



Research note

Prevalence and demographic differences in microaccidents and safety behaviors among young workers in Canada[☆]Nick Turner,^a Sean Tucker,^{b,*} E. Kevin Kelloway^c^a Haskayne School of Business, University of Calgary, Canada^b Faculty of Business Administration, University of Regina, Canada^c Department of Psychology, Saint Mary's University, Canada

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ABSTRACT

Introduction: The present study examines the self-reported frequency of non-lost work time workplace injuries (“microaccidents”) and the frequency of three types of work-related safety behaviors (i.e., safety voice, safety compliance, and safety neglect) recalled over a four-week period. **Method:** We analyzed data on microaccidents and safety behaviors from 19,547 young workers (aged 15–25 years, Mdn = 18 years; 55% male) from multiple Canadian provinces. **Results:** Approximately one-third of all young workers recalled experiencing at least one microaccident at work in the last four weeks. Comparisons across three age groups revealed that younger workers, particularly between the ages of 15–18, reported more frequent microaccidents, less safety voice, less safety compliance, and more safety neglect than workers aged 19–22. This pattern of results also held for comparisons between workers in 19–22 and 23–25 age groups, except for safety voice which did not differ between these two older age groups. In terms of gender, males and females reported the same frequency of microaccidents, but males reported more safety voice, more safety compliance, and more safety neglect than females did. The results and limitations of the present study are discussed. **Conclusion:** Frequency of microaccidents and safety behavior vary among young worker age sub-groups.

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1. Introduction

Injury statistics show that young workers (aged 15 to 25 years) are more likely to be injured on the job than adults (Salminen, 2004) with young males at highest risk of injury (Breslin & Smith, 2005). In 2011, 31,221 young workers in Canada (Association of Worker Compensation Boards, 2012a) and 116,900 in the United States (Bureau of Labour Statistics, 2012a) missed time away from work due to a workplace injury. That same year, 35 young workers in Canada (Association of Worker Compensation Boards, 2012b) and 380 in the United States (Bureau of Labour Statistics, 2012b) were killed on the job.

In contrast to these statistics on severe work injury outcomes, the current paper presents the prevalence of non-lost time work injuries (also known as “microaccidents;” Zohar, 2000) and a range of safety behaviors (Tucker & Turner, 2011) among a large sample of young workers in Canada. Understanding the prevalence of less severe

workplace injuries and safety outcomes that are upstream from severe workplace injuries is important for at least three reasons. First, more frequent but less severe forms of injuries are correlated with less frequent but more severe workplace injuries (Heinrich, Petersen, & Ross, 1980). Understanding predictors of more severe workplace injuries is critical in prevention efforts. Second, this study makes an empirical contribution by describing the occurrence of work-related safety outcomes among a large sample of young workers. This is a vulnerable population in the global workforce which, compared to jobs held by older workers, often experiences lower-quality work conditions because of the irregular, transient, low-wage, and part-time characteristics of many of the jobs they hold (International Labour Organization, 2013). Third, while some studies examine variation among young workers safety experiences (e.g., Breslin, Polzer, MacEachen, Morrongiello, & Shannon, 2007; Breslin & Smith, 2005), related research tends to assume the shared experience of work among this broad cohort (Barling & Kelloway, 1999). The current study describes the prevalence of safety behavior and microaccidents by young worker gender and age group (i.e., 15–18 years, 19–22 years, and 23–25 years) in a large sample of Canadian young workers.

2. Theoretical background

Research on young worker safety is diverse and interdisciplinary (Runyan, Lewko, & Rauscher, 2012). Studies have identified situational

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correlates of work-related injuries, such as work pressure (Breslin et al., 2007), gender differences in risk exposure (e.g., Breslin & Smith, 2005), the role of parents in developing children's safety attitudes (Runyan, Schulman, Santo, Bowling, & Agans, 2009), and the prevalence of work-related safety training among employed young people (Zierold, Welsh, & McGeeney, 2012). Absent from this literature is prevalence studies of work-related injuries and safety behaviors based on large samples of young working people.

The current study examines two types of safety outcomes: microaccidents (Zohar, 2000) and safety behaviors (Tucker & Turner, 2011). Microaccidents are physical wounds to the body from work-related activities that do not require time away from work (sometimes called "non-lost-time" injuries), and may require visits to a first aid station. This is in contrast to more severe injuries, variously called "major injuries" or "lost-time injuries" by health and safety regimes, and which necessitate time away from work for off-site medical attention, recuperation, or both. We studied non-lost time injuries for two reasons. First, little is known about non-lost time injury experiences in large samples of young workers; the majority of research on young worker injury prevalence examines lost-time injuries. Second, because microaccidents occur more frequently than lost-time injuries and consistent with Heinrich's iceberg concept (Heinrich et al., 1980), such events are a precursor to less-frequently occurring but more severe injuries in organizations.

Studies of lost-time injury claims consistently find that young males between the ages of 19 and 25 experience the highest rate of occupational injuries (e.g., Breslin & Smith, 2005; McCall, Horwitz, & Carr, 2007; WorksafeBC, 2011). At the same time, however, Breslin et al.'s (2007) review of high-quality multivariate studies of predictors of young worker injuries concluded that neither gender nor young worker age was related to self-reported injuries, particularly in the presence of job and work characteristics. Overall, therefore, the findings are unclear with respect to the impact of young worker gender and age on workplace injuries. Workplace injuries in the studies included in Breslin et al.'s (2007) review covered the full spectrum of severity excluding workplace deaths by injury, and given the different frequency distributions between less severe and more severe work injuries described above, the current study focuses on microaccidents among young workers by gender and age.

In addition to workplace injuries, two important and widely-studied safety outcomes are safety compliance (defined as "the core safety activities that need to be carried out by individuals to maintain workplace," Griffin & Neal, 2000, p. 349) and safety participation (defined as voluntary extra-role behaviors that "help to develop an environment that supports safety," Griffin & Neal, 2000, p. 349). A recent meta-analysis by Clarke (2013) containing 32 adult-aged working samples revealed that higher levels of safety compliance and safety participation were associated with fewer occupational injuries (average r s for both safety compliance and safety participation with occupational injuries = $-.21$, both with $N = 229$ reliability-corrected meta-analytic correlations).

Recently, Tucker and Turner (2011) broadened this set of safety behaviors to reflect the work experiences of young workers in response to physically dangerous work. In addition to safety compliance, they measured safety neglect (e.g., taking shortcuts or work-arounds) as antithetical to safety compliance, as well as safety voice (e.g., speaking up about hazardous work) as a specific form of safety participation.¹

The results of two focus group studies provide insight into the relative frequency of some of these behaviors and gender differences. Breslin et al. (2007) found that young female participants were more likely than young males in their sample to say they speak up about occupational safety concerns, but also that such behavior is commonly

viewed as complaining by supervisors. In contrast, Tucker and Turner's (2013) focus group study ($N = 39$ participants) found no differences in the frequency of work-related safety voice between young males and young females. However, they noted that "speaking up" behavior (specifically change-oriented voice) is relatively uncommon due to concerns young workers expressed about fears of losing their jobs, supervisor indifference, their relatively short tenures, and felt powerlessness. Safety compliance has been examined with adult working populations, however safety neglect is a new construct and there are no data on its prevalence in either adult or young worker populations. The current study is motivated to extend emergent research on young worker safety behaviors and bring clarity to questions related to gender and age differences in these key safety behaviors.

The current study uses a large sample of young Canadian workers to explore the prevalence of microaccidents, safety voice, safety compliance, and safety neglect. Given the mixed evidence of whether young males and young females differ in terms of the frequency of microaccidents and the lack of data on young worker age and gender across this range of safety behaviors, our study explores these potential differences as research questions.

3. Method

3.1. Study context, procedure, and sample

Participants were employed Canadians aged 15 to 25 years who responded to a short on-line survey between September 2011 and July 2012. The voluntary survey, which was approved by each of the author's university research ethics board, appeared at the beginning of the Passport to Safety™ (PS) program. PS (<http://www.passporttosafety.com/>) is an on-line training and assessment tool that is meant to build awareness of workplace hazards, job rights and responsibilities, and work injury prevention approaches among students. It is widely used in Canada, as well as some jurisdictions in the United States and Australia, primarily in high schools as a part of occupational health and safety instruction in the curriculum (Brotherton, 2012). High school teachers who use the PS program in their classes provide each student with a unique personal identification number, and each student logs into the on-line system as either part of in-class instruction or a homework assignment. The short survey they were presented with before taking the PS program included questions about demographic characteristics, work-related injuries, workplace safety behaviors—all taking less than two minutes to complete. Prior to completing the survey, participants had the option to read the PS privacy policy, describing how their responses to the questions may be used in academic research.

The data reported in the current study were collected in Canada, primarily from Ontario, the country's most populous province. Over 66,500 people started the short survey prior to beginning the on-line test. After eliminating cases with missing data, participants outside of the study's age range (i.e., over 26 years, inclusive) and unemployed individuals, a sample of 19,547 cases remained (55% male, median age = 18 years). Other data collected from some of these participants was used in a recently published study (Tucker et al., 2014).

3.2. Measures

3.2.1. Demographic information

We asked respondents to report their year of birth and gender.

3.2.2. Microaccidents

We asked respondents to respond to the following statement — "How many times in the past 4 weeks have you had a 'minor' workplace injury (e.g., cut, burn, strain, and sprain) that did not result in you missing time from work?" They responded in six groups ranging from no microaccidents experienced (coded as 0) to five or more microaccidents (coded as 5).

¹ Tucker and Turner (2011) also measured safety patience (i.e., waiting for safe conditions to improve), but the two-item measure was not measured in data set due to space restrictions in the questionnaire.

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