

Occupational Health Among Latino Horse and Crop Workers in Kentucky: The Role of Work Organization Factors

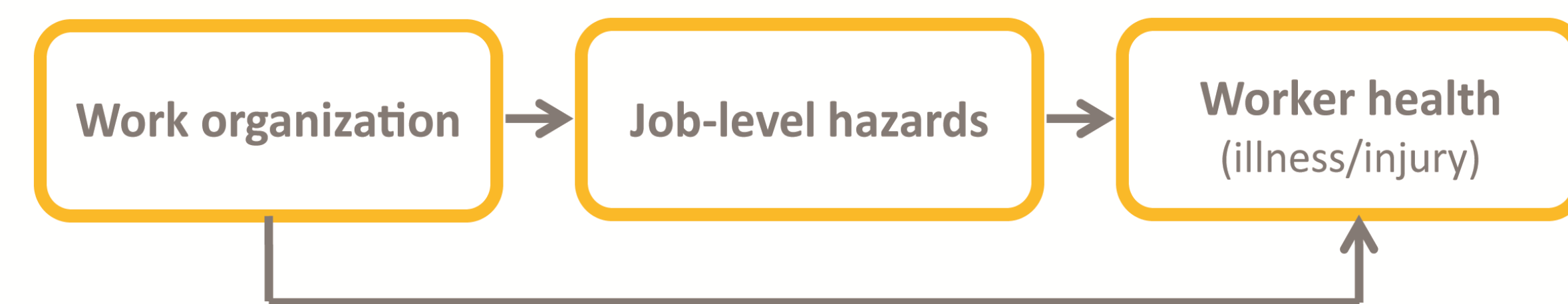
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Background

Nationally, a majority of farm workers¹ are Latino, a figure which is estimated to be mirrored in Kentucky's horse and tobacco industries^{2,3}. Even within hazardous industries, Latinos often experience greater risk for occupational illness, injury, and fatality than non-Hispanic Whites, and are a priority population for NIOSH^{4,5}. Extant literature reveals that there are multiple aspects of how work is organized, including both positive and negative supervisory behaviors, that may influence occupational safety and health among immigrant Latino workers. However, little research has focused on agriculture, particularly small-scale horse or crop farms⁶. **The goal of this study was to determine which work organization factors are associated with work-related 1) illness, 2) injury, and 3) missed work due to work-related illness or injury of Latino crop and horse workers in central Kentucky.**

Direct and Indirect Relationship of Work Organization and Occupational Health



Methods

This cross-sectional study recruited 103 Latino farmworkers employed in the crop (n=49) and horse breeding (n=54) industries in four Central Kentucky counties. Data were collected from October 2009 to January 2010. To be eligible for this study a participant had to meet all three of the following criteria: s/he had to (1) be at least 18 years of age, (2) be employed on a crop or horse farm for at least 15 days in the past year, and (3) self-identify as Latino. The study employed a community-based, purposive sampling technique and used snowball sampling when appropriate. Workers who had worked in both commodity types were asked to refer to their most recent qualifying job. While crop workers from all crop commodities were eligible, 48 of the 49 crop workers who participated worked in tobacco production. Face-to-face interviews were conducted in Spanish. Data analysis included descriptive statistics, bivariate analyses for work-related health outcomes and potential health outcome risk factors, and multivariable logistic regression analysis for organizational predictors of health outcomes.

Table 1. Demographic and work characteristics of Latino workers stratified by crop and horse farms (N=103).

	Horse		Crop		χ ²	p
	N	%	N	%		
Gender						
Male	50	94.3	48	97.9	.88	.35
Female	3	5.7	1	2.1		
Age						
Mean (SD), Range	35.3 (9.7)	19-62	31.9 (9.3)	18-55		
Median, IQR*	33.0	12.0	30.0	14.0		.07**
Marital Status						
Married/living as married	36	67.9	21	42.9	6.49	.01
Single	17	32.1	28	57.1		
Education						
Less than high school	25	46.3	21	42.9	.12	.73
High school or greater	29	53.7	28	57.1		
Time worked at this farm						
< 3 months	4	7.4	17	35.4	21.9	< .01
3-11 months	9	16.7	16	33.3		
1-3 years	24	44.4	8	16.7		
4 and > years	17	31.5	7	14.6		
Total hours worked/week						
Mean (SD), range	56.7(12.9)	26-98	66.9(17.7)	36-103		.002**
Median, IQR	54.0	7.8	66.3	30.1		

*Interquartile range (IQR), ** Wilcoxon Mann-Whitney Pr > |z|, Note: Column numbers may not sum to totals due to missing values.

Table 2. Distribution of work practice and organization of work factor measures by crop and horse farms.

	Horse		Crop		P
	Mean (SD) Median	Range IQR	Mean (SD) Median	Range IQR	
Awkward posture	23.8 (9.1) 22.0	13-51 13.0	35.8 (8.9) 35.0	19-52 13.0	.0001*
Safety climate	20.8 (5.5) 21.0	10-33 9.5	20.0 (6.2) 19.5	9-34 9.0	.53*
Work-related stress	10.5 (4.1) 10.0	5-20 6.0	13.0 (4.1) 13.0	6-20 6.0	.003*
Supervisor abuse	10.3 (3.7) 10.0	7-24 4.0	12.3 (4.9) 11.0	7-27 6.0	.02*
Total hours worked/week	56.7 (12.9) 54.0	25.5-98 7.8	66.8 (17.7) 66.3	36-102.9 30.1	.002*

*Wilcoxon Mann-Whitney Pr > |z|

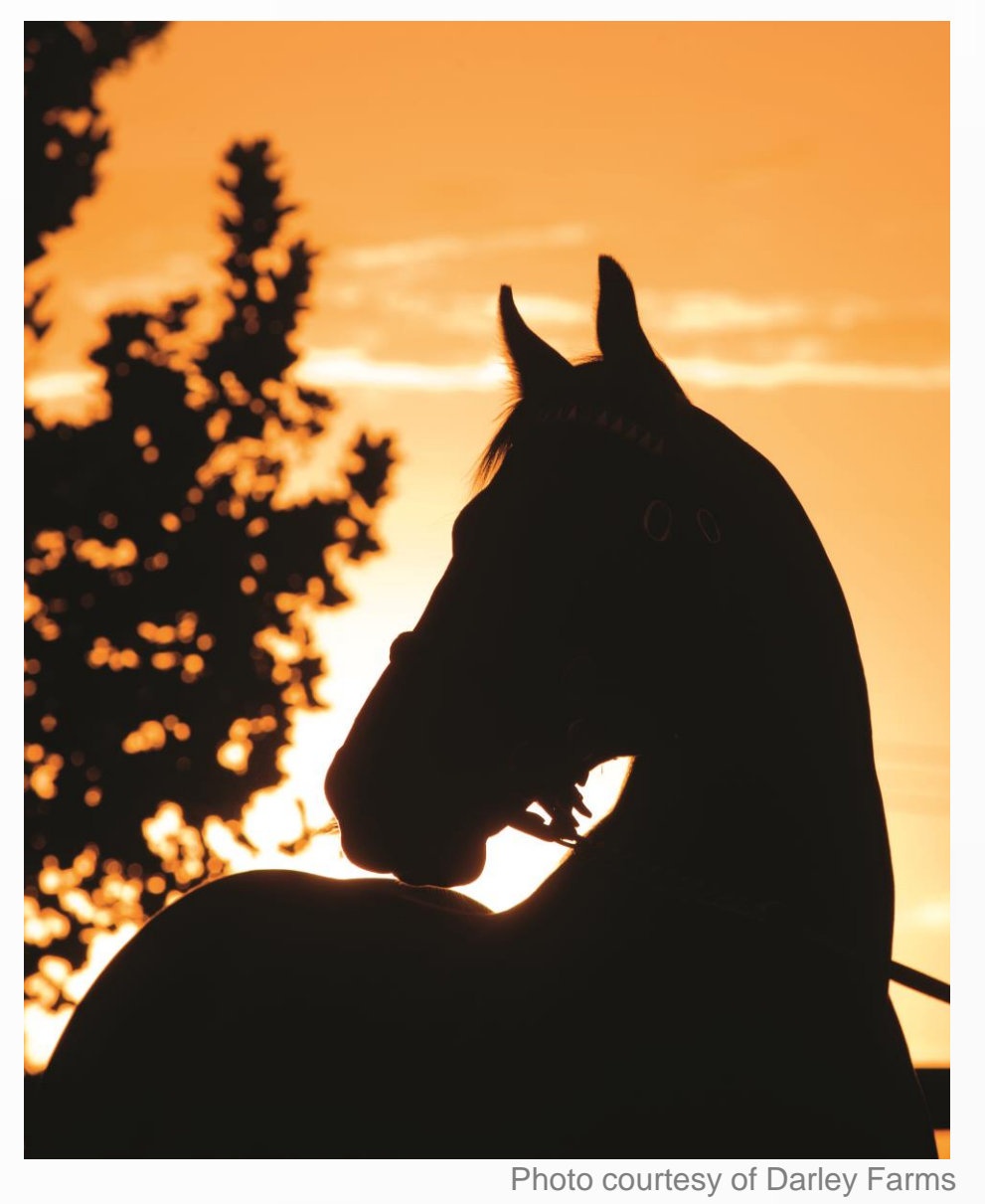


Results

Table 3. Adjusted odds ratios (95% CIs) of select risk factors for work-related injury, illness and missed work among Latino workers on crop and horse farms.

	Injury			Illness			Missed Work		
	% Injured	Adj. OR ¹	95% CI	% Ill	Adj. OR ¹	95% CI	% Missed work ²	Adj. OR ¹	95% CI
Age									
Under 40	24.0			28.0			21.3		
40 and older	28.6	1.28	.44 - 3.71	21.4	.78	.24 - 2.51	21.4	1.01	.32 - 3.16
Hours worked/week									
Under 55	22.6			24.5			18.9		
55 and over	28.0	1.15	.40 - 3.28	28.0	.62	.20 - 1.92	24.0	.89	.29 - 2.68
Awkward positions									
33 or less	23.1			13.9			16.9		
34 or greater	28.6	1.05	.28 - 3.92	48.6	3.85	1.06 - 13.98	31.4	1.21	.33 - 4.41
Safety climate									
Less than 20	33.3			33.3			29.2		
20 and greater	18.2	.62	.22 - 1.7	20.0	.57	.20 - 1.65	14.6	.47	.16 - 1.37
Work-related stress									
10 or less	18.6			13.9			14.0		
Greater than 10	30.0	1.08	.35 - 3.35	35.0	1.78	.54 - 5.88	26.7	1.29	.39 - 4.27
Supervisor abuse									
10 or less	14.6			18.2			14.6		
Greater than 10	37.5	2.97	1.0 - 8.77	35.4	1.21	.41 - 3.58	29.2	1.78	.60 - 5.28
Work type									
Horse	24.1			14.8			14.8		
Crop	26.5	.82	.22 - 2.97	38.8	1.63	.41 - 6.49	28.6	1.97	.52 - 7.55

¹The adjusted multivariable model controls for all variables listed in this table simultaneously. The Hosmer-Lemeshow Goodness of Fit Chi-Square = 3.28, DF=8, p > .91, indicating an adequate fit. ²Missed work refers work missed due to work-related injury or illness.



Conclusions

In this study of Latino horse and crop farm workers, it is estimated that one in four workers reported a work-related injury in the past 12 months. Increased levels of abusive supervision were associated with occupational injury and increased awkward postures were associated with occupational illness. Though not statistically significant, abusive supervision increased the odds and a high safety climate score decreased the odds for injury, illness and missed work.

Findings suggest that the supervisor-subordinate relationship may play a critical role in the occupational health of Latino farmworkers. Results suggest that poor supervisory practices pertaining to a range of work-related matters may increase the odds of occupational ill-health outcomes among Latino and immigrant workers^{7,8}. Consequently, interventions that incorporate a full picture of the work environment, including work design, managerial relationships, and safety climate, may help improve the health of this vulnerable worker group.

Future research is needed to better understand the relationships between work organization, job hazards, illness, injuries, and missed work among Latino workers. Our findings imply that the social context of work may be an important determinant of these outcomes.

Acknowledgments

We would like to thank the Southeast Center for Agricultural Health and Injury Prevention, University of Kentucky College of Public Health, under CDC/NIOSH Cooperative Agreement 5U50 OH007547-09.

More information

The content of this presentation will be published in the October 2013 edition of the *Journal of Agromedicine*. Please contact Dr. Jennifer Swanberg at jswanberg@ssw.umaryland.edu with questions. Handouts are available instantly by scanning this QR code into a mobile device or visit http://iwin.uky.edu/workplace_research/WorkOrgHealth.pdf.

