# Serious injuries among Latino farmworkers: Do work factors matter?

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# Latino & Immigrant Workers

**Experience high occupational injury rates**

- Foreign workers had significantly higher fatal injury rates than all workers (Byler, 2013)
  - More likely to suffer nonfatal work injuries (Sinclair et al., 2006)

- Latinos experience poor occupational safety and health outcomes
  - Latinos have higher rates of fatal work injuries than all other workers (Ahonen et al., 2007; BLS, 2015)
  - Two Latino workers died every day in 2014 (OSHA, 2016)
  - Highest number of nonfatal occupational injuries and illnesses among minority groups (Hurley & Lebbon, 2012)
  - More days away from work (US DOL BLS, 2012)

**Substantial demographic makeup in hazardous industries**

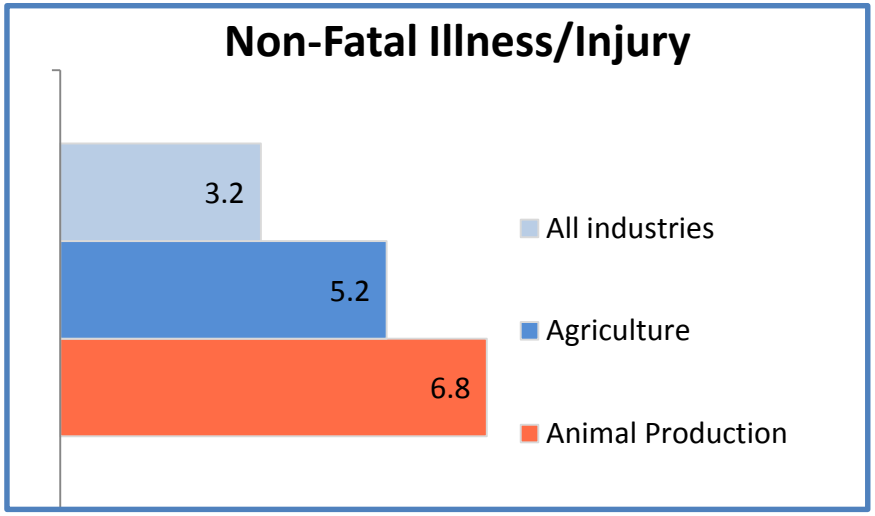
- Highest among Latino & foreign-born persons (Ahonen et al., 2007; Dávila et al., 2011)

**Unique social and cultural backgrounds**

- Education, language, safety, rights

# Agriculture

Workers experience **high** occupational **injury** and **illness** rates (BLS)




SOURCE: U.S. Bureau of Labor Statistics, U.S. Department of Labor 2014 Statistics
http://www.bls.gov/news.release/archives/osh_10292015.pdf

A **top employer** of **immigrant** workers who **lack language, literacy, and trade skills** (Brunette, 2004)

# Work Environment

- Work type
- Communication
- Work stress
- Supervisor relations

# Research Aim

Identify work factors associated with serious injuries among a sample of Latino farmworkers

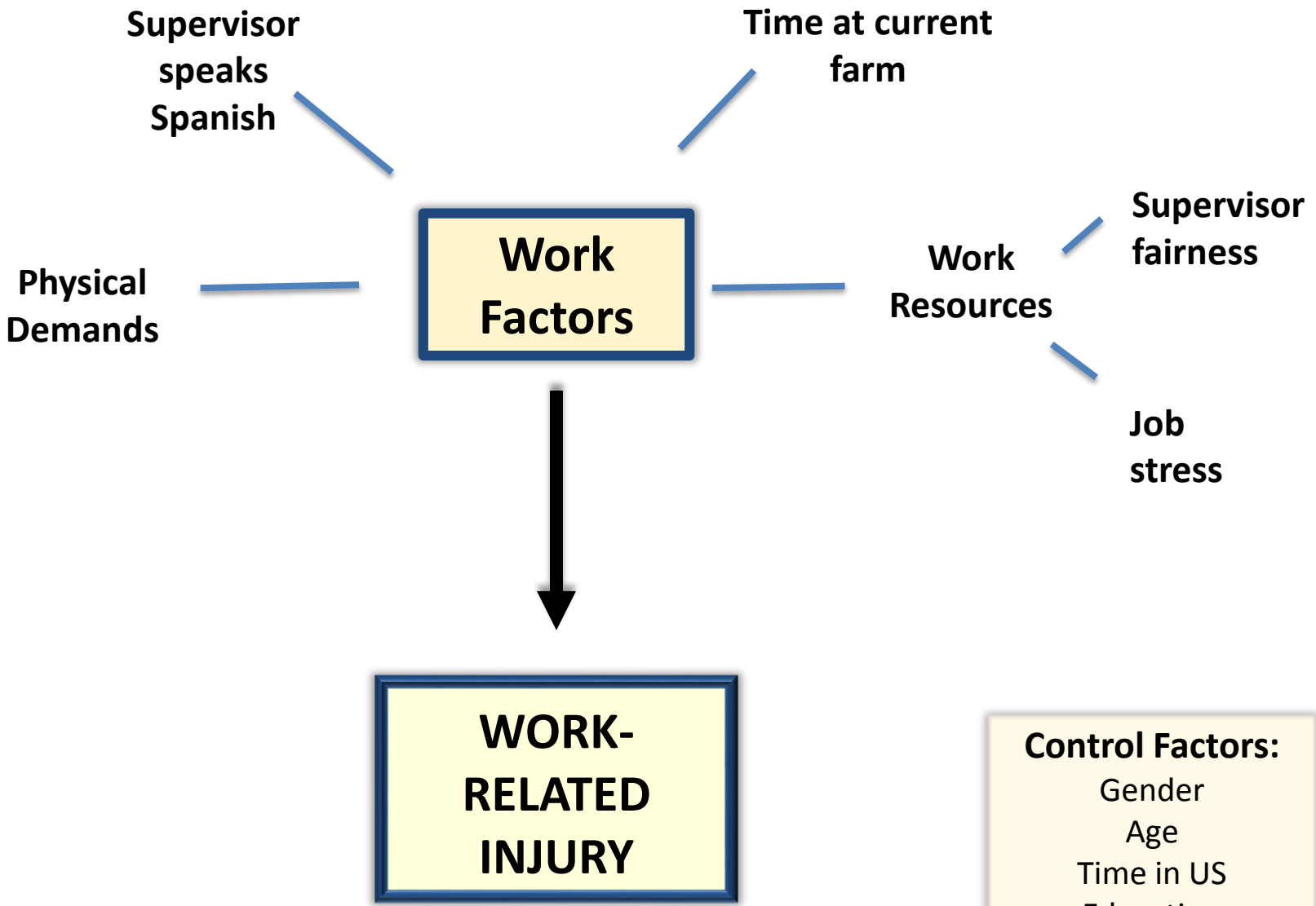
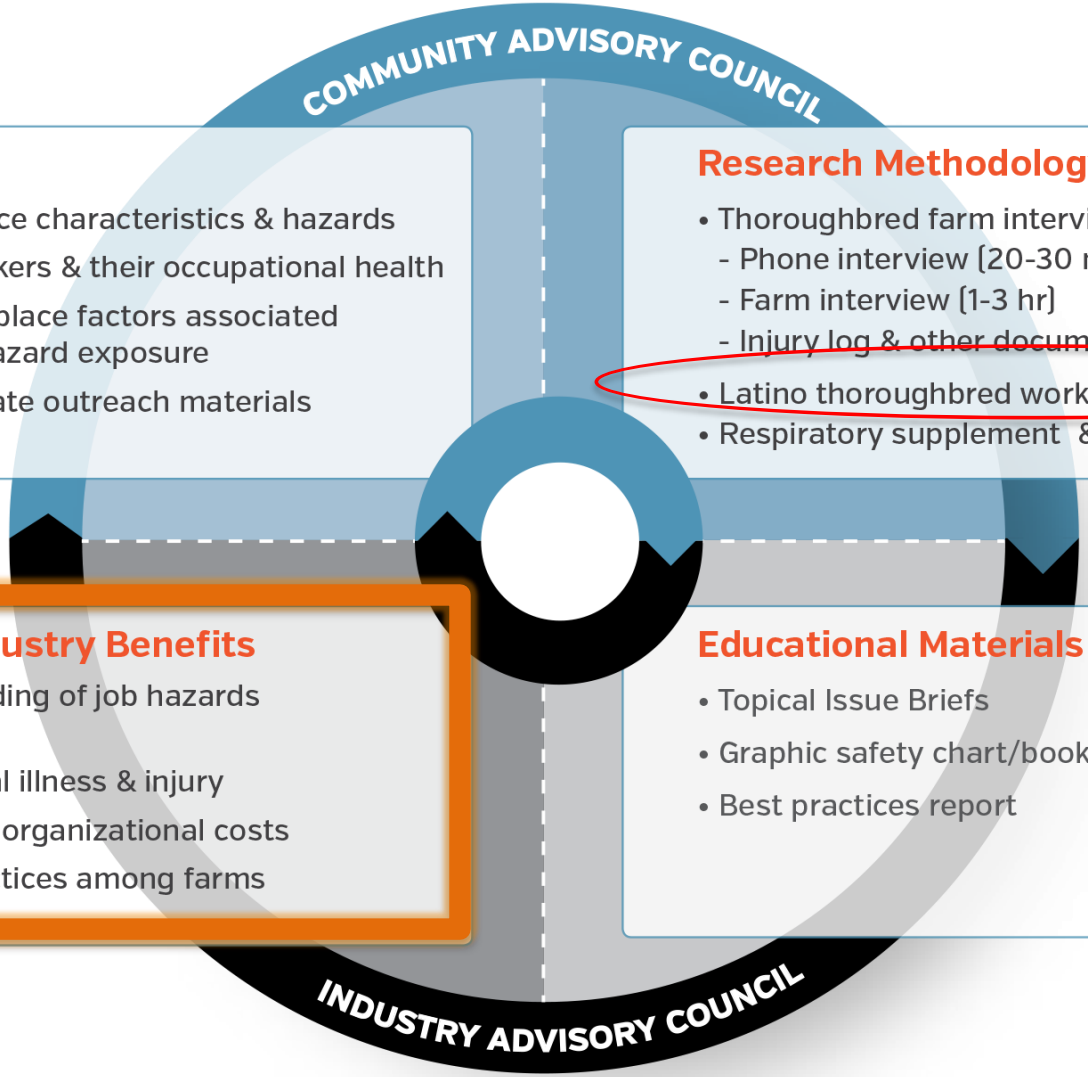



**Figure 1**. Conceptual Model

# Thoroughbred Worker & Health Safety Study




## Research Goals

- Identify job/workplace characteristics & hazards
- Describe Latino workers & their occupational health
- Determine job/workplace factors associated with ill health and hazard exposure
- Develop & disseminate outreach materials

## Research Methodology

- Thoroughbred farm interview
  - Phone interview (20-30 min)
  - Farm interview (1-3 hr)
  - Injury log & other documents
- Latino thoroughbred worker interview (1-1.5 hr)
- Respiratory supplement & spirometer test (30 min)

## Community & Industry Benefits

- Increase understanding of job hazards and work stressors
- Reduce occupational illness & injury
- Reduce individual & organizational costs
- Sharing of best practices among farms

## Educational Materials

- Topical Issue Briefs
- Graphic safety chart/booklet
- Best practices report

# Data Collection

## Worker Interview (n=225)

- Informed of the study's purpose, risks, and benefits; verbal consent
- Face-to-face, in-depth interview (1-1.5 hour)

**Content** (462 questions)

- Demographic information
- General health information
- Job tasks
- Perceived hazards
- Injuries or near miss incidents
- Circumstances surrounding hazards and incidents

# Measures

*Most items are from the National Agricultural Workers Survey*

## CONTROL VARIABLES

Demographics

- Age
- Gender
- Education (≤elementary vs. >elementary)
- Residency in the US

# Measures

## INDEPENDENT VARIABLES

Work

- *Current farm work history* (years)
- *Physical demands* (Dutch Musculoskeletal Questionnaire)
  - Assesses physical exertion (20-items)
- *Work stress* (NIOSH Quality of Worklife)
  - Frequency of finding work stressful (yes/no)
- *Supervisor speaks Spanish*
  - “speaks any Spanish” (yes/no)
- *Supervisor fairness* (NIOSH Quality of Worklife)

# Measures

## DEPENDENT VARIABLE

*Work-related Injury*

- "Thinking about your current job on the horse farm, in the last 12 months have you had an injury that *required medical attention*"

  - adapted from the Bureau of Labor Statistics, 2012

# Analysis

- Descriptive statistics & bivariate associations
- Logistic regression
  - Model 1: Univariate
  - Model 2: Multivariate
- Statistical tests performed using SAS (9.4)
  - P-value ≤ 0.05 noted statistical significance

# Demographic Characteristics

Average Age: 35

**86%** Male

**40%**
≤ Elementary Education


Mexican: **84%**

Length of Time Living in U.S.: 15 years




Average years working on horse farms

**Table 1.** Demographic Characteristics of the Latino Workers Stratified by Experience of Injury*

| Factor | Total (n = 225) | Injury: Yes (17.8 %) (n = 40) | Injury: No (82.2 %) (n = 185) | P-value |
|---|---|---|---|---|
| **Age** | | | | 0.658 |
| ≥ 35 years | 110 (49.3) | 21 (52.5) | 89 (48.6) | |
| < 35 years | 113 (50.7) | 19 (47.5) | 94 (51.4) | |
| **Gender** | | | | 0.513 |
| Female | 32 (14.2) | 7 (17.5) | 25 (13.5) | |
| Male | 193 (85.8) | 33 (82.5) | 160 (86.5) | |
| **Education** | | | | 0.439 |
| ≤ Elementary school (low) | 91 (40.4) | 14 (35.0) | 77 (41.6) | |
| > Elementary school (higher) | 134 (59.6) | 26 (65.0) | 108 (58.4) | |
| **Years living in U.S.** | | | | 0.466 |
| > 12 years | 111 (49.8) | 22 (55.0) | 89 (48.6) | |
| ≤ 12 years | 112 (50.2) | 18 (45.0) | 94 (51.4) | |

*Data are presented as a proportion of workers in each subgroup stratified by experience of injury. P-values indicate the comparisons between the two groups on the selected characteristics. For some variables the sample size does not equal 225, as data was missing for some variables.

**Table 2.** Work-related Characteristics of the Latino Workers Stratified by Experience of Injury*

| Factor | Total (n = 225) | Injury: Yes (17.8 %) (n = 40) | Injury: No (82.2 %) (n = 185) | P-value |
|---|---|---|---|---|
| **Years at current horse farm** | | | | *0.013* |
| > 4.2 years | 112 (49.8) | 27 (67.5) | 85 (45.9) | |
| ≤ 4.2 years | 113 (50.2) | 13 (32.5) | 100 (54.1) | |
| **Physical demand at work** | | | | 0.926 |
| High (≥ 41) | 111 (49.3) | 20 (50.0) | 91 (49.2) | |
| Low (< 41) | 114 (50.7) | 20 (50.0) | 94 (50.8) | |
| **Often felt stressed at work** | | | | *0.001* |
| Yes | 160 (71.1) | 37 (92.5) | 123 (66.5) | |
| No | 65 (28.9) | 3 (7.5) | 62 (33.5) | |
| **Supervisor speaking Spanish** | | | | *0.003* |
| No | 73 (32.6) | 21 (52.5) | 52 (28.3) | |
| Yes | 151 (67.4) | 19 (47.5) | 132 (71.7) | |
| **Supervisor fairness** | | | | *0.009* |
| No | 24 (10.8) | 9 (22.5) | 15 (8.2) | |
| Yes | 198 (89.2) | 31 (77.5) | 167 (91.8) | |

*Data are presented as a proportion of workers in each subgroup stratified by experience of injury. P-values indicate the comparisons between the two groups on the selected characteristics. For some variables the sample size does not equal 225, as data was missing for some variables.

**Table 3.** Odds Ratios and 95% Confidence Intervals of Having Injury in Relation to Selected Factors

| Factors | Model 1[a] | Model 2[b] |
|---|---|---|
| **Age group** (≥35 vs. <35 yrs.) | 1.17 (0.59-2.32) | 1.37 (0.60-3.13) |
| **Gender** (female vs. male ) | 1.36 (0.54-3.40) | 1.45 (0.50-4.18) |
| **Education** (low vs. higher) | 0.76 (0.37-1.54) | 0.49 (0.22-1.11) |
| **Years living in U.S.** (>12 vs. ≤ 12 yrs.) | 1.29 (0.65-2.57) | 0.90 (0.38-2.11) |
| **Years at current farm** (> 4.2 vs. ≤ 4.2 yrs.) | **2.44** (1.19-5.03) | **2.67** (1.13-6.34) |
| **Physical demands** (high vs. low) | 1.03 (0.52-2.05) | 0.95 (0.44-2.05) |
| **Often felt stressed at work** (yes vs. no) | **6.22** (1.84-20.96) | **6.70** (1.84-24.31) |
| **Supervisor speaking Spanish** (no vs. yes) | **2.81** (1.40-5.64) | **2.29** (1.05-5.00) |
| **Supervisor fairness** (no vs. yes) | **3.23** (1.30-8.04) | **3.34** (1.14-9.73) |

[a]Model 1 was based on the univariate analyses. [b]Model 2 was adjusted for all other remaining variables in the table.

# Discussion

- **Higher work stress**
  - Agrees with literature on stress & injury (Grzywacz et al., 2007; Kim, 2008; Thu et al., 1997)
  - "it could be worse" perception among immigrants (Grzywacz et al., 2007)
  - Not a measure of stressors

- **Supervisor being unfair**
  - Agrees with other literature on poor health outcomes
  - May be perceived through task assignment and/or receipt of feedback
  - Supervisor fairness related to: uncertainty, organizational commitment, mental health, negative outcomes, power differentials, and post-injury outcomes (Hepburn et al., 2010; Jenkins et al., 2013)

# Discussion

- **Higher horse farm tenure**
  - Disagrees with current research (Bena et al., 2013; Breslin & Smith, 2006)
  - More experienced workers may be performing more strenuous and/or complicated tasks
  - Experience not a factor in horse-related injuries (Eckert, 2011; Ball et al., 2007)
  - Cumulative exposures over occupational lifetime

- **Supervisor speaking no Spanish**
  - Importance of communication and work safety
  - Assessed supervisor Spanish skills
  - Potential intervention focus → manager

# Discussion

- Farms should promote social exchange and provide materials and training to facilitate bilingual communication
- Future studies explore work-related stress and supervisor unfairness
- Operationalize variables

# Conclusion

- Supervisor-subordinate relationship is important to worker health
- Findings may be similar for other agricultural worker groups
- Research and interventions continue to examine occupational injury among Latino and other immigrant worker groups
- Multiple aspects of the work environment should be considered when evaluating likelihood of a work-related injury

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# QUESTIONS?

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