

# Work Safety Climate and Safety Practices Among Immigrant Latino Residential Construction Workers

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**Background** *Latino residential construction workers experience high rates of occupational fatality and injury. Work safety climate is an especially important consideration for improving the safety of these immigrant workers. This analysis describes work safety climate among Latino residential construction workers, delineates differences in work safety climate by personal and employment characteristics, and determines associations of work safety climate with specific work safety behaviors.*

**Methods** *Data are from a cross-sectional survey of 119 Latino residential framers, roofers, and general construction workers in western North Carolina; 90 of these participants also provided longitudinal daily diary data for up to 21 days using an Interactive Voice Response (IVR) system. Measures included the Perceived Safety Climate Scale, and daily reports of five individual and five collective safety practices.*

**Results** *Work safety climate was mixed among workers, with roofers (19.9) having lower levels than framers (24.3) or general construction workers (24.3). Days reported for several individual (glove-related risks, not doing something known to be unsafe) and collective safety practices (attended daily safety meeting, not needing to use damaged equipment, not seeing coworker create an unsafe situation) were positively associated with work safety climate.*

**Conclusions** *Work safety climate predicts subsequent safety behaviors among Latino residential construction workers, with differences by trade being particularly important. Interventions are needed to improve safety training for employers as well as workers. Further research should expand the number of workers and trades involved in analyses of work safety climate. Am. J. Ind. Med. 55:736–745, 2012.*

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## INTRODUCTION

Latino workers in residential construction constitute a large part of an increasingly diverse workforce. In 1992, Latinos represented 14% (0.65 million) of all workers in the construction industry; in 2001, they represented 18% (1.30 million); and in 2007, they represented 30% (2.98 million) [Dong et al., 2010a]. About one million of the Latino construction workers speak only Spanish [Brunette, 2004].

The construction industry has among the highest occupational injury and fatality rates of all US industries [Bureau of Labor Statistics, 2007]. These injury and fatality rates are greater for immigrant Latino workers than for non-immigrant workers [Dong and Platner, 2004]. For example, from 2001 to 2008, the death rate by falls for foreign-born Latino construction workers was 6.0 per 100,000 full-time equivalents (FTE), a rate 58% greater than the rate of 3.8 per 100,000 FTEs for white, non-Latino workers [Center for Construction Research and Training, 2008]. The number of non-fatal illness and injuries to Latino construction workers varies based on trade. From 2008 to 2010, the rate of non-fatal illness and injuries involving days away from work for Latino construction workers in two of the most hazardous construction trades, ironworker and roofer, exceeded that of non-Latino construction workers [Bureau of Labor Statistics, 2010]. Construction industry illness and injury rates are underestimated [Azaroff et al., 2002], particularly for Latino construction workers working for small firms [Dong et al., 2011].

Work safety climate is the perception by workers of the emphasis employers place on safety over production. Work safety climate is often associated with occupational safety performance and reduced occupational injuries [Neal and Griffin, 2002; Zohar, 2010]. Among construction workers, work safety climate has been shown to be related to work pressure demands, and to the frequency and severity of injuries and fatalities [Gillen et al., 2002; Shoji and Egawa, 2006; Choudhry et al., 2007]. However, little attention has been paid to work safety climate among Latino construction workers. Menzel and Gutierrez [2010] identified perceived risks among Latino construction workers in southern Nevada. These perceived risks included economic pressure, exploitation, immigrant status, and traditional values. As with other studies of immigrant Latino workers [Quandt et al., 2006; Grzywacz et al., 2007; Keifer et al., 2009; Arcury et al., 2012], Menzel and Gutierrez [2010] note that Latino construction workers accept unsafe working conditions for several reasons. They fear job loss when they are supporting families in the US and in Mexico, they may be undocumented and do not wish to interact with anyone who might represent the government, and they have a belief system in which men

are expected to accept danger and act as if they will not be harmed by exposure to hazards. Thus, work safety climate is an especially important consideration for improving the safety of immigrant workers such as Latino residential construction workers.

This analysis examines work safety climate among Latino residential construction workers. Its three aims are to: (1) describe work safety climate among Latino residential construction workers using the Perceived Safety Climate Scale [Gillen et al., 2002]; (2) delineate differences in work safety climate items and score by worker personal and employment characteristics; and (3) determine associations of the work safety climate score with specific work safety behaviors.

## METHODS

The study was conducted in western North Carolina as a partnership among the Center for Worker Health, Wake Forest School of Medicine; Myers-Lawson School of Construction, Virginia Polytechnic Institute and State University; and Hogar Latino (HOLA) of Wilkes County. This analysis is part of a broader project designed to determine the feasibility of using Interactive Voice Response (IVR) technology to collect daily diary data from Latino residential construction workers. The research protocol was approved by the Wake Forest School of Medicine Institutional Review Board and participants provided signed informed consent.

## Sample

Latino residential construction workers were recruited in Wilkes and surrounding western North Carolina counties using a non-probability design. No list of Latino residential construction workers or their employers exists. Therefore, HOLA project staff used a combination of techniques to recruit residential construction workers, including identifying known individuals within existing social networks, snowball, and referral. Inclusion criteria included age 18 years or older, Latino (self or parents born in a Latin American country, or self-identified as "Latino" or "Hispanic"), and usual employment for 35 or more hours per week working in residential construction. The recruitment goals were targeted to secure a balanced representation of framers, roofers, and general construction workers (concrete, drywall, masonry, etc.). Participants who completed a baseline questionnaire ( $n = 119$ ) were asked to complete a 21-day cycle of work daily diary using an IVR questionnaire ( $n = 90$ ). Participants were given a \$15 incentive for completing the baseline questionnaire. Participants received up to a \$73

incentive for completing the 21 day call-in cycle for the work daily diary IVR questionnaire.

## Data Collection

Data collection included two phases: a baseline interviewer-administered questionnaire; and a work daily diary follow-up based on an IVR questionnaire. Participants who completed the baseline questionnaire were asked to participate in the work daily diary follow-up. Data collection for the baseline interviews and work daily diary follow-up was completed from September 23, 2010 through November 23, 2010.

The baseline questionnaire included participant demographic data; a physical demands inventory, including occupational characteristics (e.g., years in construction, primary tasks performed in construction); health history (e.g., presence of chronic conditions); and organization of work characteristics, including work safety climate, workplace personal protection equipment, and abusive supervision. The work daily diary questionnaire focused on daily well-being, job tasks, injuries, general safety behavior, psychological workload, abusive supervision, and the use of personal protection equipment. The baseline and work daily diary questionnaires used translated Spanish language instruments when available, including the Perceived Safety Climate Scale [Gillen et al., 2002]. English language instruments and items developed for this project were translated into Spanish by a native Spanish-speaker. All items were then back translated into English by a native English-speaker. Discrepancies identified in the back translation were corrected through consensus and incorporated into both the Spanish and English versions of questionnaires [Behling and Law, 2000].

The work daily diary questionnaire was adapted for the IVR system. This system guided participants through a series of questions about daily health symptoms, and a variety of work-related experiences and exposures. The system was programmed with one question asking whether the participant worked in construction for pay that day, which allowed all construction-related questions to be skipped on non-work days. Participants provided responses to each question using voice or keypad responses.

Baseline questionnaires were collected by trained native Spanish-speaking interviewers. Training consisted of a thorough review of study purpose, screening, and recruitment procedures, line-by-line review of the interviewer-administered questionnaires, and progressively more realistic practice interviews. Completing the baseline questionnaire took an average of 48 min. Participants were instructed in the use of the IVR system after completing the baseline questionnaire. Participants were asked

to complete the work daily diary questionnaire for 21 consecutive days by calling a specific telephone number and responding to the questions asked. The duration of the call-ins varied based on the individual responses and subsequent as-needed follow-up questions. The average length of the call during work days was 13.6 min (SD = 3.2), while the average call length on non-work days was 3.5 min (SD = 3.8).

## Measures

Work safety climate was measured based of the 10-item Perceived Safety Climate Scale [Gillen et al., 2002]. This instrument was derived from scales developed by Dedobbeleer and Beland [1991], and Zohar [1980]. The Perceived Safety Climate Scale was modified to allow for ease of language translation and automated telephone responses. The first nine items used a four-point Likert scale (strongly disagree to strongly agree) for statements about workplace safety practices. The final item asked for an overall appraisal of their organization's commitment to safety and provided three response options, "Supervisors do as much as possible to make my job safe," "Supervisors could do more to make my job safe," and "Supervisors are only interested in doing the job fast and cheap." The item responses were summed for all 10 questions for a total score ranging from 10 to 39. A higher score indicated that the participant perceived a safer work environment. Cronbach's alpha was 0.78 for the baseline sample and 0.75 for the work daily diary sample.

A list of five individual safety practices and five collective safety practices were derived from an assessment of trade specific safety practices; hazard checklists and mitigation best practices; industry best practices literature; occupational safety and health literature; and academic research on trade specific hazards and incident types [Fredericks et al., 2005; Louisiana Workers' Compensation Corporation, 2007; Occupational Safety and Health Administration, 2011]. Items in the work daily diary questionnaire asked if each safety practice occurred that day (Appendix Table AI). For each day the work daily diary questionnaire was completed, dichotomous measures of individual safety practices included no ladder safety risks, no carrying-related safety risks, no scaffolding-related safety risks, no glove-related safety risks, and did not do something known to be unsafe. Dichotomous measures of collective safety practices included attended a daily safety meeting, reported a safe and orderly worksite, had all necessary safety equipment, did not need to use damaged equipment, and did not see a coworker create an unsafe situation.

Personal characteristics included age in years, years lived in the US, and years lived in North Carolina. Work

characteristics include average number of weeks worked in residential construction in the previous year, usual hours per week worked in residential construction, completion of an apprenticeship or other training program, and trade in the categories of framer, roofer or general construction. Finally, participant work arrangement was put into the categories stable (construction contractor or subcontractor; worked for the same contractor or subcontractor for 3 months or longer) and unstable (worked for more than one contractor or subcontractor during the past 3 months).

## Analysis

Analysis of variance techniques were used to test for differences among groups (e.g., roofers, framers, general construction workers, completed an apprenticeship or not) on items relating to worker safety climate. Associations between the Work Safety Climate Score and personal characteristics were assessed using Spearman's Correlation coefficient. To assess the level of association between the Work Safety Climate Score and individual and collective safety practices, Spearman correlation coefficients were also used. All tests were deemed significant at  $P < 0.05$ .

## RESULTS

### Personal and Employment Characteristics

The sample included 119 male Latino residential construction workers from western North Carolina (Table I). Of the 119 participants who completed the baseline questionnaire, 90 completed at least one work daily diary. Participants completed from 1 to 21 work daily diary questionnaires, with 44 participants (37.0% of total sample) completing fewer than 18 of the 21 days, and 46 participants (38.7%) completing 18 or more of the 21 days.

The personal and employment characteristics of the baseline interview sample and the work daily diary sample were similar. The mean age in both samples was 32.2 years. The participants in both samples had lived in the US for 10 years, and in North Carolina for 8 years. They worked an average of about 35 weeks in the previous year in residential construction, and they worked about 41 hr in the previous week. About 22% of the participants had completed an apprenticeship or other training. About 30% of the participants were framers, about 20% were roofers, and about half were general construction workers. About three-quarters had stable work.

### Work Safety Climate

Participants reported variation in the different work safety climate items (Table II). Most agreed with the statements that workers have almost total control of their personal safety (78.2%), that workers are regularly made aware of dangerous work practices or conditions (71.4%), that proper safety equipment is always available (68.9%), and that taking risks is not part of their jobs (62.2%). However, few workers agreed with the statement that they receive instructions on safety when hired (31.1%), that workers are regularly praised for safe conduct (29.4%), or that workers attend regular safety meetings (25.2%). Most agreed with the statement that they are likely to be injured in the next 12 months (84.0%). Only 40.3% of participants reported that their employer does as much as possible to make their jobs safe. The mean summary score for work safety climate was 23.0.

Participants varied by trade in their agreement with most of the work safety climate items. In general, framers and general construction workers reported significantly greater agreement with work safety climate items than did roofers. For example, although 92.3% of framers and 81.0% of general construction workers agreed with the statement that workers have almost total control over their personal safety, 62.9% of roofers agreed with this statement. Although 88.5% of framers and 72.4% general construction workers agreed with the statement that workers' safety practices were very important to management, 51.4% of roofers agreed with this statement. The mean summary score for work safety climate was 24.3 for framers and for general construction workers, but it was 19.9 for roofers.

The summary score for work safety climate was associated with several participant characteristics for both the baseline interview sample and for the work daily diary sample (Table III). Age had a significant positive association with work safety climate for the work daily diary sample. Years in the US and years in North Carolina both had significant positive associations with work safety climate for both samples. Trade was significantly associated with work safety climate in both samples such that roofers had lower scores (19.9 for roofers in the total sample, 19.4 for roofers in the work daily diary sample), than framers (24.3 and 24.0, respectively) or general construction workers (24.3 and 24.0, respectively).

Days reported for several individual and collective safety practices were associated with the work safety climate score (Table IV). This analysis is limited to the work daily diary sample. Days reporting no glove-related safety risks and not doing something known to be unsafe are two individual safety practices with significant positive associations with the work safety climate score. Days reporting not needing to use damaged equipment was a collective

**TABLE I.** Personal and Employment Characteristics, Latino Residential Construction Workers, Western North Carolina, 2010–2011

Personal and employment characteristics	Total sample (n = 119)		Work daily diary sample (n = 90)	
	Mean	SD	Mean	SD
Age (in years)	32.2	8.2	32.2	8.5
Years lived in the US	10.0	6.3	10.2	6.4
Years lived in North Carolina	8.0	5.1	8.2	5.3
Average weeks worked in residential construction in the previous year	35.4	13.1	35.4	12.5
Usual hours worked per week in residential construction	41.5	7.9	40.9	8.2
	Total sample (n = 119)		Work daily diary sample (n = 90)	
	n	%	n	%
Completed an apprenticeship or other training program	26	22.2	19	21.6
Trade				
Framer	35	29.4	28	31.1
Roofer	26	21.8	15	16.7
General construction	58	48.7	47	52.2
Work arrangement				
Stable	88	73.9	69	76.7
Unstable	31	26.1	21	23.3

**TABLE II.** Individual Work Safety Climate Items<sup>a</sup> and Work Safety Climate Score by Trade, Latino Residential Construction Workers, Western North Carolina, 2010–2011

Work safety climate items	Sample (n = 119)		Framers (n = 26)		Roofers (n = 35)		General construction worker (n = 58)		P-value
	n	%	n	%	n	%	n	%	
Workers' safety practices are very important to management	83	69.7	23	88.5	18	51.4	42	72.4	<0.01
Workers are regularly made aware of dangerous work practices or conditions	85	71.4	20	76.9	20	57.1	45	77.6	0.08
Workers are regularly praised for safe conduct	35	29.4	6	23.1	2	5.7	27	46.6	<0.01
Workers receive instructions on safety when hired	37	31.1	9	34.6	4	11.4	24	41.4	<0.01
Workers attend regular safety meetings	30	25.2	7	26.9	3	8.6	20	34.5	0.02
Proper safety equipment is always available	82	68.9	19	73.1	21	60.0	42	72.4	NS*
Workers have almost total control over personal safety	93	78.2	24	92.3	22	62.9	47	81.0	0.01
Taking risks is not a part of my job	74	62.2	21	80.8	9	25.7	44	75.9	<0.01
The possibility of being injured at work in the next 12 months is very likely	100	84.0	23	88.5	29	82.9	48	82.8	NS
Supervisors do as much as possible to make my job safe <sup>b</sup>	48	40.3	11	42.3	14	40.0	23	39.7	NS
Summary score	Sample (n = 119)		Framers (n = 26)		Roofers (n = 35)		General construction worker (n = 58)		P-value
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
	23.0	5.3	24.3	4.8	19.9	5.6	24.3	4.7	<0.01

<sup>a</sup>Strongly agree and agree.<sup>b</sup>Versus those who responded, "they could do more to make my job safe" or "they are only interested in doing the job fast and cheaply."

\*Not significant.

**TABLE III.** Associations of Personal and Employment Characteristics With Work Safety Climate Score, Latino Residential Construction Workers, Western North Carolina, 2010–2011

Personal and employment characteristics	Total sample (n = 119)		Work daily diary sample (n = 90)	
	Correlation with work safety climate score <sup>a</sup>	P-value	Correlation with work safety climate score <sup>a</sup>	P-value
Age (in years)	0.16	0.07	0.21	0.04
Years lived in the US	0.25	<0.01	0.34	<0.01
Years lived in North Carolina	0.18	0.04	0.26	0.01
Average weeks worked in residential construction in the previous year	0.04	NS*	0.01	NS
Usual hours worked per week in residential construction	0.18	0.05	0.15	NS

  

	Total sample (n = 119)			Work daily diary sample (n = 90)		
	Mean work safety climate score	SD	P-value	Mean work safety climate score	SD	P-value
Completed an apprenticeship or other training program						
Yes	24.23	4.63	NS	23.90	4.86	NS
No	22.70	5.53		22.26	5.35	
Trade						
Framer	24.31	4.76	<0.01	24.00	4.75	<0.01
Roofer	19.88	5.59		19.39	4.42	
General construction	24.31	4.66		24.00	5.04	
Work arrangement						
Stable	22.96	5.62	NS	22.68	5.36	NS
Unstable	23.13	4.47		22.24	4.85	

<sup>a</sup>Spearman correlation coefficients.  
 \*Not significant.

**TABLE IV.** Association of Work Safety Climate Score With Observed Work Days for Which Individual and Collective Safety Practices Were Reported, Latino Residential Construction Workers, Western North Carolina, 2010–2011

	Work safety climate score	
	Coefficient	P-value
Individual safety practices		
No ladder safety risks	0.09	NS*
No scaffolding-related safety risks	−0.05	NS
No carrying-related safety risks	−0.02	NS
No glove-related safety risks	0.21	0.04
Did not do something known to be unsafe	0.24	0.02
Collective safety practices		
Attended a daily safety meeting	0.19	0.07
Reported a safe & orderly worksite	−0.00	NS
Had all necessary safety equipment	−0.01	NS
Did not need to use damaged equipment	0.26	0.01
Did not see a coworker create an unsafe situation	0.20	0.06

Sample consists of participants with one or more work-day diary entries (n = 90).  
 \*Not significant.

safety practice with a significant positive association with the work safety climate score. Days engaging in two additional collective safety practices, attending a daily safety meeting and not seeing a coworker create an unsafe situation were associated with the work safety climate score at the trend level.

## DISCUSSION

These results expand knowledge about the importance of work safety climate for the occupational safety of Latino residential construction workers. This is among the first studies to measure work safety climate among Latino residential construction workers and to delineate statistical associations of work safety climate with participant personal and work characteristics. Other research on Latino construction workers' perceptions of work safety climate has been based on qualitative analyses [Menzel and Gutierrez, 2010; Roelofs et al., 2011]. Examination of the individual items in the work safety climate scale reflects the results of these qualitative analyses in behaviors that reflect exploitation, immigrant status, and traditional

values. Few report that they receive instructions on safety when hired, that they attend regular safety meetings, or that they are praised for safe behaviors. Most believe they will be injured in the next year. Only about two in five believe that supervisors do as much as possible to make the job safe.

Second, these results document that work safety climate is not uniform across Latino construction workers but varies by the type of work in which they are engaged. Specifically, roofers report a much lower work safety climate than do participants who are framers or general construction workers. Previous research examining work safety climate among construction workers has considered differences by personal characteristics, union status, work site, and in specific trades [Gillen et al., 2002; Shoji and Egawa, 2006; Choudhry et al., 2009; Kaskutas et al., 2009]. This is the first to compare work safety climate by trade. It shows that roofers consistently do not agree with the items included in the work safety climate scale. Roofing is the construction trade with the highest number of fatalities (34.7/100,000 FTEs) [Bureau of Labor Statistics, 2010].

Finally, these results show that work safety climate among Latino construction workers is associated with the individual and collective safety behaviors in which they engage. This is consistent with analyses of work safety climate that documents its association with worker safety [Zohar, 2010], and offers evidence that the creation of a culture or climate of safety may be essential to ensuring that workers protect themselves and each other on the job site.

Age and years of residence in the US and in North Carolina are also associated with work safety climate [Dong et al., 2009, 2010b]. These factors indicate the importance of experience for understanding safe work climate, and they suggest that younger workers and recent migrants are most "at risk" for employment by contractors who minimize safety.

This research should be evaluated in light of its limitations. The sample was small, it was not randomly selected, it was limited to one area of one state, and it experienced a sizeable loss in those completing the work daily diary questionnaire. Each of these factors limits the generalizability of the results. Measures of individual and collective safety practices were self-reported. However, the study included longitudinal data reporting safety behaviors reported daily using an electronic reporting protocol. It also considered several residential construction trades which face different occupational hazards.

## Implications

These results have implications for occupational safety practice and research. Improving work safety climate will improve work safety for Latino residential construction workers [Brunette, 2004; Zohar, 2010]. Improving work safety climate needs to consider procedures to address safety for different construction trades. Improvements in work safety climate for Latino residential construction workers will require improved safety training for these workers [O'Connor et al., 2005]. This training should include information on safety practices and on current safety regulations. This improvement also requires training of employers and supervisors so that they support work safety for their employees. Finally, it will require greater enforcement of existing regulations for an industry in which work is spatially dispersed and often hidden.

This is the first statistical research on work safety climate among Latino residential construction workers. These results build on qualitative analyses of perceptions of work safety among these workers [Menzel and Gutierrez, 2010; Roelofs et al., 2011]. This study shows the potential importance of understanding work safety climate for determining safety practices among these workers. However, the number of participants and the number of trades they represent is limited. The IVR technology allowed the collection of longitudinal data that enhanced determining the association between work safety climate and safe work practices. Research is needed to verify and extend these results. Larger samples of workers and different trades need to be included. Future research should include comparisons with workers of other ethnic groups to see if risks differ among these groups. Additionally, a focused study of work safety climate among roofers is warranted. A longer period for following workers, along with additional variables, will improve determining causal relationships.

## CONCLUSION

Work safety climate is associated with safety behaviors among Latino residential construction workers. Variation in work safety climate by trade indicates that addressing safety is especially needed among those employed as roofers. Interventions are needed to improve safety training among those who employ Latino construction workers as well as the workers themselves. Further research should expand the number of workers and trades involved in analyses of work safety climate.

## Appendix

**TABLE AI.** Items Used in Constructing Individual and Collective Safety Practice Measures

Measures	Questionnaire items
Individual safety practice: No ladder safety risks	<p>Did you climb a ladder 6 feet or 2 m or higher today?</p> <ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No               <ol style="list-style-type: none"> <li>a. Was the top of the ladder tied off to the structure?                   <ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> </ol> </li> <li>b. Did you secure yourself to a tie-off point each time you climbed 6 feet or 2 m or higher on a ladder?                   <ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> </ol> </li> <li>c. Did you have 2 hands and 1 foot or 2 feet and 1 hand each time you were 6 feet or 2 m or higher on the ladder today?                   <ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> </ol> </li> <li>d. Did you carry any tools or equipment in your hands while on the ladder?                   <ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> </ol> </li> <li>e. Did you carry any materials in your hands while on the ladder?                   <ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> </ol> </li> </ol> </li> </ol>
Individual safety practice: No scaffolding-related safety risks	<p>Did you climb or work on any scaffolding today?</p> <ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No               <ol style="list-style-type: none"> <li>a. Did you or someone else inspect the scaffolding before using it today?                   <ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> </ol> </li> <li>b. Did you always tie off while on the scaffold today?                   <ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> </ol> </li> </ol> </li> </ol>
Individual safety practice: No carrying-related safety risks	<p>Did you carry any heavy or awkward objects by yourself over a distance of 6 feet or 2 m or more?</p> <ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No               <ol style="list-style-type: none"> <li>a. Did you wear a lifting belt or brace each time you carried those heavy or awkward objects?                   <ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> </ol> </li> <li>b. Was there a tool or another person available to help you carry those heavy or awkward objects?                   <ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> </ol> </li> </ol> </li> </ol>
Individual safety practice: No glove-related safety risks	<p>How many hours did you wear protective gloves while working today? If you didn't wear protective gloves at all today, or if you wore them for less than an hour, press or say "zero." ### Hours</p> <ol style="list-style-type: none"> <li>a. Did you wear rubber gloves for the work?       <ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> </ol> </li> <li>b. Did the gloves you were have Dot Grip fingers?       <ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> </ol> </li> <li>c. Were the gloves you wore rubber insulated for electrical work?       <ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> </ol> </li> </ol>

**TABLE AI.** (Continued)

Measures	Questionnaire items
Individual safety practice: Did not do something known to be unsafe	Did you do anything while working today that you knew was unsafe? 1. Yes 2. No
Collective safety practices: Attended a daily safety meeting	Did you attend a safety meeting today? 1. Yes 2. No
Collective safety practices: Reported a safe and orderly worksite	Was the worksite you worked at today safe and orderly? 1. Yes 2. No
Collective safety practices: Had all necessary safety equipment	Did you have all of the safety equipment you needed today? 1. Yes 2. No
Collective safety practices: Did not need to use damaged equipment	Did you need to use tools or equipment that was damaged or in poor repair today? 1. Yes 2. No
Collective safety practices: Did not see a coworker create an unsafe situation	Did you see anyone on the job site creating an unsafe work condition or using unsafe work behavior? 1. Yes 2. No

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