

3.2. Ethnocultural Factors

3.2.1. Ethnocultural Factors and Safety in Industry

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3.2.1. Ethnocultural Factors and Safety in Industry

The purpose of this chapter is to investigate if ethnocultural factors may have an impact on or influence safety engagement, particularly with mining employees in Saskatchewan. Ethnocultural is defined as relating to a particular ethnic group (Oxford University Press, 2016). Ethnocultural factors include ethnic origin, ethnic ancestry, ethnic or cultural origins, and visible minorities other than aboriginals (Statistics Canada, 2010). Statistics Canada does not consider language, place of birth, or citizenship to be part of this definition.

The question that guided our scoping review was: What influence do ethnocultural factors have on safety engagement of industrial employees?

Method

A scoping search of the literature was undertaken using the following key words:

1. Miners (miners or mining or “resource extraction” or industry) AND
2. Ethnocultural (ethnocultural or ethnicity or “ethnic identity” or ethnic or values or beliefs or culture) AND
3. Safety engagement (as per methodology section).

Search strategy. The databases searched are listed in the results. The inclusion and exclusion criteria were kept broad in that we did not specify the types of research methods to be included or excluded in order to capture as many articles on the topic as possible. In our search, we collected articles pertinent to the topic area. We included “industry” as a key word in order to have a broader selection of articles with the understanding some of the information gained could be generalized to the mining industry. The broad inclusion and exclusion criteria allowed us to explore the literature in this area more completely, see Table 1.

Table 1. Ethnocultural Factors and Safety in Industry Inclusion/Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
<ul style="list-style-type: none"> • Articles with key terms in the title or abstract • Peer reviewed • Within 5 years • English language articles 	<ul style="list-style-type: none"> • Editorials • Commentaries • Book reviews

Screening strategy. From this search, we selected articles based on the inclusion/exclusion criteria (Table 1). In our search, we collected articles that were pertinent or generalizable to this topic area.

Results

A brief summary of each article including its location, population studied, main issue addressed, comparison group, and primary outcomes is provided in Appendix G. Table 2 is an overview of the scope of the review.

Table 2. *Ethnocultural Factors and Safety in Industry - Number of Articles by Database*

Database	No of articles found from search	Articles Selected for Review	Final article selection
Engineering Village	1	36	18
CBCA Business	0		
Academic Search Complete	13		
Nursing and Allied Health	4		
PsycInfo	81		
MedLine	2		
Embase	10		
Scopus	1		
Web of Science	8		
ABI Inform Complete	6		
CINAHL	0		

Description of Included Articles. Table 3 provides an overview of the types of publications, country of publication, and populations studied.

Table 3

3.2.1. Ethnocultural Factors and Safety in Industry: Population Information and Type of Study

Type of Publication	Country of Researchers	Ethnic Groups Studied	Populations Studied
<ul style="list-style-type: none"> • Survey studies (6) • Qualitative studies (4) • Mixed methods studies (3) • Literature reviews (2) • Secondary analysis of data (1) • Evaluation, participatory action research (1) • Project descriptions (1) 	<ul style="list-style-type: none"> • USA (11) • Australia (3) • Canada (2) • Indonesia (1) • UK (1) 	<ul style="list-style-type: none"> • Latino and Hispanic immigrants (11) • Unspecified immigrant groups (4) • South Asia immigrants (1) • Indonesian community (1) • Blacks (1) 	<ul style="list-style-type: none"> • Construction workers (8) • Unspecified workers (3) • Management (3) • Farmers (2) • Safety officers (1) • Oil and gas workers (1) • Mining (1)

Description of Identified Factors. In order to make it easier to describe the results of the literature, the articles were divided into four categories. The categories included: influence of ethnicity, differences in safety culture, language barriers, and safety training. These categories were further divided into ethnocultural factors within the sections.

Influence of ethnicity. Five articles were related to the influence ethnicity may have on safety. From these articles, the following ethnocultural factors were identified: impact of ethnicity on safety engagement, language barriers, and ethnocultural disadvantages. Three articles described the impact of ethnicity on safety engagement. In an ethnographic study of gold miners in Indonesia, Soemarwoto and Roy (2010) found community members believed human loss was inevitable, and if safety measures were taken, they would interfere with the natural sacrifice required to release the gold. Participants felt the greater the sacrifice, the greater the amount of gold that would be released. In a survey study of 5357 managerial employees, Volpone, Avery, and McKay (2012) explored the relationship between

performance appraisals and general employee engagement. They found appraisal reactions influenced an employee's level of engagement with a stronger relationship exhibited in minority groups. The effects reported by Volpone et al. were indirect and employee engagement was difficult to measure. In one article, ethnicity was not found to be a factor. Mearns and Yule (2009) reviewed the literature on national culture and safety performance, and they found the commitment of management and their approach to safety had more of an impact on safety behavior than country of origin.

Two articles described ethnocultural disadvantages and language barriers. According to Thakur and Sawhney (2012), Hispanic workers experience a disadvantage on many jobsites because they are required to make both cultural and organizational adjustments as well as attempt to learn safety requirements in a foreign language. They recommended organizations include cultural factors in an accident investigation in order to add an extra layer of questions that will lead to the contributing factors of the accident, which may then reduce accident and fatality rates of that particular ethnic group. In a qualitative study of safety officers, coordinators, and managers from ten different construction firms in Australia, Feng (2014) investigated the Occupational Health and Safety implications of cultural divergences in this workforce. The author found cultural diversity impacted most of the safety practices at construction sites.

Differences in safety culture. Seven articles looked for differences in safety culture between ethnic groups. From these articles, the following ethnocultural factors were identified: impact of ethnicity on safety, ethnocultural disadvantages, and language barriers.

Four articles identified the impact ethnicity has on safety. According to Kane (2010) there are significant differences between varying ethnicities that should be considered when developing safety programs in order to ensure they will be adopted by the workers. In an American survey study of construction workers, Kane found a significant difference between Hispanic and non-Hispanic participants in locus of control, and the author found a higher information-seeking behavior in Hispanic participants. The author found that only 13% of the Hispanic participants reported they generally received information prior to receiving new technology, which could explain a lack of willingness to adopt new technologies. Casey, Riseborough, and Krauss (2015) found safety related perceptions differ for Southern Asian workers as compared to their Anglo colleagues. They suggested these differences need to be taken into account when creating safety regulations. Casey et al. recommended encouraging open communication about mistakes to supervisors, and the authors cautioned that other factors besides ethnicity may play a role. In a survey study of 341 construction workers, Gilkey, Lopez del Puerto, Rosencrance, & Chen (2013) reported Latino workers in the United States were younger, less experienced, had lower educational levels, and less safety training than their non-Latino counterparts. In addition, they found differences between the two groups in risk perception, blame, reporting, understanding safety rules, and awareness of dangers. Gilkey et al. stated possible barriers were language, cultural differences, immigration status, machismo, ineffective training, and prioritizing productivity over safety.

Two studies found differences related to types of work. Arcury et al. (2012) described the work safety climate among Latino residential construction workers, and they found differing work safety climates amongst different types of work. They stated work safety climate was a predictor of safety

behavior, therefore interventions are needed to improve safety training for both employees and employers. In a survey study of Latino construction workers, Lopez del Puerto, Clevenger, Boremann, & Gilkey (2013) found Latino workers in commercial and heavy construction had more in common regarding safety culture and risk perceptions than those in residential construction. They found those in residential construction placed work productivity and quality over safety; therefore, this may lead to higher rates of injury in residential construction compared to heavy construction.

Two studies found no differences related to ethnicity. In a survey study of 4182 construction workers, Cigularov, Lancaster, Chen, Gittleman, and Haile (2013) looked at the validity of a safety climate measure across cultures. They found no difference in safety climate between White English speaking, Hispanic English-speaking, and Hispanic Spanish-speaking workers; however, they suggested there may be different frames of reference in the US-born and Hispanic immigrant workers. In a survey study of 128 construction workers in the USA, Marin, Cifuentes and Roelofs (2015) found a participant's perception of health and safety was not influenced by their age, English proficiency, job experience, and the number of years they've resided in the US; however, the authors reported the Hispanic participants' safety climate scores were lower than the supervisors' scores. Marin et al. proposed a Hispanic safety climate model as a framework for safety interventions and safety climate improvements.

Language Barriers. Language may present a barrier when learning about safety in a foreign country. Four articles were identified which reported on language barriers. From these articles, the following ethnocultural factors were identified: addressing language barriers, impacts of ethnicity on safety. Two articles were about addressing language barriers. Evia and Patriarca (2012) developed a prototype program for new Latino workers to learn important workplace-safety information in their own language. They stressed the importance of taking the individual's culture and language into consideration when developing safety programs. In an ethnographic study, Viveros-Guzman and Gertler (2015) found language barriers related to immigrant workers put them at risk for physical and psychological health and safety problems. They called for a broader multi-stakeholder commitment to addressing language barriers and improving communication with these workers.

One article was about impact on safety due to language barriers. In a mixed methods study of multi-cultural construction workers and supervisors, Loosemore, Phua, Dunn, & Ozguc (2010) found racism was not perceived as an issue. They found low English proficiency had a negative impact on safety, perceptions of equality, productivity, and staff motivation. One article listed other barriers to reporting injury. In a qualitative study of immigrant workers' experiences of injury reporting and claim filing, Kosny et al. (2011) found the following barriers to reporting injury: perceived loss of control over working conditions, poor English-language skills, poor training, lack of familiarity with tools and machines, and inability to understand the forms or the process to file claims. The authors recommended increased inspections of workplaces with immigrant workers, more information and resources for workers, and better promotion of interpretation services.

Safety training. Two studies reported on safety training considerations related to ethnicity. From the articles, the following ethnocultural factors were identified: impacts of safety training, and addressing language barriers. One article reported on the importance of safety training. Williams, Ochsner, Marshall,

Kimmel, and Martino (2010) found Hispanic workers who completed a safety training session were more likely to demonstrate personal initiative in seeking PPE or asking about a hazardous situation after the intervention. One article reported on the importance of safety training in the language of the participant. Ahonen et al. (2013) discussed the implementation of a training program for immigrant workers. The authors reported work centers which engage day workers for construction type companies were asked to send a member for training in teaching safety; these trainers knew the languages of the minorities, thus were able to communicate safety teaching in their language. Ahonen et al. reported this program engaged the work centers in the responsibility of keeping their workers safe, and the work centers became advocates for their workers at the various worksites; thus, there was improved reporting of work hazards and more conversations between the worker and supervisor or colleagues about work safety.

Discussion

This scoping review looked at the influence ethnocultural factors had on safety engagement. Although there may be differences in safety beliefs amongst different ethnicities, ethnicity alone does not appear to be a major influence on safety engagement. Some studies found different ethnic groups may have different beliefs regarding safety (Soemarwoto & Roy, 2010; Casey et al., 2015), and they may respond differently to workplace assessments (Volpone, et al., 2012). Other studies found no difference in safety engagement between different ethnicities (Mearns & Yule, 2009). Ethnicity may have more of an impact on safety engagement in different types of industry, with some industries having similar safety behaviors independent of culture (Arcury et al., 2012; Lopez del Puerto et al., 2013). Overall, the results are mixed on the impact of ethnicity on safety engagement.

For those employees working in foreign countries, language barriers may be a factor in decreasing safety engagement. Language barriers may put employees at risk for injury (Viveros-Guzman & Gertler, 2015; Loosemore et al., 2010; Kosny et al., 2011). Employees of different ethnic backgrounds than the majority in the workplace may have difficulties understanding the intent of the language spoken in the workplace (Thakur & Sawhney, 2012). Some of the misunderstandings in safety and workplace procedures could be due to a lack of information and communication barriers (Kane, 2010; Viveros-Guzman & Gertler, 2015); thus, it is important that workers learn about safety in their native language (Evia & Patriarca, 2012). Overall, the results of the research indicate it is important to provide safety training to employees in their native language.

Ethnocultural differences may result in disadvantages for employees. Employees of other than the majority ethnicity are required to make adjustments to their cultural and organizational understandings (Thakur & Sawhney, 2012; Kosny et al., 2011). Immigrant workers tend to be younger, have less education, and less safety training than non-immigrant workers as well as language and cultural differences (Gilkey et al., 2013). Different frames of reference resulting in different interpretations of safety rules may cause problems in the workplace (Marin et al., 2015; Cigularov et al., 2013). The results of the literature suggest workers of different ethnocultural backgrounds may experience the workplace differently than the dominant culture.

Safety training can improve safety engagement regardless of the ethnicity of the employee (Williams et al., 2010). Trainers of the same ethnicity as the employees may provide a better

understanding of safety. Differences need to be taken into account when developing training programs (Casey et al., 2015). Training in the native language of the employee is more effective (Ahonen et al., 2013). Overall, the results of the literature support safety training regardless of the language it is offered in, but the suggestion is that training in the employee's language is more effective.

Gaps in the Literature. Of the eighteen articles reviewed, the majority of the researchers looked at the experiences of Latino or Hispanic workers. More research is required to determine if the experiences would be the same for other ethnic minorities. It would be beneficial to do broader studies on cultural differences and beliefs related to safety engagement to determine the impact those beliefs may have on safety in the workplace. Only two articles looked at safety training and inclusion of different ethnic backgrounds in developing the training programs. More research on programming is needed to determine its impact on safety engagement.

Recommendations. The following recommendation for industry arose from the scoping review:

- Safety training should be presented in the native language of the employees.
- It may benefit industries to educate management and supervisors on ethnocultural differences and awareness of the challenges faced by immigrant workers.

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