

**PREDICTORS OF SAFETY COMPLIANCE AMONG
THE MANUFACTURING EMPLOYEES IN PENFABRIC
MILL 4**

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MANUFACTURING EMPLOYEES IN PENFABRIC MILL 4**

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ABSTRACT

More than 2.3 million people in this world die every year because of fatal occupational accidents or work-related diseases. In Malaysia, there are about 50 thousand accidents reported every year and more than 12,000 people suffer from permanent disability and 1,200 people are killed in these accidents every year. Managing risks in an integrated way with the organization's operations has become increasingly important in recent years in order to prevent accidents and the firm's productivity, economic and financial results. Although the employer is responsible for the safety of his workers, the participation of workers is indispensable. One type of behavior that can have an effect on safety performance is safety compliance and adherence to organizational rules, regulations and procedures. This study attempts to determine the predictors of safety compliance in a multinational textile manufacturing organization located in Penang, Malaysia. This survey used questionnaire concerning the predictors of safety compliance in Penfabric Mill 4. A random sample of 243 was selected from the total workforce of 517 from 9 sections of the production. Data analyzed from this study revealed that Management Commitment, Workers' Participation, Safety Training, Safety Communication and Feedback, Safety Rules and Procedures and Safety Promotional Policies are factors that have significant correlation with Safety Compliance. Management Commitment, Safety Rules and Procedures and Safety Promotional Policies have significant influence towards the Safety Compliance. Safety Training, Safety Communication and Feedback and Workers' Participation do not have significant influence on Safety Compliance in this organization even though they have a significant correlation.

Keywords: Management Commitment, Workers' Participation, Safety Training, Safety Communication and Feedback, Safety Rules and Procedures and Safety Promotional Policies and Safety Compliance.

ABSTRAK

Lebih dari 2.3 juta orang di dalam dunia interkorban setiap tahun akibat kemalangan industri serta penyakit yang disebabkan pekerjaan. Di Malaysia, didapati 50 ribu kemalangan industri yang dilaporkan setiap tahun dan daripada angka itu lebih daripada 12,000 orang terbabit dengan kehilangan upaya secara kekal manakala 1,200 orang pula kehilangan nyawa. Pengurusan risiko secara berintegrasi menjadi suatu keperluan yang penting pada masa kini demi mengelakkan kemalangan dan mengukuhkan produktiviti serta kedudukan kewangan sesuatu organisasi. Walaupun majikan bertanggungjawab terhadap keselamatan pekerja-pekerjanya, namun penglibatan dan kerjasama pekerja dalam hal keselamatan tidak boleh dinafikan. Salah satu tingkah laku yang mempengaruhi keselamatan adalah pematuhan terhadap peraturan serta prosedur keselamatan yang ditetapkan oleh organisasi. Kajian ini adalah bertujuan untuk meramal faktor-faktor yang mempengaruhi pematuhan terhadap keselamatan di sebuah kilang tekstil bertaraf antarabangsa di Pulau Pinang, Malaysia. Dalam kajian ini, borang kaji selidik mengenai kebarangkalian faktor-faktor yang mempengaruhi kepatuhan keselamatan di Penfabric Mill 4 digunakan. Satu sampel yang diambil secara rawak yang terdiri daripada 243 orang pekerja telah diambil dari jumlah keseluruhan 517 pekerja dari 9 bahagian pengeluaran. Hasil kajian menunjukkan bahawa Komitmen Majikan, Penglibatan Pekerja, Latihan Keselamatan, Peraturan dan Prosedur Keselamatan, Komunikasi dan Maklumbalas Keselamatan dan Polisi Promosi Keselamatan mempunyai hubungan yang signifikan dengan Kepatuhan Keselamatan. Komitmen Majikan, Peraturan dan Prosedur Keselamatan dan Polisi Promosi Keselamatan mempunyai pengaruh yang signifikan terhadap kepatuhan keselamatan pekerja. Juga didapati Latihan Keselamatan, Komunikasi dan Maklumbalas Keselamatan dan Penglibatan Pekerja tidak mempunyai pengaruh yang signifikan terhadap Pematuhan Keselamatan di dalam organisasi ini walaupun terdapat korelasi yang signifikan.

Katakunci: Komitmen Majikan, Penglibatan Pekerja, Latihan Keselamatan, Komunikasi dan Maklumbalas Keselamatan, Peraturan dan Prosedur Keselamatan, Polisi Promosi Keselamatan dan Kepatuhan Keselamatan.

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CHAPTER ONE

INTRODUCTION

1.0 Background of the study

Safety Compliance is a behavior that can affect the performance of safety record in an organization. It is the employees' adherence to the rules, regulations and procedures set by their organization, even when not monitored by their employer (Podsakoff et al., 2000). Safety compliance is related to safety climate and also defined as a behavior of following the rules in main safety activities in the organization (Griffin & Neal, 2000). Mearns et al. (2001, 2003) found that accidents at individual level and also workplace level are significantly associated with non-compliance or safety violations.

Every year, the number of people who lose their life due to occupational accidents and diseases related to their work amounts to almost 2.3 million people. This amount comes to about 7,000 people who die every day due to occupational related causes and more than 960,000 workers get injured everyday at work places (Hamalainen, Saarela & Takala, 2009). In Malaysia, there are about 50 thousand accidents reported every year. More than 12,000 people suffer from permanent disability and 1200 people are killed in these accidents (PERKESO, 2011). In recent years, integration between risks management and the organization's operations is becoming important. This integration reduces the accident and at the same time improves the company's productivity and profitability (O'Toole, 2002). The responsibility of accident prevention solely belongs to the employer (Blair & Geller, 2000). Walters (2000) and Versen (1983) have asserted that the cooperation between employers and workers is very important and indispensable even though the

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References

- Abdelhamid, T. S., & Everett, J. G. (2000). Identifying root cause of construction accidents. *Journal of Construction Engineering and Management*, 126(1), 52–60.
- Ajzen, I. (1991). The theory of planned behaviour. *Organizational Behavior and Human Decision Processes*, 50, 179–211.
- Aksorn, T., & Hadikusumo, B. H. W. (2008). Critical success factors influencing safety program performance in Thai construction projects. *Safety Science*, 46(4), 709-727.
- Anton, T. J. (1989). *Occupational safety and health management* (2nd ed.). New York, NY: McGraw-Hill.
- Bakri, A., Mohd Zin, R., Misnan, M. S., & Mohammed, A. H. (2006). Occupational Safety and Health (OSH) management systems: towards development of safety and health culture.
- Bakri, A., Zin, R. M., Misnan, M. S., & Mohamad, A. H. (2006) *Occupational safety and health (OSH) management System: Towards development of safety and health culture*. The 6th Asia Pacific Structural Engineering and Construction Conference, 5-6 September 2006, Kuala Lumpur, Malaysia.
- Biggs, H. C., Sheahan, V. L., & Dingsdag, D. P. (2005). A study of construction site safety culture and implications for safe and responsive workplaces. *The Australian Journal of Rehabilitation Counselling*, 11(1), 1-7.
- Blair, E., & Geller, S. (2000). Becoming world class in HSE management. *Occupational Health and Safety*, 69(9), 61-63.
- Bowander, B. (1987). The Bhopal accident. *Technological Forecasting and Social change*, 32, 169-182

- Braithwaite, J., & Grabosky, P. (1985). Occupational health and safety enforcement in Australia. *Canberra, Australian Institute of Criminology, 109*, 351-368.
- Brislin, R. W. (1970). Back-translation for cross-cultural research. *Journal of Cross-Cultural Psychology, 1*(3), 185 – 216.
- Coakes, S. J., & Steed, L. G. (2003). *SPSS: Analysis without anguish* (Version 11 for Windows). Milton, Qld: John Wiley & Sons Australia Ltd.
- Cohen, A. (1977). Factors in successful safety programs. *Journal of Safety Research, 9*, 168 – 178
- Cox, S. J., & Cheyne, A. J. T. (2000). Assessing safety culture in offshore environments. *Safety Science, 34*, 111–129
- Dejoy, D. M., Della, L. J., Vandenberg, R. J., & Wilson, M. G. (2010). Making work safer: Testing a model of social exchange and safety management. *Journal of Safety Research, 41*, 163–171
- Dejoy, D. M., Searcy, C. A., Murphy, L. R., & Gershon, R. R. M. (2000). Behavior-diagnostic analysis of compliance with universal precautions among nurses. *Journal of Occupational Health Psychology, 5*, 127–141.
- Didla, S., Mearns, K., & Flin, R. (2009). Safety citizenship behaviour: A proactive approach to risk management. *Journal of Risk Research, 12*(3), 475–483.
- Edwards, M., & Jabs, L. B. (2009). When safety culture backfires: Unintended consequences of half-shared governance in a high tech workplace. *The Social Science Journal, 46*(4), 707-723.
- Factory and Machinery Act 1967 and Regulations (2000). Kuala Lumpur: MDC Publishers Printers Sdn. Bhd.
- Fernández-Muñiz, B., Montes-Peón, J. M., & Vázquez-Ordás, C. J. (2009). Relation between occupational safety management and

firm performance. *Safety Science*, 47, 980–991

- Fernández-Muñiz, B., Montes-Peón, J. M., & Vázquez-Ordás, C. J. (2007). Safety management system: Development and validation of a multidimensional scale. *Journal of Loss Prevention in the Process Industries*, 20(1), 52-68.
- Forrester, B. G., Weaver, M. T., Brown, K. C., Phillips, J. A., & Hilyer, J. C. (1996). Personal health-risk predictors of occupational injury among 3415 municipal employees. *Journal of Occupational Environmental Medicine*, 38, 515–521.
- Freeman, E. J. (2004). Union-management solutions for preventing workplace injury of older workers. *Work*, 22, 145–151.
- Garrett, R. B., & Perry, A. J. (1996). A safer way to move patients. *Occupational Health and Safety*, 65(9), 60–64.
- Geldart, S., Smith, C. A., Shannon, H. S., & Lohfeld, L. (2010). Organizational practices and workplace health and safety: A cross-sectional study in manufacturing companies. *Safety Science*, 48, 562–569
- Geller, E. S. *The Psychology of Safety: How to improve behaviors and attitudes on the job*. Boca Raton, FL: CRC Press, 1996.
- Gershon, R. R., Karkashian, C. D., Grosch, J. W., Murphy, L. R., Escamilla-Cejudo, A., Flanagan, P. A., Bernacki, E., Kasting, C., & Martin, L. (2000). Hospital safety climate and its relationship with safe work practices and workplace exposure incidents. *American Journal of Infection Control*, 28, 211–221.
- Gevers, J. K. M. (1983). Worker participation in health and safety in the EEC: The role of representative institutions. *International labour review*.
- Glendon, A. I., & Litherland, D. K. (2001). Safety climate factors, group differences and safety behavior in road construction. *Safety Science*, 39, 157–188.

- Goetsch, D. L. (2012). *Construction safety & health*: Upper Saddle River, New Jersey, NJ: Pearson Prentice Hall.
- 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), 347-358.
- Guldenmund, F. W. (2007). The use of questionnaires in safety culture research—an evaluation. *Safety Science, 45*(6), 723-743.
- Gupta, J. P. (2002). The Bhopal gas tragedy: Could it have happened in a developed country? *Journal of Loss Prevention in the Process Industries, 15*(1), 1-4.
- Hair, J. F., Jr., Anderson, R. E., Tatham, R. L., & Black, W. C. (1995). *Multivariable data analysis*. Englewood Cliffs, NJ: Prentice Hall
- Hamalainen, P., Saarela, K. J., & Takala, J. (2009). Global trend according to estimated number of occupational accidents and fatal work-related diseases at region and country level. *Journal of Safety Research, 40*, 125–139
- Harvey, J., Bolam, H., Gregory, D., & Erdos, G. (2001). The effectiveness of training to change safety culture and attitudes within a highly regulated environment. *Personnel Review, 30*, 615–646.
- Havlovic, S. J., & McShane, S. L. (2000). The effectiveness of Joint Health and Safety Committees (JHSCs) and safety training in reducing fatalities and injuries in British Columbia Forest Product Mills. *Workplace Gazette, 3*, 94–114.
- Hislop, R. D. (1991). A construction safety program. *Professional Safety, 36* (9), 14–20.
- Igbaria, M., Iivari, J., & Maragahh, H. (1995), Why do individuals use computer technology? A Finnish case study. *Information and Management, 5*, 227-38

- Institution of Chemical Engineers. (1999). *The Chemical Engineer*: Institution of Chemical Engineers, New York, NY.
- Jaselskis, E. J., & Suazo, G. (1993). A survey of construction site safety in Honduras. *Construction Management and Economics*, 12: 245-255.
- Johnstone, R., Quinlan, M., & Walters, D. (2005). Statutory occupational health and safety workplace arrangements for the modern labour market. *Journal of Industrial Relations*, 47(1), 91-116.
- Khairiah, S. (2008). Workers' participation in safety and health at work. *Jurnal Kemanusiaan*, (11), 15-23.
- Kletz, T. (1998). Review of 'The explosion and fire at the Texaco refinery, Milford Haven, 24 July 1994'. *Chemical Engineering Progress*, 94(4), 86.
- Kletz, T. A. (1993). Organizations have no memory when it comes to safety: A thoughtful look at why plants don't learn from the past. *Hydrocarbon Processing*, 6, 88– 95.
- Komaki, J. L., Collins, R. L., & Penn, P. (1980). The role of performance antecedents and consequences in work motivation. *Journal of Applied Psychology*, 67(3), 334-340.
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30, 607-610.
- Lees, F. P. (1996). *Loss prevention in the process industries* (2nd ed.). Oxford: Butterworth–Heinemann.
- Mason, R. D., Lind, D. A., & Marchal, W. G. (1983). *Statistics: An introduction*. New York, NY: Harcourt Brace Jovanovich.
- Mearns, K., Whitaker, S. M., & Flin, R. (2001). Benchmarking safety climate in hazardous environments: A longitudinal, interorganizational approach. *Risk Analysis*, 21(4), 771-786.

- Mearns, K., Whitaker, S. M., & Flin, R. (2003). Safety climate, safety management practice and safety performance in offshore environments. *Safety Science*, *41*, 641–680.
- Ministry of Human Resources. (2008). *Labour and human resources statistic 2008*. Retrieved from http://www.mohr.gov.my/statistic_perburuhan_2008.pdf
- O'Toole, M. (2002). The relationship between employees' perceptions of safety and organizational culture. *Journal of Safety Research*, *33*, 231–243.
- O'Toole, M. F. (1999). Successful safety committees: Participation not legislation. *Journal of Safety Research*, *30*(1), 39–65.
- Occupational Safety and Health Act 1994 and Regulations (all amendments up to August, 2000). Kuala Lumpur: MDC Publishers Printers Sdn. Bhd.
- Pareek, K. (1999). The management did not adhere to safety norms. Interview. *Down to Earth*, *8*(1), 56.
- Parker, D., Lawrie, M., & Hudson, P. (2006). A framework for understanding the development of organisational safety culture. *Safety Science*, *44*(6), 551–562.
- Paul, P. S., & Maiti, J. (2008). The synergic role of sociotechnical and personal characteristics on work injuries in mines. *Journal of Ergonomics*, *51*(5), 737–767.
- PERKESO. (2010) *Annual Reports*. Retrieved from <http://www.perkeso.gov.my/en/report/annual-reports.html>
- PERKESO. (2011, April 7). Pencegahan Kemalangan: Cabaran dan Penyelesaian dari Perspektif PERKESO. Retrieved from http://www.healthconference.my/bpkp_2011/pencegahan%20kemalangan%20-%20cabaran%20dan%20penyelesaian%20dari%20perspektif%20perkeso.pdf

- Pfeffer, J., & Veiga, J. F. (1999). Putting people first for organizational success. *The Academy of Management Executive*, 13, 37.
- Pidgeon, N. F. (1991). Safety culture and risk management in organizations. *Journal of Cross-Cultural Psychology*, 22(1), 129–140.
- Podsakoff, P. M., MacKenzie, S. B., Paine, J. B., & Bachrach, D. G. (2000). Organizational citizenship behaviors: A critical review of the theoretical and empirical literature and suggestions for future research. *Journal of Management*, 26(3), 513-563.
- Probst, T. M., & Brubaker, T. L. (2001). The effects of job insecurity on employee safety outcomes: Cross-sectional and longitudinal explorations. *Journal of Occupational Health Psychology*, 6(2), 139-159.
- Ramli, A. A., Watada, J., & Pedrycz, W. (2011). Possibilistic regression analysis of influential factors for occupational health and safety management systems. *Safety Science*, 49, 1110–1117
- Robens, L. (1972). *Report of the Committee on Safety and Health at work*. London, England: Majesty's Stationery Office.
- Roughton, J. (1993). Integrating quality into safety and health management. *Industrial Engineering*, 7, 35–40.
- Rowlinson, S. M. (2003). *Hong Kong construction: Safety management and law*. Causeway Bay, Hong Kong: Sweet and Maxwell Asia.
- Roylett, B., Russell, I., Raman, R., & Blyth, D. (1991). *Analysis of accidents from strata movements in pillar extraction in New South Wales Coal Mines*. Internal Report for NSW Department of Mineral Resources. Sydney, New South Wales: Australia Department of Mineral Resources.
- Sekaran, U., & Bougie, R. (2010) *Research methods for business: A skill building approach*. (5th ed.). Haddington, East Lothian, Great Britain: Scotprint.

- Shannon, H. S., Walters, V., Lewchuk, W., Richardson, J., Moran, L. A., Haines, T., & Verma, D. (1996). Workplace organizational correlates of lost time accident rates in manufacturing. *American Journal of Industrial Medicine*, 29, 258–268.
- Spooner, P., & Buckinghamshire, M. (1995). Disasters: A family group's view. In major hazards onshore and offshore I. I. Chem. E. Symp. Ser, No. 139. Rugby, UK: Institution of Engineers.
- Tam, C. M., Zeng, S. X., & Deng, Z. M. (2004). Identifying elements of poor construction safety management in China. *Safety Science* 42, 569–586.
- Versen, P. (1983). Employers' and workers' cooperation. *ILO Encyclopedia of Occupational Safety and Health* 1. 3rd ed.: 754-756.
- Vinodkumar, M. N., & Bhasi. M. (2010). Safety management practices and safety behaviour: Assessing the mediating role of safety knowledge and motivation. *Accident Analysis and Prevention*, 42, 2082–2093
- Vinodkumar, M. N., & Bhasi. M. (2011). A study on the impact of management system certification on safety management. *Safety Science*, 49, 498–507
- Vredenburg, A. G. (1998). *Safety management: Which organizational factors predict hospital employee injury rates?* Doctoral dissertation. California School of Professional Psychology, San Diego, CA.
- Vredenburg, A. G., & Cohen, H. H. (1995). High-risk recreational activities: Skiing and scuba—what predicts compliance with warnings. *International Journal of Industrial Ergonomics*, 15(2), 123-128.
- Vredenburg. A. G. (2002). Organizational safety: Which management practices are most effective in reducing employee injury rates? *Journal of Safety Research*, 33(2), 259– 276

- Walters, D. (2000). Employee representation on health and safety and European works council. *Industrial Relations Journal*, 31(5), 421-435.
- Wharton, L. (2003). Health and safety: Why safe is sound—reducing workplace injuries in New Zealand, death seems to be an occupational hazard—and it's costing us dearly. Why our workplace safety statistics are so bad and what are we doing about it? *New Zealand Management*, 38-42.
- Zin, S. M., & Ismail, F. (2012). Employers' behavioural safety compliance factors toward occupational, safety and health improvement in the construction industry. *Procedia-Social and Behavioral Sciences*, 36, 742-751.
- Zohar, D. (1980). Safety climate in industrial organizations: Theoretical and applied implications. *Journal of Applied Psychology*, 65, 96–102.
- Zohar, D. (2002). The effects of management dimensions, safety climate, and assigned priorities on minor injuries in work groups. *Journal of Organizational Behavior*, 23, 75–92.