SAFETY CLIMATE
Within Ontario Restaurants

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RESTAURANT WORKERS ARE EXPOSED to a wide range of safety and health hazards that can result in injuries. Between 2015 and 2018, the number of lost-time injuries increased significantly in the restaurant sector of Ontario, Canada. Given this trend, it was deemed important to examine this sector's current safety climate because it has been shown to be a reliable predictor of safety behavior and outcome. Thus, this exploratory study aimed to understand the safety climate in Ontario restaurants and identify areas for improvement. A self-administered questionnaire was used to assess seven key safety climate dimensions such as management safety empowerment and peer safety communication/trust.

Results were analyzed using descriptive statistics and, when stratified, comparative analyses. The overall safety climate was considered fairly good (between 3.00 and 3.30 on a 4.00 scale); however, perceptions of worker risk nonacceptance and safety priority were low across all stratified groups. Workers' safety climate perceptions were consistently lower than those of management. Workers with 5 or more years of tenure had lower safety climate perceptions than less-tenured peers. Participants who worked mostly in the front of the house had better safety climate perceptions than those who worked in the back of the house or in both areas equally. Based on study results, actions are recommended to increase worker participation in safety and health decisions, to encourage the sharing of safety knowl-

edge from more senior workers, to communicate the priority of safety, and to make clear that risks should not be accepted as part of the job.

Introduction
OSH in the Restaurant Industry

As of 2018, more than 64,000 employers operated in the Canadian restaurant industry, with more than 25,000 in the province of Ontario alone (Statistics Canada, 2018). This industry is fast-paced, repetitive and physically demanding, and, therefore, places workers at potential risk of injuries (Filiaggi & Courtney, 2003; Gentzler & Smither, 2012). The severity of these injuries can span from minor burns to broken bones resulting from a slip or trip. Workplace injuries not only impact the injured employee but also can affect business operations due to lost productivity, higher insurance premiums and property damage. Between 2015 and 2018, the number of work-related lost-time injuries for every 100 full-time equivalent employees increased by 19% in the Ontario restaurant sector (Workplace Safety and Prevention Services, personal communication, Oct. 24, 2019). This increase is alarming and strategies to improve this sector's safety and health performance are urgently needed. A first step toward achieving this goal is an assessment of the sector's current state of safety and health.

OSH research in the restaurant industry has thus far focused primarily on characterizing workplace conditions and hazards (Filiaggi & Courtney, 2003; Jayaraman et al., 2011; Webster, 2001) as well as specialized topics such as immigrant workers in restaurants (Sen, 2009; Tsai & Salazar, 2007). In recent years, this area of research has evolved to examine the relationship between safety climate and safety outcomes in the restaurant industry. For example, two prospective studies that were part of a large research project conducted in three major restaurant chains across six U.S. states explored the link between specific safety climate dimensions and injury outcomes. One of these studies found that an individual employee's perception of management's commitment to safety, a commonly evaluated safety climate dimension, strongly correlated ($p = .02$) with the employee's future likelihood of experiencing injury (Huang, Verma, et al., 2012a). The other study found that employees' shared perceptions of

KEY TAKEAWAYS
- Safety climate is a reliable predictor of workplace safety behavior and outcome. As such, exploring the safety climate of Ontario restaurants can identify key areas for improvement.
- Study results suggest that perceptions of management commitment to and fairness around safety were positive, whereas perceptions of worker risk nonacceptance and safety priority could be improved. There were also significant differences between groups in categories of work position, work area and employment length.
- Based on study results, actions are recommended to increase worker participation in safety and health decisions, to encourage the sharing of safety knowledge from more senior workers, to communicate the priority of safety, and to make clear that risks should not be accepted as part of the job.

TABLE 1
SAFETY CLIMATE DIMENSIONS & EXAMPLE SURVEY QUESTIONS

No.	Dimension	Example questions
SC1	Management safety priority, commitment and competence	• Those who work here have confidence in management's ability to handle safety and health issues. • Management is OK with employees here taking risks when the restaurant is busy.
SC2	Management safety empowerment	• Management involves employees in decisions regarding safety and health. • Management never asks employees for their opinions before making decisions regarding safety and health.
SC3	Management safety justice	• Management treats employees involved in an accident fairly. • Management always blames employees for accidents.
SC4	Workers' safety commitment	• Those who work here help each other to work safely. • Those who work here avoid tackling safety and health risks that are discovered or identified.
SC5	Workers' safety priority and risk nonacceptance	• Those who work here never accept risk-taking even if the restaurant is busy. • Those who work here regard safety and health risks as unavoidable.
SC6	Peer safety communication, learning and trust in coworkers' safety competence	• Those who work here take each other's opinions and suggestions concerning safety and health seriously. • Those who work here rarely talk about safety and health.
SC7	Peer trust in safety training	• Those who work here think that safety and health training is good for preventing accidents. • Those who work here think that safety and health training is meaningless.

TABLE 2
SCALE FOR INTERPRETING GRAND MEANS FOR EACH DIMENSION

Grand mean	Safety climate level	Recommended action
> 3.30	Good	Maintain only
3.00 to 3.30	Fairly good	Slight need for improvement
2.70 to 2.99	Fairly low	Need improvement
< 2.70	Low	Great need for improvement

TABLE 3
CHARACTERISTICS OF THE STUDY POPULATION

Variables	Category	n	%
Position	Worker	116	67.05
	Supervisor or manager	57	32.95
Work area	Front of the house	110	63.58
	Back of the house	25	14.45
	Both front and back equally	38	21.97
Workers[a]: Length of employment	Less than 1 year	26	22.41
	More than 1 year, less than 3	39	33.62
	More than 3 years, less than 5	18	15.52
	5 or more years	33	28.45

Note. [a]Percentage calculated with n = 116, the total number of workers in the study sample.

their safety training and management commitment to safety can indirectly affect the risk of slipping incidents through influencing safety behavior ($p = .04$; Swedler et al., 2015). However, to the authors' knowledge, the general safety climate of the restaurant industry has not been explicitly explored before.

What Is Safety Climate?

Zohar (1980) introduced safety climate as the shared perceptions of how much safety is valued in the workplace. These perceptions evolve as a result of ongoing social interactions between workers and management as well as among workers themselves. Through these interactions, workers determine the safety practices and behaviors that are expected or rewarded (Zohar, 2010), which subsequently influence workers' behavior when performing tasks that involve a degree of risk (Tholén et al., 2013). Safety climate is typically measured using a series of questions that illustrate a variety of occupational scenarios, to which respondents indicate their degree of agreement. These questions are grouped into safety climate themes or dimensions such as "management safety empowerment" and "workers' safety commitment."

Recently, interest in the topic of safety climate has been increasing because there has been more evidence of the two-way causal effect between safety climate perceptions and individual safety behavior (Beus, Payne, et al., 2010; Clarke, 2006; Kuenzi & Schminke, 2009; Tholén et al., 2013). In addition, according to several meta-analyses, the ability of safety climate to predict safety behaviors and outcomes spans across industries and countries (Christian et al., 2009; Nahrgang et al., 2007). Moreover, one study specifically connected positive safety climate to lower injury rates (Ajslev et al., 2018). Since safety climate has been shown to be a reliable predictor for safety performance, its examination can provide insight into the strengths and weaknesses of the current state of safety and health within Ontario restaurants. In turn, these findings could help inform this sector with respect to strategies toward reducing its injury rates. Thus, the goal of this study was to understand the current safety climate in Ontario restaurants to help this industry prioritize initiatives to improve safety and health performance.

Materials & Methods

The target population of this study was individuals who worked in full and limited service restaurants in Ontario (inclusion criteria). "Full service" refers to casual and fine dining restaurants where food is ordered and served at the table with payment after the meal. "Limited service" refers to fast food or cafeteria restaurants where food is ordered and served at a counter with payment made by the customer before receiving the meal.

Data Collection Tools & Instruments

Data was collected via paper or online questionnaires. In addition to 11 demographic questions (e.g., age, gender, job tenure, work experience), there were 35 Likert scale questions across seven safety climate dimensions. Each question addressed an occupational situation and respondents were asked to rate their degree of agreement based on a four-point scale (1 = strongly disagree; 2 = disagree; 3 = agree; 4 = strongly agree). Most questions used in the current study ($n = 32$) were adapted from the Nordic Occupational Safety Climate Questionnaire (NOSACQ-50), which has been cross-validated in several countries across various industries (Kines et al., n.d., 2011). Three additional questions were taken from a safety climate survey created and validated in multiple workplaces by Lin et al. (2008). This resulted in 35 questions over-

all that examined common themes found in previous safety climate studies, including management commitment, state of the safety system, safety competence, balance between safety and production pressure, and attitude toward risk and risk-taking (Flin et al., 2000; Table 1).

Data Analysis Methods

The responses to questions in every safety climate dimension were averaged for each respondent. These averages were then pooled to find the dimension's grand mean within all respondents. If a respondent answered fewer than half of the questions within a safety climate dimension, the individual's answers in that dimension were excluded from the grand mean. The grand means were then interpreted using a scale provided by NOSACQ-50 (Table 2).

The study sample was subsequently stratified to compare between groups because previous studies had noted that intra-workplace differences in safety climate perception can reveal disagreements that impact safety and health outcomes (Coyle et al., 1995; Zohar & Luria, 2005). The variables that were stratified include work position, work area and tenure with the workplace. Analysis of variance (ANOVA) test for unbalanced sample sizes and Tukey-Kramer post-hoc test were used to determine whether the difference between group means was statistically significant at the 0.05 tolerance level. These comparative analyses were conducted using SAS statistical software.

Results

Twenty-eight paper questionnaires and 259 online questionnaires were distributed, and the response rates were 100% (28/28) and 67.18% (174/259), respectively. Twenty-nine (11.2%) responses were excluded from analysis because the respondent did not meet the inclusion criteria or only completed the demographic questions. This resulted in a study population of 173 participants, which consisted mainly of women (58.38%), who primarily worked full time (60.69%), and the majority of whom were between the ages of 25 and 44 (58.96%). Other characteristics of the study population and the variables used for the comparative analyses can be found in Table 3.

In the full study population, means of all seven safety climate dimensions were above 3.00 (Table 4). Dimensions SC1 (management's safety commitment) and SC3 (management safety justice) had especially high means that were both above 3.30. The dimension with the lowest mean was dimension SC5, workers' safety priority and risk nonacceptance, which was just above 3.00.

Work Position

After stratifying by work position, the worker group showed lower means than the supervisor/manager group across all safety climate dimensions (Figure 1, p. 42). While most dimensions showed good or fairly good safety climate levels, the worker group perceived dimensions SC2 (management safety empowerment) and SC5 (worker safety priority and risk nonacceptance) to be fairly low. The difference between worker and management groups was found to be statistically significant for dimension SC2.

TABLE 4
SAFETY CLIMATE DATA

Safety climate mean scores, standard deviations, and ANOVA p-values, overall and stratified by length of employment of workers. Means below 3.00 are italicized.

		Safety climate dimensions						
		SC1	SC2	SC3	SC4	SC5	SC6	SC7
All respondents (*n* = 173)	Mean	3.379	3.089	3.400	3.243	3.036	3.189	3.284
	SD	0.491	0.550	0.512	0.519	0.618	0.575	0.607
Length of employment: Workers (*n* = 116)								
Less than 1 year	Mean	3.363	3.058	3.356	3.300	*2.896*	3.169	3.288
	SD	0.456	0.580	0.534	0.510	0.579	0.590	0.603
More than 1 year, less than 3	Mean	3.408	3.013	3.400	3.164	*2.990*	3.133	3.192
	SD	0.486	0.593	0.509	0.911	0.916	0.915	0.964
More than 3 years, less than 5	Mean	3.420	3.153	3.533	3.189	3.244	3.256	3.306
	SD	0.480	0.536	0.455	0.551	0.649	0.609	0.689
5 or more years	Mean	3.195	*2.818*	3.179	3.018	*2.742*	*2.938*	3.076
	SD	0.451	0.659	0.494	0.425	0.645	0.471	0.502
ANOVA	p	0.213	0.456	0.092	0.053	0.012	0.043	0.222

Length of Employment

When stratified by length of employment, participants who have been with their current workplace the longest (5 or more years) had the lowest safety climate perceptions across all dimensions. However, these differences were not statistically significant.

Since a much higher proportion of supervisors/managers had been with their current workplace for 5 or more years (72% vs. 29% in workers), this category was further examined within the worker subsample only. Workers who have been with their current workplace for 5 or more years had lower means across all dimensions, echoing the trend seen in the entire study population (Table 4). However, in this subsample, the comparative analysis found statistically significant differences in dimensions SC5 (worker safety priority and risk nonacceptance) and SC6 (peer safety communication, learning and trust). In SC5, the difference between the 3-to-5-years group and all other groups was found to be statistically significant. In dimension SC6, there was a statistically significant difference between the 5-or-more-years group and the 1-to-3-years group.

Work Area

The restaurant industry typically refers to the "front of the house" and "back of the house" to distinguish between different working areas and worker groups. "Front of the house" denotes all areas that interact with customers, including bathrooms. "Back of the house" denotes areas that customers do not typically enter, such as the kitchen, dishwashing or storage areas. Those who worked mostly in the front of the house reported better safety climate across all dimensions than those who worked mostly in the back of the house or in both areas equally. These differences were found to be statistically significant in five of the seven safety climate dimensions (Figure 2, p. 43).

Discussion

The purpose of this study was to examine the current safety climate in the restaurant industry. To the authors' knowledge, this was a novel study as the authors could not locate any similar such studies conducted in other provinces or countries. Overall, the safety climate at the participating restaurants was positive since the grand means for all dimensions were above 3.00 (or "fairly good" and "good" as per Table 2). This finding reflects well on the Ontario restaurant industry because good safety climate not only has been shown to positively affect safety outcomes, but also has been linked to employee job satisfaction, engagement and lower turnover rates (Huang, Lee, et al., 2016). Dimensions SC1 and SC3 were especially positive at 3.38

and 3.40, respectively. Dimension SC1 examined the perception of management's safety commitment and competence, which has been shown to not only predict safety behaviors (Cheyne et al., 1998) but also subsequent injuries (Huang, Verma, et al., 2012b). Dimension SC3 represents the perception of management safety justice. This dimension is noteworthy because previous studies suggest that consistent and fair response to incidents can positively influence the safety behavior of workers (Kines et al., 2011). In fact, poor consistency in the enforcement of safety behaviors has been linked to higher underreporting of incidents (Probst & Estrada, 2010). Since dimensions SC1 and SC3 have been shown to correlate with good safety behaviors and outcomes, it is encouraging to find that both dimensions had high means in the restaurants sampled.

The lowest mean emerged in dimension SC5, worker safety priority and risk nonacceptance. This trend persisted despite the various stratifications where SC5 consistently had the highest frequency of fairly low (between 2.70 and 2.99) and low (below 2.70) safety climate results. This is supported by the current database of the NOSACQ-50 safety climate questionnaire, which also observed low SC5 mean values in pooled results from more than 400 studies from around the world (Det Nationale Forskningscenter for Arbejdsmiljø, n.d.). Thus, workers' safety priority and risk nonacceptance may be an issue that extends across industries and countries.

A study by Clarke (2006) concluded that an individual's commitment to their peer group is stronger than their commitment to their workplace. Given that group norms can influence safety motivation (Andriessen, 1978), perceived group norms around the prioritization of safety and risk nonacceptance could then influence an individual's motivation to work safely. This motivation, in turn, can shape an individual's safety behavior and personal investment in safety activities and decisions (Tucker et al., 2008; Watson et al., 2005). Therefore, when prioritizing control measures, shaping worker perceptions to stress the importance of safety and discourage risk-accepting attitudes is suggested.
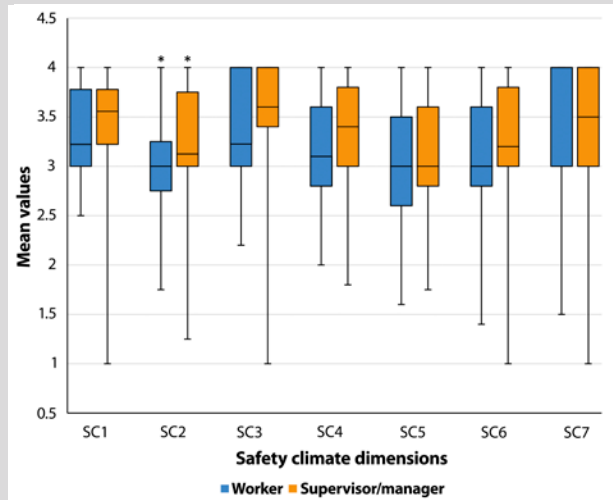
After stratification, workers' safety climate perceptions were consistently lower than that of supervisors and managers across all safety climate dimensions. Previous studies have also found that management tended to rate the safety climate of their workplace more favorably than workers (Parker et al., 2014). Managers and supervisors could bridge this gap by strengthening the quality of communication regarding safety, not only through top-down dissemination of information, but also by encouraging workers to bring up safety concerns. This is important because the quality of supervisor-worker safety communication has been shown to directly affect safety behaviors and outcomes (Huang, Sinclair, et al., 2018).

In particular, worker perceptions of management safety empowerment were fairly low, whereas supervisors and managers believed it was fairly good. This means that management assumed workers were adequately empowered to influence safety and health decisions, while workers believed they were not very involved. Inclusion of workers in safety decisions is important because it has consistently been associated with lower injury rates (Shannon et al., 1997). Thus, increasing worker participation in safety and health decisions and activities is another approach to reducing injury rates in the restaurant sector.

Workers' safety climate perceptions were found to differ with their employment length. Workers who had been with their current employer for 5 or more years reported the lowest safety climate ratings across all seven safety climate dimensions.

FIGURE 1
RESPONSES BY WORK POSITION

Box plot of safety climate dimensions comparing workers and supervisors/managers. Asterisk denotes statistically significant differences between groups.

While research on the relationship between worker tenure and safety climate perception is lacking, it has been shown that with increasing job tenure, safety climate levels become more uniform (Beus, Bergman, et al., 2010) and less linked to safety behavior (Murphy et al., 2019). Furthermore, while dimension SC6 (peer safety communication, learning and competence) had a fairly good mean in the worker subsample, stratifying by employment tenure found this dimension to be fairly low for workers in the 5-or-more-years group. This finding suggests that workers who have been with their current workplace for 5 or more years thought their peers did not talk about safety enough and were not safety competent. Open communication between workers has been found to promote learning and trust in each other's safety competency, which strongly signals that safety is valued in their peer group, leading to better safety behavior (Hofmann & Stetzer, 1998; Jeffcott et al., 2006). Therefore, action is recommended to encourage workers with more seniority to share their safety knowledge and discuss safety issues with their peers.
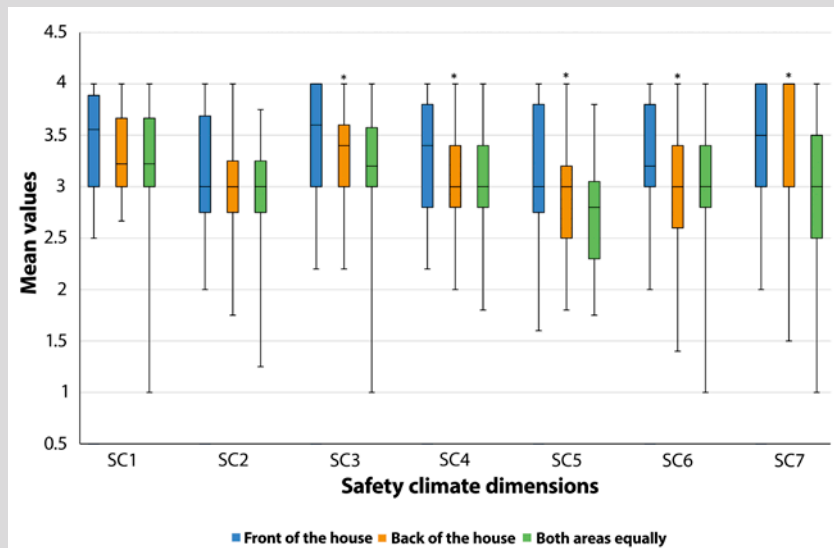
Stratifying the respondents by work area showed that the front of the house group had better safety climate perceptions than the back of the house group as well as those who work in both areas. To the authors' knowledge, this is a novel finding and might be explained by differences in hazards and severity of injuries experienced between the front and back areas. Hazards unique to the back of the house include extreme temperatures, sharp edges and open flames (Filiaggi & Courtney, 2003). These hazards can result in more severe injuries than hazards commonly found in the front of the house. While research exists on the gender, race and ethnic differences between workers in the front and back of the house (Sachs et al., 2014), examination of the difference in their safety conditions and outcomes is lacking.

Conclusion

Results from this study showed that the surveyed restaurants had good safety climate overall. However, there were significant

WORK AREA

Box plots of safety climate dimensions comparing work areas. Asterisk denotes statistically significant differences between groups.

differences between groups in categories of work position, work area and employment length. Actions are recommended to increase worker participation in safety decisions and activities, as well as to encourage workers with more seniority to discuss and share their safety knowledge with their peers. Actions are also recommended to increase the priority of safety and discourage the acceptance of risks, especially in the worker group.

While it was encouraging to find an overall good safety climate among the participants, this result was unexpected given the Ontario restaurant sector's recent upward trend in lost-time injury rate. Participation bias may play a role in this discrepancy because restaurants that place a higher priority on safety and health might also be more willing to dedicate time to a study regarding workplace safety. In other words, the participants of this study may have been more likely to have an existing positive safety climate. Future studies could attempt to reduce participation bias through recruiting restaurant workers directly instead of through their workplaces so the results will be more representative of the industry as a whole.

Since this is the first study to examine the general safety climate in the restaurant industry, it is largely exploratory in nature. Future similar studies are suggested to confirm or refute the current findings. Due to the dynamic nature of safety climate, any attempt to measure it can only gain a snapshot of the shared perceptions at that point in time. Therefore, it may also be valuable to compare these results with future safety climate assessments to examine how perceptions evolve in the restaurant industry. This study was also limited by unbalanced sample sizes while comparing within several categories. Thus, future studies should strive to achieve similar sample sizes to increase the study power.

While the present study focused on the restaurant industry, safety climate dimensions that were examined are relevant to all workplaces. OSH professionals can conduct safety

climate measurements to ascertain the landscape of their organization's current state of safety or, more specifically, to identify safety climate dimensions that are doing well and areas that might require additional attention. The information obtained can support the prioritization and allocation of resources to initiatives that target the lowest scoring safety climate dimensions. **PSJ**

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