- Kanji, G. K. (1998). Measurement of business excellence. *Total Quality Management*, 9(7), 633–643.
- Karhu, O., Härkönen, R., Sorvali, P., & Vepsäläinen, P. (1981). Observing working postures in industry: Examples of OWAS application. *Applied Ergonomics*, 12(1), 13–17.
- Karrer, K., Vöhringer-Kuhnt, T., Baumgarten, T., & Briest, S. (2004). The role of individual differences in driver fatigue prediction. In *Third International Conference on Traffic and Transport Psychology, Nottingham, UK*.
- Keyserling, W. M., Brouwer, M., & Silverstein, B. A. (1992). A checklist for evaluating ergonomic risk factors resulting from awkward postures of the legs, trunk and neck. *International Journal of Industrial Ergonomics*, 9(4), 283–301.

- Keyserling, W. M., Stetson, D. S., Silverstein, B. A., & Brouwer, M. L. (1993). A checklist for evaluating ergonomic risk factors associated with upper extremity cumulative trauma disorders. *Ergonomics*, *36*(7), 807–831.
- Klauer, S. G., Dingus, T. A., Neale, V. L., Sudweeks, J. D., & Ramsey, D. J. (2006). The impact of driver inattention on near-crash/crash risk: An analysis using the 100-car naturalistic driving study data.
- Krause, N., Rugulies, R., Ragland, D. R., & Syme, S. L. (2004). Physical workload, ergonomic problems, and incidence of low back injury: A 7.5-year prospective study of San Francisco transit operators. *American Journal of Industrial Medicine*, *46*(6), 570–585.
- Kumar, S. (2001). Theories of musculoskeletal injury causation. *Ergonomics*, *44*(1), 17–47.
- Kuorinka, I., Jonsson, B., Kilbom, A., Vinterberg, H., Biering-Sorensen, F., Andersson, G., & Jorgensen, K. (1998). Standardized Nordic questionnaires for the analysis of musculoskeletal symptoms. *Apud: Jordan A, Manniche C, Mosdal C, Hindsberger C. The Copenhagen Neck Functional Disability Scale: A Study of Reliability and Validity. J Manipulative Physiol Ther*, *21*(8), 520–527.
- Lal, S. K. L., & Craig, A. (2001). A critical review of the psychophysiology of driver fatigue. *Biological Psychology*, *55*(3), 173–194.
- Langwieder, K. (1999). 69 Characteristics of Car Accidents in the Pre-Crash Phase.
- Lee, J.-H., & Gak, H. B. (2014). Effects of self stretching on pain and musculoskeletal symptom of bus drivers. *Journal of Physical Therapy Science*, *26*(12), 1911–1914.
- Legree, P. J., Heffner, T. S., Psotka, J., Martin, D. E., & Medsker, G. J. (2003). Traffic crash involvement: Experiential driving knowledge and stressful contextual antecedents. *Journal of Applied Psychology*, *88*(1), 15.
- Lemke, M. K., Hege, A., Perko, M., Sönmez, S., & Apostolopoulos, Y. (2015). Work patterns, sleeping hours and excess weight in commercial drivers. *Occupational Medicine*, *65*(9), 725–731.
- Li, G., & Buckle, P. (1998). A practical method for the assessment of work-related musculoskeletal risks-Quick Exposure Check (QEC). In *Proceedings of the human factors and ergonomics society annual meeting* (Vol. 42, pp. 1351–1355). SAGE Publications Sage CA: Los Angeles, CA.
- Li, G., & Buckle, P. (1999). Current techniques for assessing physical exposure to work-related musculoskeletal risks, with emphasis on posture-based methods. *Ergonomics*, *42*(5), 674–695.
- Lis, A. M., Black, K. M., Korn, H., & Nordin, M. (2007). Association between sitting and occupational LBP. *European Spine Journal*, *16*(2), 283–298.

- Liu, C. C., Hosking, S. G., & Lenné, M. G. (2009). Predicting driver drowsiness using vehicle measures: Recent insights and future challenges. *Journal of Safety Research*, 40(4), 239–245.
- Lohmöller, J.-B. (2013). *Latent variable path modeling with partial least squares*. Springer Science & Business Media.
- Lomax, R. G., & Schumacker, R. E. (2004). *A beginner's guide to structural equation modeling*. Psychology Press.
- Lyznicki, J. M., Doege, T. C., Davis, R. M., & Williams, M. A. (1998). Sleepiness, driving, and motor vehicle crashes. *Jama*, 279(23), 1908–1913.
- Macdonald, W., & Oakman, J. (2015). Requirements for more effective prevention of work-related musculoskeletal disorders. *BMC Musculoskeletal Disorders*, 16(1), 293.
- Magnusson, M. L., Pope, M. H., Wilder, D. G., & Areskoug, B. (1996). Are occupational drivers at an increased risk for developing musculoskeletal disorders? *Spine*, 21(6), 710–717.
- Mahdi, N. N. R. N., Mohamed, N., & Shafei, M. N. (2014). Risk factors for near miss incident among long distance bus drivers in Malaysia. *Iranian Journal of Public Health*, 43(3), 117.
- Massaccesi, M., Pagnotta, A., Soccetti, A., Masali, M., Masiero, C., & Greco, F. (2003). Investigation of work-related disorders in truck drivers using RULA method. *Applied Ergonomics*, 34(4), 303–307.
- Mateos-Aparicio, G. (2011). Partial least squares (PLS) methods: Origins, evolution, and application to social sciences. *Communications in Statistics-Theory and Methods*, 40(13), 2305–2317.
- McAtamney, L., & Corlett, E. N. (1993). RULA: a survey method for the investigation of work-related upper limb disorders. *Applied Ergonomics*, 24(2), 91–99.
- McAtamney, L., & Hignett, S. (2000). REBA: Rapid Entire Body Assessment. *Applied Ergonomics*, 31, 201–205.
- McKernon, S. (2008). *Driver fatigue literature review* (No. 342).
- Md Rohani, M., & Buhari, R. (2013). Bus Driver: Factors that influences behaviour. Smart Driving Research Centre, Faculty of Civil and Environmental Engineering, Universiti, Tun Hussein Onn Malaysia
- Mitler, M. M., Miller, J. C., Lipsitz, J. J., Walsh, J. K., & Wylie, C. D. (1998). The sleep of long-haul truck drivers. In *Managing Fatigue in Transportation. Proceedings of the 3rd Fatigue in Transportation Conference*.

- Mohamed, N., Mohd-Yusoff, M.-F., Othman, I., Zulkipli, Z.-H., Osman, M. R., & Voon, W. S. (2012). Fatigue-related crashes involving express buses in Malaysia: Will the proposed policy of banning the early-hour operation reduce fatigue-related crashes and benefit overall road safety? *Accident Analysis & Prevention*, *45*, 45–49.
- Mohamed, N., Yusoff, M. F. M., Othman, I., Zulkipli, Z. H., & Osman, M. R. (2009). *An Impact Assessment of Banning Wee-Hour Express Bus Operation*.
- Mooi, E., Sarstedt, M., & Mooi-Reci, I. (2018). Descriptive Statistics. In *Market Research* (pp. 95–152). Springer.
- Morrow, P. C., & Crum, M. R. (2004). Antecedents of fatigue, close calls, and crashes among commercial motor-vehicle drivers. *Journal of Safety Research*, *35*(1), 59–69.
- Neal, A., Griffin, M. A., & Hart, P. M. (2000). The impact of organisational climate on safety climate and individual behavior. *Safety Science*, *34*(1–3), 99–109.
- Noah, S. M. (2002). Research design: Philosophy, theory and practice. *Serdang: FPP Publication*.
- Norlen, M., Fadhli, Y., Ilhamah, O., Rohayu, S., & Wong, S. V. (2008). Fatigue among commercial bus drivers in Malaysia: role of driving hours and single versus two-driver approach, MRR 07/2008. Kuala Lumpur: Malaysian Institute of Road Safety Research.
- Nunnally, J. C., & Bernstein, I. H. (1994). Psychosocial theory. *New York, NY: MacGraw-Hill*.
- Osumanu, M. S. (2015). Prevalence of Musculoskeletal Disorders among Commercial Long Distance Bus Drivers in the Greater Accra Region, Ghana. University of Ghana.
- Otmani, S., Pebayle, T., Roge, J., & Muzet, A. (2005). Effect of driving duration and partial sleep deprivation on subsequent alertness and performance of car drivers. *Physiology & Behavior*, *84*(5), 715–724.
- Oviedo-Trespalacios, O., & Haworth, N. (2015). Developing a new index for comparing road safety maturity: Case study of the ASEAN community. *Journal of the Australasian College of Road Safety*, *26*(4), 45.
- Papadelis, C., Chen, Z., Kourtidou-Papadeli, C., Bamidis, P. D., Chouvarda, I., Bekiaris, E., & Maglaveras, N. (2007). Monitoring sleepiness with on-board electrophysiological recordings for preventing sleep-deprived traffic accidents. *Clinical Neurophysiology*, *118*(9), 1906–1922.
- Parent-Thirion, A. (2007). *Fourth European working conditions survey*. Office for official Publ. of the European Communities.
- Partinen, M., & Gislason, T. (1995). Basic Nordic Sleep Questionnaire (BNSQ): A quantitated measure of subjective sleep complaints. *Journal of Sleep Research*, *4*(s1), 150–155.

- Payne, S. C., Bergman, M. E., Rodríguez, J. M., Beus, J. M., & Henning, J. B. (2010). Leading and lagging: Process safety climate–incident relationships at one year. *Journal of Loss Prevention in the Process Industries*, 23(6), 806–812.
- Peden, M., Scurfield, R., Sleet, D., Mohan, D., Hyder, A. A., Jarawan, E., & Mathers, C. D. (2004). World report on road traffic injury prevention. World Health Organization Geneva.
- Pérez-Chada, D., Videla, A. J., O’flaherty, M. E., Palermo, P., Meoni, J., Sarchi, M. I., Durán-Cantolla, J. (2005). Sleep habits and accident risk among truck drivers: a cross-sectional study in Argentina. *Sleep*, 28(9), 1103–1108.
- Petridou, E., & Moustaki, M. (2000). Human factors in the causation of road traffic crashes. *European Journal of Epidemiology*, 16(9), 819–826.
- Philip, P., Sagaspe, P., Taillard, J., Valtat, C., Moore, N., Åkerstedt, T., Bioulac, B. (2005). Fatigue, sleepiness, and performance in simulated versus real driving conditions. *Sleep*, 28(12), 1511–1516.
- Powell, N. B., Schechtman, K. B., Riley, R. W., Guilleminault, C., Chiang, R. P.-Y., & Weaver, E. M. (2007). Sleepy driver near-misses may predict accident risks. *Sleep*, 30(3), 331–342.
- Punnett, L., & Wegman, D. H. (2004). Work-related musculoskeletal disorders: the epidemiologic evidence and the debate. *Journal of Electromyography and Kinesiology*, 14(1), 13–23.
- Punnett, L., Cherniack, M., Henning, R., Morse, T., Faghri, P., & Team, C.-N. R. (2009). A conceptual framework for integrating workplace health promotion and occupational ergonomics programs. *Public Health Reports*, 124(4_suppl1), 16–25.
- Putz-Anderson, V., Bernard, B. P., Burt, S. E., Cole, L. L., Fairfield-Estill, C., Fine, L. J., ... Hurrell Jr, J. J. (1997). Musculoskeletal disorders and workplace factors. *National Institute for Occupational Safety and Health (NIOSH)*, 104.
- Rahim, H. A., Yusop, Z., & Rahim, R. A. (2010). Drowsy driver detection via steering wheel. *Sensors & Transducers*, 120(9), 119.
- Razali, S. N. (2012). A Study of Establishing WBV’s Profile for Bus Drivers Along Road from East to West Coast of Malaysia. UMP.
- Ringle, C. M., Wende, S., & Will, S. (2005). SmartPLS 2.0 (M3) Beta, Hamburg 2005.
- Ringle, C., Götz, O., Wetzels, M., & Wilson, B. (2009). On the use of formative measurement specifications in structural equation modeling: A Monte Carlo simulation study to compare covariance-based and partial least squares model estimation methodologies.
- Rosso, G. L., Perotto, M., Feola, M., Bruno, G., & Caramella, M. (2015). Investigating obesity among professional drivers: the high risk professional driver study. *American Journal of Industrial Medicine*, 58(2), 212–219.

- Rouibah, K., Ramayah, T., & May, O. S. (2011). Modeling user acceptance of internet banking in Malaysia: A partial least square (PLS) approach. In *E-adoption and socio-economic impacts: Emerging infrastructural effects* (pp. 1–23). IGI Global.
- Sagaspe, P., Taillard, J., Bayon, V., Lagarde, E., Moore, N., Boussuge, J., Philip, P. (2010). Sleepiness, near-misses and driving accidents among a representative population of French drivers. *Journal of Sleep Research*, *19*(4), 578–584.
- Sarstedt, M., Henseler, J., & Ringle, C. M. (2011). Multigroup analysis in partial least squares (PLS) path modeling: Alternative methods and empirical results. In *Measurement and research methods in international marketing* (pp. 195–218). Emerald Group Publishing Limited.
- Sarstedt, M., Ringle, C. M., & Hair, J. F. (2017). Partial least squares structural equation modeling. In *Handbook of market research* (pp. 1–40). Springer.
- Schütte, S., Chastang, J.-F., Parent-Thirion, A., Vermeulen, G., & Niedhammer, I. (2013). Association between socio-demographic, psychosocial, material and occupational factors and self-reported health among workers in Europe. *Journal of Public Health*, *36*(2), 194–204.
- Seen, K. S., Tamrin, S. B. M., & Meng, G. Y. (2010). Driving fatigue and performance among occupational drivers in simulated prolonged driving. *Global Journal of Health Science*, *2*(1), 167.
- Sekaran, U., & Bougie, R. (2006). Research method for business. *Salemba Empat, Jakarta*.
- Silverstein, B., & Evanoff, B. (2011). Musculoskeletal disorders. *Occupational and Environmental Health: Recognizing and Preventing Disease and Injury*, 335–365.
- Solah, M. S., Ariffin, A. H., Isa, M. H. M., & Wong, S. V. (2013). In-depth crash investigation on bus accidents in Malaysia. *Journal of Society for Transportation and Traffic Studies*, *3*(1), 22–31.
- Soleimanloo, S. S., White, M. J., Garcia-Hansen, V., & Smith, S. S. (2017). The effects of sleep loss on young drivers' performance: A systematic review. *PloS One*, *12*(8), e0184002.
- Spielholz, P., Silverstein, B., Morgan, M., Checkoway, H., & Kaufman, J. (2001). Comparison of self-report, video observation and direct measurement methods for upper extremity musculoskeletal disorder physical risk factors. *Ergonomics*, *44*(6), 588–613.
- Strahan, C., Watson, B., & Lennonb, A. (2008). Can organisational safety climate and occupational stress predict work-related driver fatigue? *Transportation Research Part F: Traffic Psychology and Behaviour*, *11*(6), 418–426.
- Streiner, D. L. (2003). Starting at the beginning: an introduction to coefficient alpha and internal consistency. *Journal of Personality Assessment*, *80*(1), 99–103.

- Stutts, J. C., Wilkins, J. W., Osberg, J. S., & Vaughn, B. V. (2003). Driver risk factors for sleep-related crashes. *Accident Analysis & Prevention*, *35*(3), 321–331.
- Syukri, Z. A. A. N., Zulhaidi, M. J., Kak, D. W., Amirudin, M. R. M., & Anwar, A. K. Establishment of an Independent Safety Board in Malaysia: A Case Study of the Genting Highlands Bus Crash.
- Szeto, G. P. Y., & Lam, P. (2007). Work-related musculoskeletal disorders in urban bus drivers of Hong Kong. *Journal of Occupational Rehabilitation*, *17*(2), 181–198.
- Tamrin, S. B. M., Yokoyama, K., Jalaludin, J., Aziz, N. A., Jemoin, N., Nordin, R., Abdullah, M. (2007). The association between risk factors and low back pain among commercial vehicle drivers in peninsular Malaysia: a preliminary result. *Industrial Health*, *45*(2), 268–278.
- Tiemessen, I. J. H., Hulshof, C. T. J., & Frings-Dresen, M. H. W. (2008). Low back pain in drivers exposed to whole body vibration: analysis of a dose–response pattern. *Occupational and Environmental Medicine*, *65*(10), 667–675.
- Urbach, N., & Ahlemann, F. (2010). Structural equation modeling in information systems research using partial least squares. *JITTA: Journal of Information Technology Theory and Application*, *11*(2), 5.
- Useche, S. A., Ortiz, V. G., & Cendales, B. E. (2017). Stress-related psychosocial factors at work, fatigue, and risky driving behavior in bus rapid transport (BRT) drivers. *Accident Analysis & Prevention*, *104*, 106–114.
- Van Vledder, N. (2015). An ergonomic intervention: the effect of a chair and computer screen height adjustment on musculoskeletal pain and sitting comfort in office workers. Stellenbosch: Stellenbosch University.
- Westerman, S. J., & Haigney, D. (2000). Individual differences in driver stress, error and violation. *Personality and Individual Differences*, *29*(5), 981–998.
- Wetzels, M., Odekerken-Schröder, G., & Van Oppen, C. (2009). Using PLS path modeling for assessing hierarchical construct models: Guidelines and empirical illustration. *MIS Quarterly*, 177–195.
- Widanarko, B., Legg, S., Devereux, J., & Stevenson, M. (2014a). The combined effect of physical, psychosocial/organisational and/or environmental risk factors on the presence of work-related musculoskeletal symptoms and its consequences. *Applied Ergonomics*, *45*(6), 1610–1621.
- Widanarko, B., Legg, S., Devereux, J., & Stevenson, M. (2014b). The combined effect of physical, psychosocial/organisational and/or environmental risk factors on the presence of work-related musculoskeletal symptoms and its consequences. *Applied Ergonomics*, *45*(6), 1610–1621. <https://doi.org/10.1016/j.apergo.2014.05.018>
- Wills, A. R., Watson, B., & Biggs, H. C. (2006). Comparing safety climate factors as predictors of work-related driving behavior. *Journal of Safety Research*, *37*(4), 375–383.

- Wold, H. (1980). Model construction and evaluation when theoretical knowledge is scarce: Theory and application of partial least squares. In *Evaluation of econometric models* (pp. 47–74). Elsevier.
- You, H., Bucciaglia, J., Lowe, B., Gilmore, B. J., & Freivalds, A. (1997). An ergonomic design process for a US transit bus operator workstation. *International Journal of Heavy Vehicle Systems*, 4(2–4), 91–107.
- Yukawa, S., Ladin, M. A., Ismail, A., & Rahmat, R. (2014). Public Transport System in Local City and Rural Area: Comparative Study Between Malaysia and Japan. *Jurnal Teknologi*, 69(6), 69–72.
- Zainon, M., Shah, M. Z., Chiroma, M. A., & Kafi, M. A. (2018). Monotonous Driving Environment along Highway and Driver Behaviour in Malaysia: A Review. *Journal of the Society of Automotive Engineers Malaysia*, 2(1), 60–74.
- Zhang, C., Berger, M., Malhotra, A., & Kales, S. N. (2012). Portable diagnostic devices for identifying obstructive sleep apnea among commercial motor vehicle drivers: considerations and unanswered questions. *Sleep*, 35(11), 1481–1489.
- Zohar, D. (1980). Safety climate in industrial organizations: theoretical and applied implications. *Journal of Applied Psychology*, 65(1), 9