# Predicting health outcomes and safety behaviour in taxi drivers

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## ABSTRACT

Workplace hazards have been a major cause of concern in the taxi industry and management has been actively involved in trying to reduce the hazards faced by taxi drivers. However, it appears that there has not been sufficient emphasis placed on the physical health and emotional well-being of drivers. This research project integrates the various factors that influence the safety behaviour, physical health and emotional well-being of taxi drivers into a theoretical model that shows hazards, aversion to risk-taking, aggression, and drivers' perceptions of management's commitment to health and safety as directly influencing physical symptoms, emotional well-being, and *un*safe behaviour of taxi drivers. Multiple regression analyses indicated that the amount of hazards taxi drivers encountered did contribute to the prediction of their physical health and emotional well-being but not to unsafe behaviour. Hazards, displaying aggression, and perceptions of management's commitment to health and safety were all significant predictors of the amount of drivers' emotional well-being, while aversion to risk-taking, aggression, and perceptions of management's commitment to health and safety were significant predictors of drivers' unsafe behaviour. It is recommended that the taxi industry takes an integrative approach to ensuring taxi driver health and safety that incorporates prevention of hazardous situations, developing and communicating a positive climate for safety among taxi drivers, screening of potential drivers, and health and safety training for drivers.


Key Words: Safety Behaviour, Safety Climate, Health, Well-Being, Taxi Drivers

# Predicting health outcomes and safety behaviour in taxi drivers

Taxi driving is considered to be one of the most hazardous occupations because of the risks involved (Haines, 1997; Mayhew, 2000). According to Swanton and Scandia (1990), taxi drivers in Australia experience 28 times the rate of non-sexual assault and 67 times the rate of robbery compared to the community at large. Traditional approaches to improving the safety of taxi drivers have focused on changing the environment through the reduction of hazards (Barling & Hutchinson, 2000; Evans, 1991; Morrow & Crum, 1998). Various strategies for preventing violence have included tracking drivers using Global Positioning Systems, in-car alarms, protective screens, and automatic door locks (Haines, 1997; Radbone, 1997; Stone, 1996). While these strategies have focused on reducing the presence and/or severity of hazards in the work environment (Morrow & Crum, 1998), consideration of individual factors could also be important in improving drivers' safety (Evans, 1991).

The nature of work in the taxi industry is also quite different from conventional occupations. For example, the employer is ambiguous, work hours and income fluctuate on a daily basis, and the frequency and severity of hazards range from verbal abuse to homicide (Dalziel & Job, 1997; Easteal & Wilson, 1991; Haines, 1997; Radbone, 1997). The work place of today is transforming due to factors such as globalisation, technological advancements, and decentralisation (Clark, 2003; Chu & Dwyer, 2002). Such influences may see more organisations operating as the taxi industry does with less supervision, more flexible hours, and less perceived control from management. Traditional approaches may be inadequate for dealing with health and safety issues in the dynamic workplace of the future (Rollenhagen, 2000). Lessons learned from researching workplace health and safety in an unconventional industry such as taxi driving may suggest innovative strategies for promoting health and safety behaviour in the workplace of the future.

Traditional approaches to promoting safety in the workplace have focused on the need for management to improve the physical work environment. In contrast, maintaining employee health was seen as the responsibility of the worker (Quinlan & Bohle, 1991). In recent times however, researchers have begun to take an integrative approach to improving workplace health and safety (Barling & Hutchinson, 2000; Chu & Dwyer, 2002; Dugdill, 2000; Ettner & Grazywack, 2001; Rollenhagen, 2000; Yule, Flin, & Murdy, 2001). This has lead to the development of integrated models of safety climate which investigate various organisational and individual factors influencing employee safety behaviour (Cheyne, Oliver, Tomás, & Cox , 2002; Tomás, Melia, & Oliver, 1999).

One such integrative model of safety climate was developed by Oliver, Cheyne, Tomás, and Cox (2002). Their results showed that individual, environmental, and organisational variables were interlinked, and that all of these variables were predictive of accidents. This framework was used as a guide to develop the current exploratory model of taxi driver health and safety behaviour (see Figure 1). The model developed for this study proposes that the frequency and severity of hazards encountered by taxi drivers and the drivers' perceptions of management's commitment to health and safety will each be a direct predictor of the physical health, emotional well-being, and unsafe behaviour of taxi drivers. The two individual difference variables, aversion to risk-taking and aggression, will be directly related to drivers' physical health, emotional well-being, and unsafe behaviour, and may also predict the work environment and organisational factors (indicated by the dashed arrows). The mediational aspects of this model were not included in the analyses conducted in the current study due to the difficulties associated with complex modelling on a single sample, but were identified in the model (using dotted arrows) to illustrate how the various individual and organisational factors may directly and indirectly influence health and safety outcomes.

Insert Figure 1 about here

*Justification of the model*

Oliver et al. (2002) presented a structural model of accidents that included both general health and safety behaviour. Data were collected from participants from a wide range of industrial sectors in Spain. Using structural equation modelling, these researchers tested various nested models to see whether organisational involvement (e.g., indicators of safety management, safety policy); work environment (e.g., working conditions, hazards); general health (e.g., anxiety, depression); and safety behaviours (e.g., use of equipment, taking shortcuts) influenced the occupational accidents directly and indirectly. Results indicated a direct negative relationship between the physical work environment and general health, and a direct positive relationship between organisational involvement and both general health and safety behaviour. Other integrative models by Tomás et al. (1999), and Cheyne et al. (2002), have shown that individual differences as well as work environment and organisational factors influence safety behaviour and health outcomes of employees. Research by Dalziel and Job (1997) found that aggression and risk-taking intentions were two specific individual factors influential in predicting accident involvement of taxi drivers. The current study is broadly based on the model by Oliver et al. but also includes individual factors such as aggression and aversion to risk-taking as additional predictors of health outcomes and safety behaviour, and an additional outcome variable (physical symptoms)

*Aims of the study*

The main aim of the current study was to develop an integrated model of taxi driver health outcomes and safety behaviour so as to investigate whether hazards in the work environment, driver's perceptions of management's commitment to health and safety, aversion to risk-taking and aggression, were together able to predict physical symptoms, job-related affective well-being, and unsafe behaviour of taxi drivers. This research was

somewhat exploratory in that there was empirical support for including each variable in the model and yet all of the variables have not yet been examined together in any one model.

The analyses focused on identifying the relationships between the four predictor variables and each of the outcome variables separately. Due to limitations in the sample size, the authors did not attempt complex modelling that would have identified the direct and indirect effects of the predictor variables on the three outcomes. We also chose not to focus on analysing the relationships between the outcome variables. The models that were proposed allowed the researchers to address the overall predictability of each of the three outcomes, as well as provided an estimate of the relative strength of the four predictors.

## METHOD

### *Participants*

The participants for this study were Brisbane Taxi Drivers working for both Black and White Cabs and Yellow Cabs (the only two taxi companies in Brisbane). From a total of 97 surveys distributed, 91 valid responses were received representing approximately a 94% response rate. The majority of respondents were male (94.5%). The age of the participants ranged from 18 years and upwards with 62% of the participants between 36 and 55 years of age. Seventy-two percent of the participants were from English speaking backgrounds. In terms of participants' work details, approximately 42% had two or more years of experience, while 32% indicated having ten or more years of experience. Most drivers (46%) worked for a taxi base while 23 % were owners. On average taxi drivers in this sample worked 54.88 hours per week with a standard deviation of 17.96, and a range from 12 to 82. Demographic data from the present sample were compared to data from Dalziel and Job's (1997) survey of taxi drivers in Sydney and the present sample appears to be representative of taxi drivers in other parts of Australia in terms of demographics and employment.

*Measures*

The Taxi Driver Safety Survey was developed to identify the factors being measured in this study. The Taxi Driver Safety Survey was a paper-and-pencil questionnaire consisting of seven sections that took approximately 20 to 30 minutes to complete. A copy of the questionnaire is available from the first author's web site.

*Demographic and Work-related Questions.* Section one of the questionnaire contained demographic questions (e.g. age, gender, and whether English was the respondent's first language) and some work-related questions (e.g., years of experience, weekly work pattern such as hours, days, and shifts worked, and whether they pick up clients from hails, ranks, city, or suburbs). These questions were based on part of the Taxi Driver Survey developed by the Victorian Taxi Directorate (Haines, 1997). Similar questions were included in a survey developed by Dalziel and Job (1997) which assessed taxi driver safety in New South Wales.

*Management's Commitment to Health and Safety.* This section of the questionnaire assessed taxi drivers' perceptions of management's commitment to health and safety issues. The items were taken from the Health and Safety Climate Survey Tool developed by the Health and Safety Executive (HSE, 1997). Examples of the statements included are "The company cares about the health and safety of employees"; "Management is serious about health and safety issues"; and "There is good communication between management and employees about health and safety issues". The Cronbach's alpha reliability coefficient for this scale was .85.

*Aggression.* This section assessed the general personality trait of aggression using the Aggression Questionnaire developed by Buss and Perry (1992). The scale was previously used by Dalziel and Job (1997) in their research on taxi driver safety. The scale comprised 33 items that divided into four subscales: physical aggression, verbal aggression, anger, and hostility. The physical and verbal components represent the behavioural dimension, anger

represents the emotional response, while the hostility component represents the cognitive dimension (Buss & Perry). Examples of statements include, “I get into fights more than the average person”; “I tell my friends openly when I disagree with them”; and “I often find myself disagreeing with people”. The Cronbach’s alpha reliability coefficient for the Total Aggression score was .84.

*Aversion to Risk-taking Behaviour.* This section assessed aversion to risk-taking behaviour specific to the job of taxi driving using some of the questions from the taxi driver risk-taking scale developed by Dalziel and Job (1997). Six questions relating to aversion to risk-taking while driving were included, and drivers were asked how dangerous they thought each item would be. Items included: “running a red light”; “keep driving even though you are very tired”; and “do an illegal U-turn”. These items did not ask drivers whether they actually performed any of these behaviours, and therefore the measure was focused on drivers’ attitudes rather than their behaviour. The Cronbach’s alpha reliability coefficient for this scale was .74.

*Hazards in the Workplace.* This section provided a measure of workplace hazards specific to the job of taxi driving and was based on the Taxi Driver Survey developed by the Victorian Taxi Directorate (Haines, 1997). The respondents were asked to indicate if they had had to deal with any of five hazardous situations (i.e., verbal abuse, verbal or physical threat, physical assault, robbery, and fare evasion). Participants were required to indicate the number of times in the past year they had had to deal with these situations and whether they considered it to be minor, moderate, or serious. The time frame used in this question was considerably longer than that used for other scales as the base rate for the events was expected to be quite low. For the current study, the score for the total number of hazardous situations faced (that is, number of verbal assaults plus number of verbal or physical threats plus number of physical assaults etc.) was used in the analysis. No details regarding the reliability and

validity of this scale are available as the items were not designed to measure a single construct. The frequency of any one of the five situations was not expected to be dependent on the frequency of any other situation thus making reliability indices irrelevant. The scale had obvious face validity with the second author whose husband was employed as a taxi driver and who had personally experienced several of the hazards including physical assault requiring hospitalisation.

*Unsafe Behaviour.* This section of the questionnaire assessed unsafe behaviour and included a total of fourteen questions. Ten of the items were taken from a risk-taking measure developed by Dalziel and Job (1997), which included general driver behaviours as well as behaviours specific to the job of taxi driving. Drivers were asked how <u>often</u> they did each of 10 different behaviours, such as: “cut across traffic to get to someone hailing you even when there is a slight risk of an accident”; “ignore safety regulations to get the job done”; “run a red light”; or “turn right across a busy road even when there is a small chance of collision”. A time frame for drivers to consider was not specified as drivers worked different hours depending on their own financial position. The scale focused on obtaining an average frequency of the target behaviours. Cronbach’s alpha reliability reported by Dalziel and Job for this scale was .79. Four additional questions were included from the Offshore Safety Questionnaire (OSQ) by Mearns, Whitaker, and Flin (2001). The measure was clearly focused on the drivers’ behaviour rather than their perceptions of the riskiness of the behaviour and therefore was conceptually different from the measure of aversion to risk-taking. The Cronbach alpha reliability coefficient for this expanded scale was .87.

*Emotional Well-being.* Section six consisted of the Job-Related Affective Well-being Scale (JAWS) developed by Van Katwyk, Fox, Spector, and Kelloway (2000) which was designed to assess employees’ emotional reactions to their job over the previous 30 days. The scale is comprised of 30 questions of job-related emotional states. It includes questions such

as “my job made me feel at ease”; “my job made me feel angry”; “my job made me feel content”; and “my job made me feel fatigued”. For the current sample, the Cronbach alpha reliability coefficient was .89.

*Physical Symptoms.* Section 7 of the questionnaire is comprised of the Physical Symptoms Inventory (PSI) developed by Spector and Jex (1998) to assess employee physical and somatic health symptoms. The PSI is a self-report measure in which respondents are asked to indicate whether or not in the past 30 days they had suffered any of 18 symptoms, and whether or not they had seen a doctor. Three scores are computed, the number of symptoms each respondent reported suffering (“Have” symptom), the number for symptoms for which they saw a doctor (“Doctor” symptom), and the sum of the “Have” symptoms and the “Doctor” symptoms provides the Total PSI score. Total PSI scores can range from 0 to 18 with higher scores indicating more physical symptoms of ill health. Some examples of symptoms included on the scale are, headache, backache, fatigue, eye strain, and trouble sleeping. Only Total PSI scores were utilised for the purpose of the current study. Spector and Jex state that a measure of the scales reliability would be meaningless due to the fact the scale is a causal indicator rather than a measure of a construct.

*Procedure*

Taxi drivers were approached while waiting at the taxi ranks. They completed and returned the questionnaire while the researcher was present. In an effort to obtain a representative sample, surveys were conducted during the day at the Brisbane Airport taxi rank, and during the night at taxi ranks in the Brisbane central business district. The majority of the surveys were completed in the presence of one of the researchers. Eighteen participants had partly completed the survey but had to terminate when passengers arrived thus these respondents were given the questionnaires to complete and return in a reply-paid envelope provided allowing postage from any location without cost.

# RESULTS

The means, standard deviations and Intercorrelations of each of the variables of interest in the current study are presented in Table 1.

Insert Table 1 about here

Three analyses were undertaken in order to test the relationships between the four predictor variables and each of the outcome variables separately. While traditional standard multiple regression is a suitable technique to analyse the overall predictability of the three outcomes, there are several limitations to this technique. First of all, there can be considerable shrinkage of the multiple correlation coefficient when the sample size is small leading to an overestimation of the strength of association between the variables. Maxwell, Camp and Arvey (1981) suggested that the adjusted $R^2$ value is the preferred measure of the strength of association when it is used as an inferential statistic. Standard multiple regression also fails to explicitly report the overall fit of the model to the data. Finally, standard multiple regression assumes that the independent variables are measured without error (Tabachnick & Fidell, 2001).

An alternative to standard regression analysis involves using path analysis to model the relationships between the predictor variables and the outcome variable(s). Path analysis is a subset of structural equation modelling (SEM) that describes the relationships between a group of predictor (or exogenous) variables and one or more outcome (or endogenous) variables. One difficulty with SEM is that the parameter estimates and tests of fit are sensitive to size of the sample, with small samples quite likely to be problematic (MacCallum & Austin, 2000). MacCallum and Austin explained that small samples contribute to less precision in estimating parameters, especially in models with larger numbers of parameters. When sample size is small, simpler models are favoured. Millsap (2002) suggested that if the

strength of relationships between observed and unobserved variables are strong, then good results are possible with smaller samples. However, Millsap also warns that it is next to impossible to provide blanket recommendations regarding minimum sample sizes required in SEM. The sample size in the current study is adequate for standard multiple regression and all analyses were rerun using standard multiple regression to determine whether the standardised path coefficients were any different from the standardised regression coefficients. Both sets of analyses yielded similar standardised coefficients. The results of the tests of exact fit and other fit indices should be interpreted extremely cautiously given that the small sample size results in a low level of power to detect good fitting models (MacCallum, Browne & Sugawara, 1996).

The following three analyses were conducted using Amos 5 (Arbuckle, 2003). As the main focus of the paper was the relationships between the predictors and each of the outcome variables and not the relations among the outcome variables, three separate models were specified for each of the three outcome variables. Only two of the predictor variables were permitted to covary (Hazards and Aggression) based on the presence of a significant correlation between these two variables ($r = .28$, $p < .01$). All other covariance paths were constrained to equal zero.

The results of regressing Emotional Well-being on the four predictors show that 27.6% of the variance in Emotional Well-being was accounted for ($R^2 = .31$, Adjusted $R^2 = .28$, $p < .01$), with three of the predictors having significant standardised path coefficients. Aggression ($\beta = -.32$, $p < .001$), perceptions of Management's Commitment to Health and Safety ($\beta = .30$, $p < .001$), and Hazards ($\beta = -.26$, $p < .01$) were significant predictors. The results of testing this model are shown in Figure 2. The advantage of using structural equation modelling is that it assesses the degree to which the model was able to adequately represent the data. Hu and Bentler (1999) recommended a cut-off value of close to .95 for the Tucker-

Lewis Index (TLI) and a cut-off value of .06 for the root mean square error of approximation (RMSEA) before one can be reasonably satisfied that the model fits the observed data. These indexes were used in combination with the traditional Chi Square test to determine the fit of the model. The model is a good fit to the data with $\chi^2$ (5) = 4.61, $p$ = .47; *TLI* = 1.02, *RMSEA* = .00.

Insert Figure 2 about here

The results of regressing Physical Symptoms on the predictors show that 16.0% of the variance in the amount of Physical Symptoms of ill health was accounted for ($R^2$ = .20, Adjusted $R^2$ = .16, $p$ < .01). The strongest predictor was Hazards (β = .29, $p$ < .01) while Aversion to Risk-taking was also a significant predictor (β = -.23, $p$ < .05). The results of testing this model are shown in Figure 3. Once again, the model is a good fit to the data with $\chi^2$ (5) = 4.61, $p$ = .47; *TLI* = 1.04, *RMSEA* = .00.

Insert Figure 3 about here

The results of regressing Unsafe Behaviour on the predictors showed that 29.7% of the variance in Unsafe Behaviour was accounted for ($R^2$ = .33, Adjusted $R^2$ = .30, $p$ < .01). In this case, Aversion to Risk-taking was the strongest predictor (β = -.47, $p$ < .001), while Aggression (β = .21, $p$ < .05) and perception of Management's Commitment to Health and Safety (β = -.24, $p$ < .01) were both significant predictors. The results of testing this model are shown in Figure 4. The model is a good fit to the data with $\chi^2$ (5) = 4.61, $p$ = .47; *TLI* = 1.02, *RMSEA* = .00.

Insert Figure 4 about here

## DISCUSSION

The main aim of the current study was to take an integrative approach in investigating the relative and combined influence of work environment, individual, and organisational

factors on taxi drivers' physical health, emotional well-being, and unsafe behaviour. Because taxi driving is an occupation with one of the highest rates of assault and homicide, most research relating to the taxi industry has focused on hazards rather than individual factors as important issues relating to taxi driver safety. Safety climate researchers have found within other industries that employee' perceptions of management's commitment to health and safety are also an influential factor in predicting safety behaviour. However, this factor has not been considered in past research on taxi driver safety. The taxi industry research has also neglected to consider the physical health and emotional well-being of employees.

It was predicted that hazards would contribute significantly to the prediction of Emotional Well-being , Physical Symptoms, and Unsafe Behaviour. Contrary to expectations, hazards in the workplace was not a significant predictor of safety behaviour. However as expected, hazards was related to the general physical health and emotional-well being of taxi drivers. Where taxi drivers reported experiencing greater hazards, they also reported more physical symptoms of ill health and were more negative in their emotional reaction to their work. This finding supports the results of Oliver et al. (2002), in which hazards in the work environment were negatively related to the general health of workers in the manufacturing industry.

It was also predicted that Aversion to Risk-taking would be a significant predictor of Emotional Well-being , Physical Symptoms, and Unsafe Behaviour. Aversion to Risk-taking was a significant predictor of Physical Symptoms of ill-health and Unsafe Behaviour, such that taxi drivers, who reported a lower aversion to risky behaviours, also reported a higher number of physical symptoms of ill health and a greater number of unsafe actions. These results support research by Morrow and Crum (1998) which found that individual attitudes and perceptions influenced safety activity in the rail transport industry. Similarly, Dalziel and Job's (1997) research found that taxi drivers who were assessed as being higher risk takers

also continued to work when they were tired with the knowledge that it may increase the chances of them being involved in an accident. Future research should look at whether a lack of aversion to risk-taking that contributes directly to unsafe behaviour in all situations, or whether it is moderated by other variables such as the potential for extra earnings. Researchers should attempt to fathom the motivation behind why drivers take risks and behave in an unsafe manner.

Aggression was also expected to be a significant predictor of Physical Symptoms, Emotional Well-being, and Unsafe Behaviour. The results indicated that the higher scores on aggression were associated with more negative Emotional Well-being and more frequent Unsafe Behaviours. These results suggest that drivers who display more aggression are more negative about their job and were less safe in the performance of their day-to-day tasks in. However, Aggression was not a significant predictor of Physical Symptoms. Future strategies to improve the health and safety of the taxi industry may require management to take this result into account when screening new applicants for the job. The extent to which an individual behaves aggressively also seems to be related to the number of hazards that drivers may encounter.

Finally, it was predicted that perceptions of Management's Commitment to Health and Safety would be a significant predictor of Physical Symptoms, Emotional Well-being, and Unsafe Behaviour. In line with other research (Oliver et al., 2002), a stronger perception that management was committed to health and safety was related to more positive emotional well-being and less unsafe behaviour. However, contrary to expectations and to other research by Oliver et al., this variable was not a significant direct predictor of Physical Symptoms of ill health.

*Limitations*

One of the limitations of the current study was its cross sectional design, which meant that causality could not be implied. This is an inherent problem in social science research. However, regression analyses do provide a useful way of gaining knowledge about the relative strength of relationships between variables, and the combined ability of various factors to predict certain outcomes. In the current study, the variables hypothesised to predict the three outcomes accounted for between 16 percent (for Physical Symptoms) and 30 percent (for Unsafe Behaviour) of variance in the outcomes. This demonstrates that the predictor variables that were included were able to explain a substantial proportion of the variance in taxi driver health and safety. However, other important influences may have been omitted from the models. The fact that the models that were specified were able to adequately represent the data does not suggest that all important predictors of taxi driver health and safety have been included. Also, the relationships between the predictor variables and the three outcomes have not been validated in an independent sample and therefore the results should be interpreted cautiously. This research extends the current trend for integrative research into predictors of health and safety into an occupation that requires a greater range of perspectives and innovative strategies for improving health and safety.

*Conclusions*

Much research has focused on implementing technical improvements, or providing training on skills to reduce the probability of hazards and improve safety in the taxi industry, yet no research has been conducted on how these factors influence the health of taxi drivers. One of the important findings of the current study was that taxi drivers' physical health and emotional well-being were related to hazards. Thus it shows the importance of implementing strategies to reduce the hazards that are faced by taxi drivers.

Another key finding was in the relationship between the perceptions of management's commitment and both emotional well-being and less frequent unsafe behaviour. As in other

industries, this important aspect of safety climate has been shown to predict two important outcomes. This finding should encourage managers to focus on the importance of developing and communicating a positive climate for safety among taxi drivers.

Finally, this study has confirmed that individual difference variables such as aggression and aversion to risk-taking are able to explain significant slices of the variance in the emotional well-being and unsafe behaviour (and to a lesser extent, the physical health) of taxi drivers. Drivers should be assessed to identify those who are less averse to taking risks or more likely to behave aggressively, and assistance provided in the form of health and safety training interventions.

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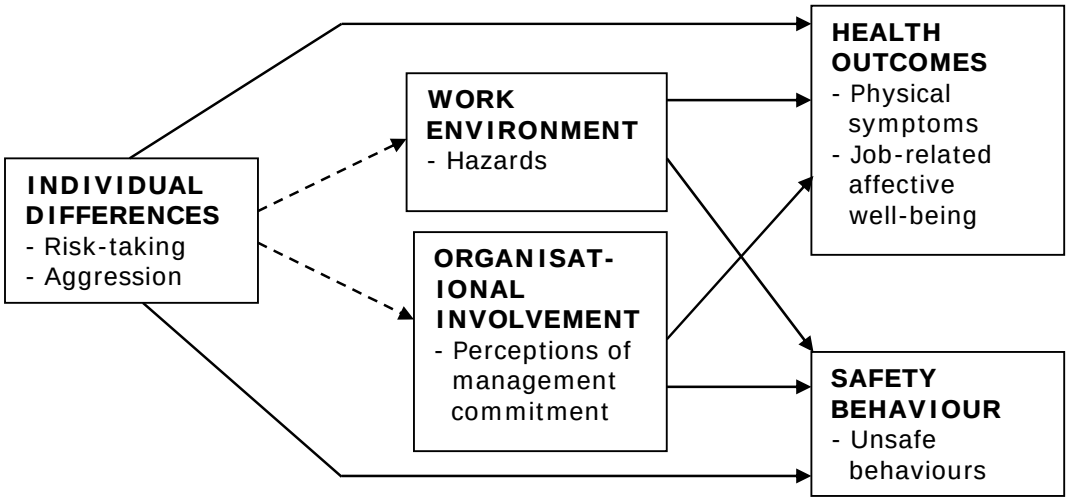
Table 1

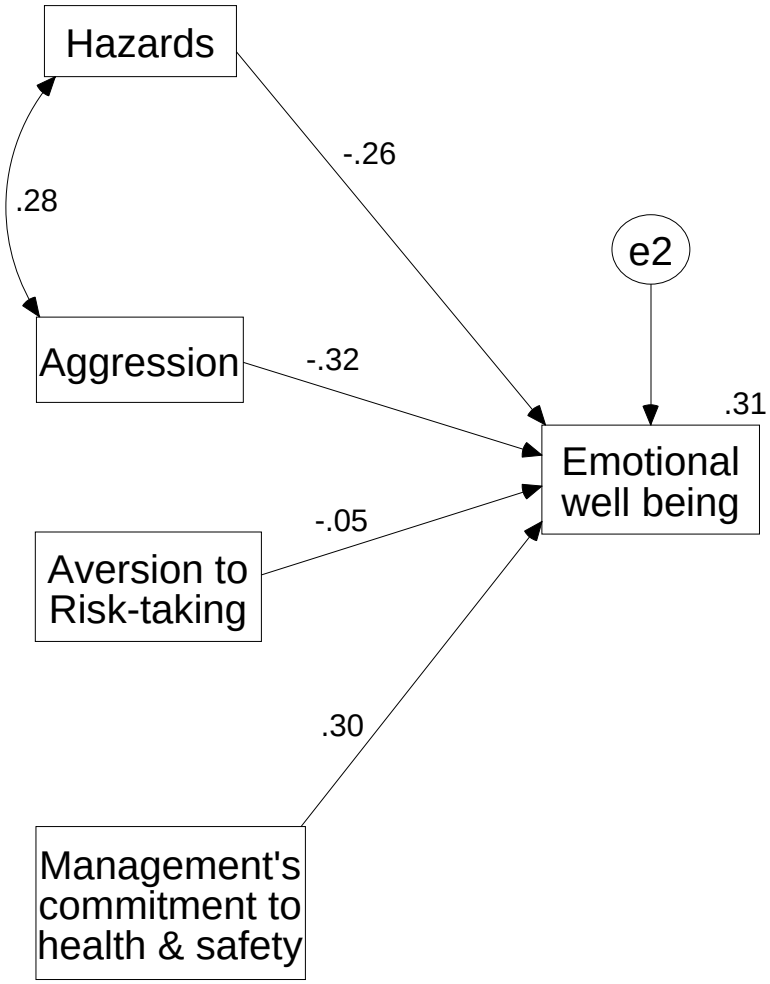
*Means, Standard Deviations, and Intercorrelations of all Variables*

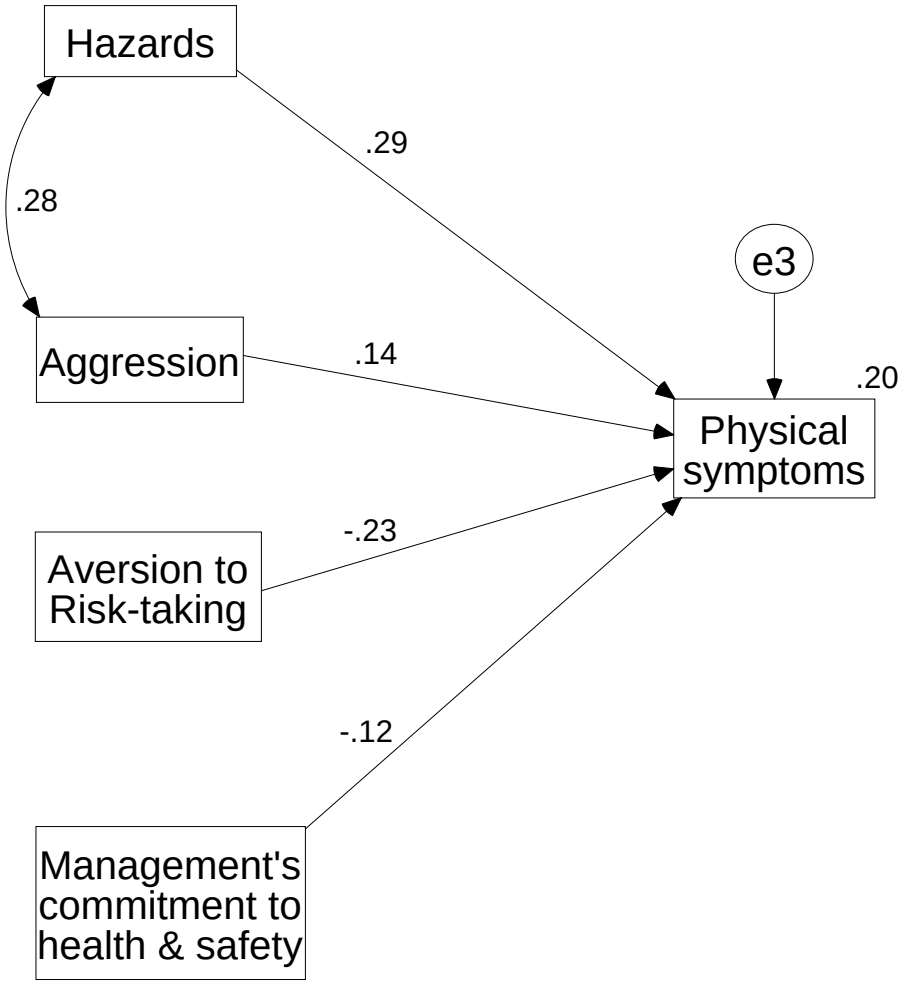
| Variable | *M* | *SD* | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 1. Hazards | 14.68 | 27.51 | -- | | | | | |
| 2. Aversion to Risk-taking | 24.09 | 3.68 | .06 | -- | | | | |
| 3. Aggression | 84.29 | 15.12 | .28** | -.15 | -- | | | |
| 4. Mgt.'s Commitment | 16.14 | 6.61 | .02 | -.09 | -.07 | -- | | |
| 5. Physical Symptoms | 4.45 | 3.16 | .32** | -.22* | .27** | -.11 | -- | |
| 6. Emotional Well-Being | 92.34 | 17.18 | -.35** | -.05 | -.40** | .32** | -.43** | -- |
| 7. Unsafe Behaviour | 27.6 | 8.25 | .07 | -.48** | .30** | -.22* | .42** | -.29** |

Note. * $p < .05$, ** $p < .01$

# LIST OF FIGURES


INDIVIDUAL DIFFERENCES
- Risk-taking
- Aggression
WORK ENVIRONMENT
- Hazards
ORGANISAT-IONAL INVOLVEMENT
- Perceptions of management commitment
HEALTH OUTCOMES
- Physical symptoms
- Job-related affective well-being
SAFETY BEHAVIOUR
- Unsafe behaviours


Hazards
-.26
.28
e2
Aggression
-.32
.31
Emotional well being
-.05
Aversion to Risk-taking
.30
Management's commitment to health & safety


Hazards
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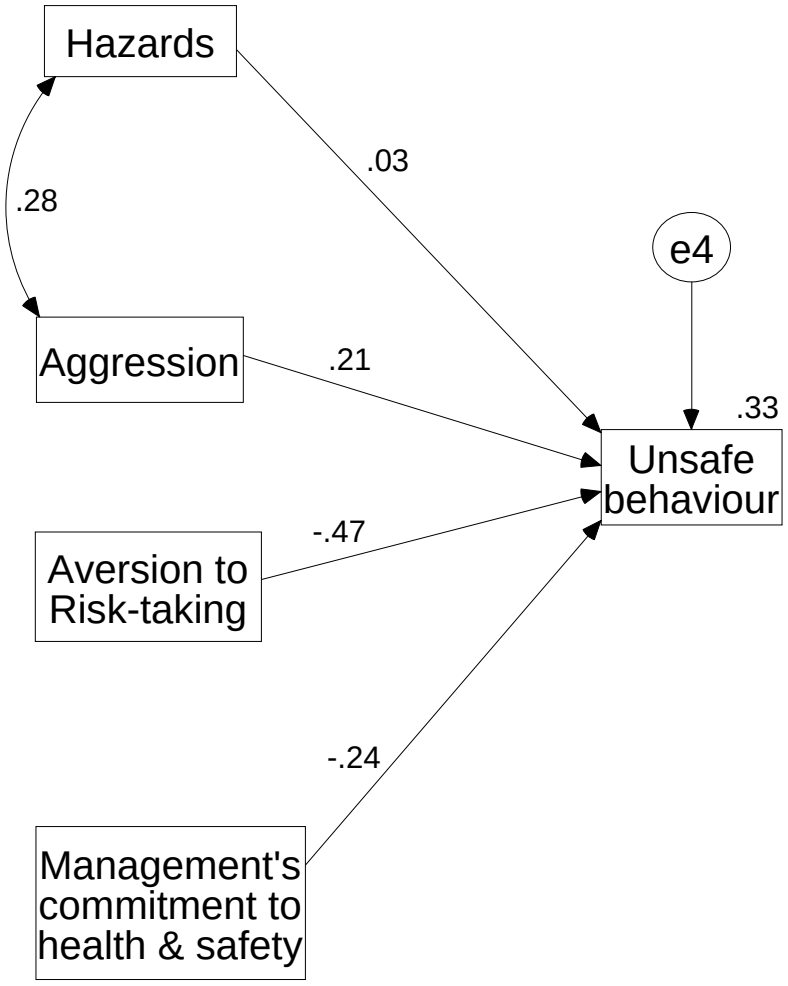
-.12
Management's commitment to health & safety


Hazards
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Aggression
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Unsafe behaviour
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-.24
Management's commitment to health & safety