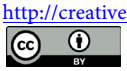
Job Control and Safety Citizenship: Examining the Relationship in Two Companies Based in Midwestern United States

Nathaniel Stephens, Clint Pinion*

Department of Environmental Health Science, Eastern Kentucky University, Richmond, KY, USA
Email: Nathaniel_Stephens9@mymail.eku.edu, *Clint.pinion@eku.edu

How to cite this paper: Stephens, N. and Pinion, C. (2020) Job Control and Safety Citizenship: Examining the Relationship in Two Companies Based in Midwestern United States. *Open Journal of Safety Science and Technology*, **10**, 69-80.
https://doi.org/10.4236/ojsst.2020.103006

Received: June 17, 2020
Accepted: August 28, 2020
Published: August 31, 2020



Abstract

Background: Job demands, or time-based restraints perceived by employees, can have a direct impact on an employee's level of safety citizenship and safety compliance. However, job control, or the perceived autonomy over the timing and methods of an employee's work, can help employees manage those job demands. Objective: To assess the relationship between self-reported job control and self-reported safety citizenship. Method: A 34-item survey was used in a cross-sectional study to assess the relationship between self-reported job control scores (JCS) and self-reported safety citizenship (SCS) among employees working at a construction company and distillery/bottling facility in the Midwestern region of the United States. Descriptive statistics (means and frequencies) and an ANCOVA (analysis of covariance) were performed on a saturated model. Results: The study had a 77% response rate. Results indicate a statistically significant association between JCS and SC exists when controlling for job position and sex [$F(6, 145) = 40.03$, $p < 0.00001$, adjusted R-square = 0.61]. Conclusion: Employees with low job control have lower levels of self-reported safety citizenship.

Keywords

Safety Citizenship, Job Control, Safety Compliance

1. Introduction

The concept of employees participating in activities helping to guide and improve workplace safety is generally referred to as safety citizenship [1]. Hofmann and colleagues (2003) state that safety citizenship behaviors (SCB) can be thought of as actions such as: assisting co-workers; offering suggestions for organizational changes to leadership which can help improve safety; going above-and-beyond a

defined safety role; and aiding in the avocation of established safety policies and programs [2]. Research indicates that a positive correlation exists between safety citizenship and safety performance [3] [4]. Safety performance improves when workers increase their safety citizenship. In fact, several studies suggest that safety citizenship is more beneficial to workplace safety than just mere safety compliance [4] [5]. If a correlation exists between safety performance and positive safety citizenship, then private industry organizations should be working with employees to promote increased safety citizenship to help mitigate the number of occupational incidents and fatalities.

Job demands, or time-based restraints perceived by employees, can have a direct impact on an employee's level of safety citizenship and safety compliance. However, job control, or the perceived autonomy over the timing and methods of an employee's work, can help employees manage those job demands [6]. In fact, low job control is negatively associated with increased employee stress levels and positively associated with positive outcomes (*i.e.* increased productivity and positive attitudes while at work) [7]. Snyder and colleagues (2008) note that a positive correlation exists between high job control and high levels of safety citizenship [8]; the finding of Snyder and colleagues (2008) highlights the notion that employees with greater control of workplace activities will be more likely to participate in safety programs (*i.e.* safety citizenship), and less likely to be involved in occupational incidents. Current literature also notes that a positive relationship exists between safety citizenship and perceived organizational safety climate. Neal and Griffin (2006) offer that workers who perceive a better overall safety climate will be more than willing to further help or maintain positive safety climate than those who perceive safety climate as poor [4].

When discussing safety citizenship, it is important to contrast it to safety compliance. To put it simply, safety compliance is how well employees maintain compliance with established organizational policies and procedures. Safety compliance includes actions taken by employee to meet regulatory standards, while safety citizenship is voluntary and is actions that help promote a safe working environment. Current literature provides mixed results when discussing employee perception of safety citizenship and safety compliance. Some studies suggest employees often place more emphasis on compliance as opposed to citizenship [4] [9]. More recent studies have shown employees tend to equally value safety compliance and citizenship. Didla *et al.* (2009) noted that oil and gas employees showed no significant difference between perceptions of compliance and self-reported citizenship behaviors. Similarly, a positive link has been established between RMAA (repair, maintenance, alteration, and addition) safety climates and the amount of employee safety citizenship and compliance. The findings from Didla *et al.* (2009) are supported by findings from Hon and colleagues who surveyed various property management companies and maintenance developers and found a one-point increase in reported safety climate equated to a 0.2 - 0.3-point increase in safety citizenship and a one-point increase in reported

safety climate also equated to a 0.6 - 0.7-point increase in compliance [10]. These results seemed to indicate that compliance and citizenship go hand in hand in terms of fostering a positive safety climate, which will in turn help to mitigate and potentially outright eliminate certain occupational health concerns

A positive correlation has been demonstrated between fewer occupational incidents and safety participation (*i.e.* safety citizenship) [11] [12]. Curcuruto and colleagues (2015) highlight a link between varying methods of safety behaviors (prosocial and proactive) and the types of workplace incidents they can help to diminish [13]. Their evidence suggests that prosocial behaviors, *i.e.* safety citizenship, can help mitigate minor injuries and property damage while proactive behaviors, the ability to voice concern or opinions about safety climate, can help mitigate more serious incidents or near-miss reporting ($p < 0.05$). The findings from Simard and Marchand (1994), Neal and Griffin (1997), and Curcuruto *et al.* (2015) demonstrate a clear link between safety citizenship and a decrease in potential occupational injuries or incidents.

Job control is the ability of an employee to determine certain aspects of his/her job. For example, how much control does the employee have over, the environment in which he works; when he takes breaks; when he participates in safety programming; and the outcomes of his/her daily work tasks. Evidence suggests that if employees with high job control put an emphasis on safety climate, they will have better overall safety compliance than those with high job control that do not emphasize safety as important to their organization. This is supported by a study that reported increased safety participation based on leadership styles ($\Delta R^2 = 0.91$) [14]). A study conducted by Pinion *et al.* (2017) examined the relationship between job control and the perceived managerial commitment to safety in the construction setting [15]. Pinion and colleagues found that construction workers with low job control were more likely to perceive a lack of commitment to safety from their management. According to Turner *et al.* (2005) there are two main diverging trains of thought when dealing with job control and job demands and how they can alter mental health. One theory is that jobs with high demand and low control (high-strain jobs) will alter mental health more drastically than will the inverse, low demand and high control (low-strain jobs). The other theory is that jobs with both high demand and high control will provide the employee with a greater challenge which will make the worker more motivated, which will then reduce strain when compared to jobs with low demand and low control.

A study conducted by Janssen *et al.* (2001) shows that multiple factors, including job control, social support, and mental/physical job demands, can have a synergistic effect on the amount of stress someone perceives [16]. Similarly, a study conducted on farmworkers found that higher levels of psychological demand lead to an increase in poor health effects and even higher levels of depression symptoms [17]. Also, evidence gathered from a study conducted on Australian primary care workers and Malaysian workers from various professions

suggests that Psychosocial Safety Climate (PSC) is not only distinct from other safety climate measures but that it also has a stronger negative association with job demands and the psychological health of workers [18]. These studies in conjunction with one another provide a clear link between the relationship that job control can have on both physical health and mental health.

By examining the relationship between job control and safety citizenship specifically, we can begin developing safety policies and procedures that will better address areas of need within organizations and help these organizations to acquire the best overall safety climate that they can have. Despite having literature demonstrating a correlation between job control and safety citizenship [6] [19], there hasn't been a study that directly looks at the relationship between the two. Which begs the question, does employee job control have an impact on employee safety citizenship? This study aims to examine the relationship between self-reported employee job control and self-reported employee safety citizenship using a cross-sectional approach.

We hypothesize that:

Self-reported employee job control scores will positively correlate with self-reported employee safety citizenship scores. For example, employees self-reporting low job control will be more likely to report being less active in fostering a positive safety climate at their workplace.

2. Materials and Methods

2.1. Study Instrument

This exploratory cross-sectional study used an employee perception survey to examine self-reported perceptions of employee job control and safety citizenship at two companies in the Midwestern region of the United States. The companies' work was focused on construction consulting and distilling/bottling. The survey consisted of 34 items and used a 5-point Likert Scale to quantify the data gathered along with other demographic variables. Survey items used to measure job control were based off of those used by Pinion *et al.* (2017). To measure safety citizenship, a modified version of the scale noted in Hoffman and Morgeson (2003) was utilized. All survey items can be found in **Table 1**. Employees answered each survey item on a 5-point Likert Scale, 1) Strongly Disagree, 2) Disagree, 3) Neutral, 4) Agree, and 5) Strongly Agree. Demographic information collected included: a) age, b) sex, c) region of origin, d) education level, e) position at company, f) years in industry, g) years worked for current company, and h) different locations worked at for company. Age was divided into four categories, 1) ≤24, 2) 25 - 34, 3) 35 - 49, and 4) >50. Region of origin options were: 1) Canada, 2) United States, 3) Central America, 4) South America, 5) Africa, 6) Western Europe, 7) Eastern Europe, 8) Asian Pacific, 9) Australia, and 10) Mexico. Education Level was divided into 5 options; 1) Some High School, 2) High School or GED Diploma, 3) Some College, 4) College Degree, and 5) Graduate Degree. Position was broken down into 5 options; 1) Laborer/Craftworker, 2)

Foreman, 3) Supervisor, 4) Technical/Office Support, and 5) Senior Management. Finally, years in industry, years for current company, and number of locations worked all had the same options; 1) <1, 2) 1 - 5, 3) 6 - 10, 4) 11 - 15, and 5) ≥16.

Table 1. Job control and safety citizenship survey items.

• Job control
• Employees are routinely involved in the development of safe work procedures
• Employees have influence over the variety of tasks they perform
• Employees influence the policies, procedures, and performance concerning their work
• Employees have influence over the availability of supplies and equipment they need to do their work
• Employees are properly trained by management in the use of writing safe work procedures
• Employees have influence over the amount of work they do
• Employees have influence over the training of other employees in their unit
• Employees have influence over the quality of work that they do
• Employees have influence over the decisions as to when things will be done in their work unit
• In general, employees have influence over their work and work related factors
• Employees have influence over the order in which they perform tasks at work
• Employees have influence over the pace of their work
• Employees have influence over the decisions concerning which individuals they work with
• Employees have influence over the hours or schedule that they work
• Employees have influence over the availability of materials they need to do their work
• Employees have influence on when they work ahead and take short rest breaks during work hours
Safety Citizenship Sub-Dimensions
Helping
• Employees volunteer for safety committees
• Employees help teach safety procedures to new team members.
• Employees assist others to make sure they perform their work safely.
Voice
• Employees encourage others to get involved with safety issues.
• Employees make safety-related recommendations about work activities.
• Employees express opinions on safety matters even if others disagree.
Stewardship
• Employees protect fellow team members from safety hazards.
• Employees go out of their way to look out for the safety of other team members.
• Employees take action to protect other team members from risky situations.
Whistle blowing
• Employees explain to other team members that they will report safety violations.
• Employees tell other team members to follow safe working procedures.
• Employees monitor new team members to ensure they are performing work safely.
Civic Virtue
• Employees attend safety meetings.
• Employees attend non-mandatory safety meetings.
• Employees stay informed of changes in safety policies and procedures.
Initiating Safety-related Change
• Employees try to improve safety procedures.
• Employees try to change the way a job is done to make it safer.
• Employees try to change policies and procedures to make them safer.

2.2. Participant Inclusion Criteria

Inclusion criteria for this study were: 1) individual was employed with one of the two participating companies; 2) individual was able to provide verbal informed consent after listening to the principal investigator read an invitation to take part in the study; 3) individual was able to read and comprehend survey instrument, which was written in English; and 4) individual completed all sections of the survey instrument.

2.3. Recruitment and Consent

Employees working at three separate facilities of the two companies who met the inclusion criteria were invited by the principal investigator to participate in this study. The survey instrument was administered at a time most convenient to the majority of employees. The Principal Investigator read an invitation to take part in the study and only individuals providing verbal consent were given the paper survey instrument to complete.

2.4. Hypothesis Testing

Descriptive statistics were gathered and an ANCOVA was performed on a saturated model. First, a Job Control Score (JCS) and a Safety Citizenship Score (SCS) were calculated for each participant. The survey included 16 Job Control items and 18 Safety Citizenship items. Participants used a Likert Scale to rate their responses between 1 and 5 (1 being Strongly Disagree, 2 being Disagree, 3 being Neutral, 4 being Agree, and 5 being Strongly Agree). A total of 80 points were possible for job control and 90 points were possible for safety citizenship. The JCS and SCS were a summation of the scores assigned to each item, divided by the total points possible for each score (80 for JCS and 90 for SCS), expressed as a percent. SPSS 12 (SPSS Inc., Chicago, IL) was used for all data analysis. The backwards elimination method was then used to reach the most parsimonious model with a priori alpha of $p < 0.05$. In this process, the covariate with the highest p-value was removed from the model. This model was then rerun for significance of the covariates. The same elimination method was repeated until all remaining covariates were statistically significant.

3. Results

3.1. Response Rate

A total of 198 employees were invited to take part in this study. Of the total number invited, 152 participants completed surveys for a response rate of 77%. The completed 152 surveys were included in the analysis for this study.

3.2. Participant Demographics

The study participants were predominantly male (n = 132, 87%) and from the United States (n = 147, 97%). Participant age was as follows: 12 (8%) were 24 years of age or younger; 34 (22%) were between the ages of 25 and 34; 54 (36%)

were between the ages of 35 and 49; and 52 (34%) were 50 years of age or older. A total 106 out of the 152 participants (70%) were over the age of 35. Five (3%) participants had only completed some high school, over half of the participant's highest education level was High School/GED Diploma (n = 79, 52%), 47 participants (31%) completed some college, 20 (13%) had an undergraduate college degree, and only 1 (1%) participant had a graduate degree. Only 14% of the participants had obtained a college degree or a Graduate Degree (n = 21). The participants were mainly laborers and craftworkers (n = 113, 74%), with 13 (9%) participants identifying as a Foreman, 16 identifying as a Supervisor, five (3) participants identifying as Technical or Office Support, and five (3%) participants identifying as Senior Management.

Approximately one-third of the study participants had worked in their specific industry for ≥16 years (n = 50, 33%), with 20 (13%) participants working in the specified industry to less than or equal to a year, 42 (28%) participants working in the specified industry for one to five years, 23 (15%) participants working in the specified industry for six to ten years, and 17 (11%) participants working in the specified industry (*i.e.* distillery bottling or construction).

One-third of participants worked for the same company for ≥16 years (n = 49, 32%), with 23 (15%) participants working with their current company for less than a year, 41 (27%) participants working with their current company for one to five years, 21 (14%) participants working with their current company for six to ten years, and 18 (12%) participants working for their current company for 11 to 15 years.

3.3. Job Control and Safety Citizenship Scores

The un-stratified mean scores for Job Control and Safety Citizenship were calculated. Table 2 illustrates that the mean Job Control Score (JCS) was 0.69 (SD = 0.12) and the mean Safety Citizenship Score (SCS) was 0.73 (SD = 0.10). The participants from the construction industry had a mean JCS of 0.74 and a mean SCS of 0.76. The participants from the bottling industry were the lowest in terms of mean JCS and SCS with 0.65 and 0.71 respectively. Finally, the participants from the distillery industry had a mean JCS of 0.73 and an SCS of 0.76. Graphical representation of SC and JC scores are shown in Figure 1.

3.4. Hypothesis Testing Results

As Table 3 illustrates, the final ANCOVA model shows a statistically significant association between JCS and SCS when controlling for job position and sex, $F(6, 145) = 40.03$, $p < 0.00001$. The adjusted R-square was 0.6079.

Table 2. Means of continuous variables (un-stratified).

Variable	N	Mean	Min	Max	Std. Dev
JC	152	0.69	0.29	1.00	0.12
SC	152	0.73	0.32	1.00	0.10

Table 3. Final ANCOVA model.

Final ANCOVA Model					
Source	**Partial SS**	**df**	**MS**	**F**	**Prob>F**
Model	1.0084998	6	0.1680833	40.03	0.0000
Position	0.1252169	4	0.03130423	7.45	0.0000
Sex	0.02252183	1	0.02252183	5.36	0.0220
JC	0.79067762	1	0.79067762	188.28	0.0000
Residual	0.60891004	145	0.00419938		
Total	1.6174099	151	0.01071132		

R-squared = 0.6235, Adjusted R-squared = 0.6079.

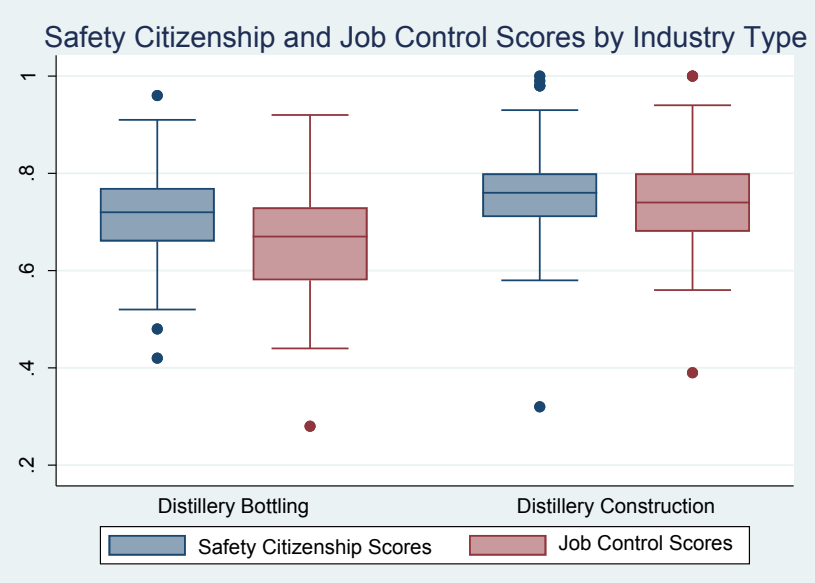


Figure 1. Safety citizenship and job control scores by industry type.

4. Discussion

4.1. Implication of Findings

The purpose of this study was to assess the relationship between self-reported Job Control Scores (JCS) and Safety Citizenship Scores (SCS) among participating employees from two companies in the Midwestern region of the United States. A statistically significant association was found between SCS and JCS when controlling for Job Position and Sex. This means, as Safety Citizenship Scores increased, Job Control Scores increased. These results suggest that employees reporting higher levels of job control are more likely to be actively participating in safety programming at their job sites. These findings are supported by current literature [7] [8] [15] [20] and could have implications for future safety programming within various organizations. By understanding this relationship and finding ways to improve job control, we could also improve safety citizenship. As pointed out by Zohar (2010), Safety Citizenship and Job Control

are constructs of safety climate [21]. By improving safety citizenship and job control, safety professionals could see an increase in positive safety climate at their job sites. Positive job site safety climates, increased job control, and improved safety citizenship lead to improved safety compliance [3] [4] [14] [22]. Curcuruto (2015) notes that safety citizenship has also been linked to a reduction of workplace incidents. By understanding this relationship, we can help employers reach higher levels of safety compliance, reduce the amount of occupational injuries, and see increased levels of positive safety climate.

Further, the inclusion of job position in the finding ANCOVA model is not surprising. The majority of participants in the study identified as craft workers. As noted by Pinion and colleagues (2017), craft workers are often faced with increased work demands and decreased job control (*i.e.* prescribed and restrictive schedules), two factors that inhibit the workers ability to participate in safety citizenship activities. Turner and colleagues (2012) found that high job demands and low job control were associated with poor safety citizenship [6]. In fact, high job demands lead to workplace strains which increase safety violations and occupational injuries.

4.2. Incorporating Safety Citizenship into Workplace Roles

As noted, employees are often faced with competing workplace role expectations. These competing expectations can lead to differing perceptions of what is required in a given workplace role. More importantly, current literature offers no true insight into how employees select expectations to integrate into their workplace role [2]. For example, how do employees choose between production, quality, and safety workplace expectations? Employees develop their workplace role based on what: they perceive their supervisor deems important; they know how to do; and they enjoy doing [20]. Employees are more likely to engage in safety citizenship when they perceive safety as a priority in their workplace. In fact, Turner and colleagues noted that an employee will expand their role to include safety (*i.e.* safety citizenship) out of obligation to or respect of their supervisor [20]. Several studies offer that employees with more job control will feel they have the ability to select and prioritize work tasks and to expand their job role to be more inclusive of workplace expectations [7] [15] [20]. Haas and colleagues (2018) and Pinion *et al.* (2017) note that when employees have increased job control, they are more likely to have positive perceptions of managerial commitment to safety. Employees feeling empowered by management will be more likely to be involved in safety management, to attempt to influence the safety behavior of co-workers, and to engage in safety citizenship behaviors [23].

4.3. Limitations

A few limitations are noted for this study. First, due to the cross-sectional approach of this study the results only represent employee perceptions for a single point in time. Therefore, it is recommended that a longitudinal approach be em-

ployed to provide a more accurate representation of employee self-reported job control and safety citizenship. Also, because a survey instrument was used in this study, there will be inherent biases prevalent within the results. Recall bias, acquiescence bias, and other biases such as these could have affected the results. Although safety surveys are limiting, they are an incredibly useful tool in determining various aspects of safety climate within a given workplace.

Small sample sizes can lead to non-response bias and Type II error, which is the failure of the researcher to reject a false null hypothesis. Categorical variables included in this study had small participant numbers (*i.e.* education, position type, and industry type). The majority of participants had a high school education or less, identified as craft workers, and was employed in the distillery bottling industry. It is difficult to generalize findings to either the distillery bottling or construction industries because of smaller sample sizes.

4.4. Strengths

A statistically significant association between job control and safety citizenship was noted. Research on the relationship that exists between these two factors has been historically minimal. Thus, this study provides further insight into the relationship between the two factors (*i.e.* JCS and SCS). 6.

Funding

This research received no external funding.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

[1] Didla, S., Mearns, K. and Flin, R. (2009) Safety Citizenship Behavior: A Proactive Approach to Risk Management. *Journal of Risk Research*, **12**, 475-483. https://doi.org/10.1080/13669870903041433

[2] Hofmann, D.A., Morgeson, F.P. and Gerras, S.J. (2003) Climate as a Moderator of the Relationship between Leader-Member Exchange and Content Specific Citizenship: Safety Climate as an Exemplar. *Journal of Applied Psychology*, **88**, 170-178. https://doi.org/10.1037/0021-9010.88.1.170

[3] Hofmann, D.A. and Morgeson, F.P. (1999) Safety-Related Behavior as a Social Exchange: The Role of Perceived Organizational Support and Leader-Member Exchange. *Journal of Applied Psychology*, **84**, 286-296. https://doi.org/10.1037/0021-9010.84.2.286

[4] Neal, A. and Griffin, M.A. (2006) A Study of the Lagged Relationships among Safety Climate, Safety Motivation, Safety Behavior, and Incidents at the Individual and Group Levels. *Journal of Applied Psychology*, **91**, 946-953. https://doi.org/10.1037/0021-9010.91.4.946

[5] Clarke (2006) The Relationship between Safety Climate and Safety Performance: A Meta-Analytic Review. *Journal of Occupational Health Psychology*, **11**, 315-327. https://doi.org/10.1037/1076-8998.11.4.315

[6] Turner, N., Stride, C., Carter, A., McCaughey, D. and Carroll, A. (2012) Job Demands Control-Support Model and Employee Safety Performance. *Accident Analysis and Prevention*, **45**, 81-817. https://doi.org/10.1016/j.aap.2011.07.005

[7] Haas, E., Ryan, M. and Hoebbel, C. (2018) Job Autonomy and Safety Climate: Examining Association in the Mining Industry. *Professional Safety*, **63**, 30-34.

[8] Snyder, L., Krauss, A., Chen, P., Finlinson, S. and Huang, Y. (2008) Occupational Safety: Application of the Job Demand-Control-Support Model. *Accident Analysis and Prevention*, **40**, 1713-1723. https://doi.org/10.1016/j.aap.2008.06.008

[9] Neal, A., Griffin, M.A. and Hart, P.M. (2000) The Impact of Organizational Climate on Safety Climate and Individual Behavior. *Safety Science*, **34**, 99-109. https://doi.org/10.1016/S0925-7535(00)00008-4

[10] Hon, C.K., Chan, A.P. and Yam, M.C. (2014) Relationships between Safety Climate and Safety Performance of Building Repair, Maintenance, Minor Alteration, and Addition (RMAA) Works. *Safety Science*, **65**, 10-19. https://doi.org/10.1016/j.ssci.2013.12.012

[11] Simard, M. and Marchand, A. (1994) The Behavior of First-Line Supervisors in Incident Prevention and Effectiveness in Occupational Safety. *Safety Science*, **17**, 169-185. https://doi.org/10.1016/0925-7535(94)90010-8

[12] Neal, A. and Griffin, M.A. (1997) Perceptions of Safety at Work: Developing a Model to Link Organizational Safety Climate and Individual Behavior. 21*st Annual Conference of the Society of Industrial and Organizational Psychology* (*SIOP*), St. Louis, 11-13 April 1997.

[13] Curcuruto, M., Conchie, S., Mariani, M. and Violante, F. (2015) The Role of Prosocial and Proactive Safety Behaviors in Predicting Safety Performance. *Safety Science*, **80**, 317-323. https://doi.org/10.1016/j.ssci.2015.07.032

[14] Kapp, E. (2012) The Influence of Supervisor Leadership Practices and Perceived Group Safety Climate on Employee Safety Performance. *Safety Science*, **50**, 1119-1124. https://doi.org/10.1016/j.ssci.2011.11.011

[15] Pinion, C., Brewer, S., Douphrate, D., Whitehead, L., Dellifraine, J., Taylor, W.C., *et al.* (2017) The Impact of Job Control on Employee Perception of Management Commitment to Safety. *Safety Science*, **93**, 70-75. https://doi.org/10.1016/j.ssci.2016.11.015

[16] Janssen, P.P.M., Bakker, A.B. and de Jong, A. (2001) A Test and Refinement of the Demand-Control-Support Model in the Construction Industry. *International Journal of Stress Management*, **8**, 315-332. https://doi.org/10.1023/A:1017517716727

[17] Grzywacz, J.G., Alterman, T., Gabbord, S., Shen, R., Carroll, D.J., Muntaner, C., *et al.* (2014) Job Control, Psychological Demand and Farmworker Health: Evidence from the National Agricultural Workers Survey. *Journal of Occupational and Environmental Medicine*, **56**, 66-71. https://doi.org/10.1097/JOM.0000000000000025

[18] Idris, M.A., Dollard, M.F., Coward, J. and Dormann, C. (2012) Psychosocial Safety Climate: Conceptual Distinctiveness and Effect on Job Demands and Worker Psychological Health. *Safety Science*, **50**, 19-28. https://doi.org/10.1016/j.ssci.2011.06.005

[19] Parker, S.K., Axtell, C.M. and Turner, N. (2001) Designing a Safer Workplace: Importance of Job Autonomy, Communication Quality, and Supportive Supervisors. *Journal of Occupational Health Psychology*, **6**, 211-228. https://doi.org/10.1037/1076-8998.6.3.211

[20] Turner, N., Chmiel, N. and Walls, M. (2005) Railing for Safety: Job Demands, Job Control, and Safety Citizenship Role Definition. *Journal of Occupational Health Psychology*, **10**, 504-512. https://doi.org/10.1037/1076-8998.10.4.504

[21] Zohar, D. (2010) Thirty Years of Safety Climate Research: Reflections and Future Directions. *Accident Analysis and Prevention*, **42**, 1517-1522. https://doi.org/10.1016/j.aap.2009.12.019

[22] Jitwasinkul, B. and Hadikusumo, B.H.W. (2011) Identification of Important Organisational Factors Influencing Safety Work Behaviors in Construction Projects. *Journal of Civil Engineering Management*, **17**, 520-528. https://doi.org/10.3846/13923730.2011.604538

[23] Ford, M. and Tetrick, L. (2011) Relationships among Occupational Hazards, Attitudes and Safety Performance. *Journal of Occupational Health Psychology*, **16**, 48-66. https://doi.org/10.1037/a0021296