

Stressors, Resources, and Well-Being Among Latino and White Warehouse Workers in the United States

Annekatriin Hoppe, MSc,^{1*} Catherine A. Heaney, PhD, MPH,¹ and Kaori Fujishiro, PhD^{2†}

Background Social forces and cultural factors may contribute to Latino and White workers experiencing similar jobs differently. This study examines the psychosocial stressors and resources experienced by Latino and White workers in manual material handling jobs in the US and the effects of these stressors and resources on worker well-being.

Methods Fifty-nine Latino warehouse workers were matched with White workers by job title, job tenure, and warehouse facility. Matched sample *t* tests and linear regression analyses models were conducted.

Results Results reveal similar psychosocial stressors and resources for both groups. However, Latino workers reported better well-being. For Latino workers, social resources at work such as management fairness and supervisor support have a stronger relationship with well-being. For White workers wage fairness is the most significant predictor for well-being.

Conclusions These differential results challenge us to consider how cultural factors, expectations and the prior work history of Latino workers may influence their experience of work and the effect of work on health. *Am. J. Ind. Med.* 53:252–263, 2010. © 2009 Wiley-Liss, Inc.

KEY WORDS: immigrant workers; psychosocial working conditions; low wage; workers; well-being; job expectations

INTRODUCTION

In the last decades, Latinos have been among the fastest growing minority groups in the United States. Currently more than 21 million Latinos work in the US, with an increase of 1.1 million Latino workers occurring in 2007. More than 40% of that increase was due to new immigrant

workers [Kochhar, 2007; Bureau of Labor Statistics, 2008]. Latino workers in the US have a greater likelihood of being employed in low wage, physically hazardous occupations than do White workers [Kochhar, 2007]. While Latinos constitute 6% of US workers in professional and managerial positions, they account for more than 20% of all workers in the more physically hazardous industries of construction, agriculture, and manual material handling [Bureau of Labor Statistics, 2006, 2008]. Thus, it is not surprising that Latino workers experience higher occupational injury rates than White workers [Bureau of Labor Statistics, 2008].

Most of the research addressing the occupational health and safety of Latino workers in the US has not (1) compared the experience of Latino and White workers who hold similar jobs, and (2) considered psychosocial work characteristics as contributors to potential occupational health disparities. Social forces and cultural factors may contribute to Latino and White workers experiencing the same jobs quite

¹Stanford University, Stanford Prevention Research Center, Palo Alto, California

²Ohio State University, College of Public Health, Columbus, Ohio

[†]Present address: NIOSH, Cincinnati, Ohio

Contract grant sponsor: NIOSH; Contract grant number: 5 R01 OH03914-03; Contract grant sponsor: German Academic Exchange Service (DAAD).

*Correspondence to: Annkatrin Hoppe, Postdoctoral Fellow, Stanford Prevention Research Center, Stanford University, 1070 Arastradero Road, Suite 300, Palo Alto, CA 94304. E-mail: ahoppe@stanford.edu

Accepted 26 July 2009

DOI 10.1002/ajim.20752. Published online in Wiley InterScience (www.interscience.wiley.com)

differently. In the present study, we will therefore examine psychosocial work characteristics and their relation to health and well-being among Latino and White workers in the same jobs.

Conceptual Framework

A conceptual framework that guides research on immigrant workers is presented in Figure 1. A transactional model of stress describes a process through which objective physical and social conditions are appraised and responded to by individuals [Lazarus and Folkman, 1984]. An employee’s appraisals and coping responses can then cause short-term psychological, behavioral and physiological reactions that, when left untreated, can result in adverse consequences for mental and physical health. This stress process unfolds within an organizational context and is influenced by larger social forces.

Berry [1997] has described how group acculturation—the cultural adaptation of a specific ethnic group to a new environment—can influence the experience of the stress process for individuals belonging to this group. He argues that the interplay of characteristics of the society of origin (e.g., the economic status of an ethnic group or cultural norms) and characteristics of the society of settlement (e.g., societal attitudes towards multiculturalism) determine this group acculturation. For example, large discrepancies between the cultural norms within the society of origin and the society of settlement may impede group acculturation. Social processes related to group membership and group status, as postulated by social identity theory [Tajfel and Turner, 1979], further influence group acculturation. Based

on salient characteristics (such as ethnicity), individuals classify themselves and others into fixed, impermeable categories. Identification with one’s own ethnic group may lead to favoring members of one’s own ethnicity and ultimately to negative stereotyping of members of other ethnic groups [Hogg and Abrams, 2003]. Perceived social status further influences this process of in-group favoritism and out-group prejudice. The larger the discrepancy in social status between the society of settlement and the society of origin and the more strongly members of the society of settlement identify with their own ethnic group, the more likely they are to mistrust and discriminate against immigrants.

These group level phenomena accordingly influence the social interaction between immigrant and native-born workers in the workplace. The distinctive ethnic identity of Latinos in the workplace and their lower social status as compared to White workers [cf. Morales et al., 2002] may subsequently result in exclusion, discrimination, and less social support. Furthermore, language barriers and discrepancies in value orientations may lead to miscommunication and augment social conflicts [Hofstede, 2000].

The stress process, as represented in the central flow of Figure 1, initiates with the worker’s exposure to stressors. Following Frese and Zapf [1994], we differentiate between task-related stressors (e.g., workload, role conflict, and role ambiguity) and stressors stemming from the social environment at work (e.g., discrimination or social conflicts). While we expect Latino workers to experience more social stressors for the reasons described above, we also expect higher levels of task-related stressors. De Castro et al. [2006] point out that Latino workers are treated differently by their supervisors than are White workers. Latinos are told to work harder, have shorter lunch breaks, and work more overtime than their coworkers. In addition, Latino workers are likely to experience potential value discrepancies and communication problems, augmenting their exposure to role conflict and role ambiguity.

These stressors, the ensuing stress appraisal process, and the individual’s reaction to perceived stress as postulated by the transactional model are influenced by personal factors and situational resources. A substantial body of research shows that personal factors, such as socio-demographics (i.e., gender, age, and education) and personality traits, influence the stress process [e.g., Cooper and Payne, 1991]. For immigrant workers, additional factors may come into play such as their motivation for migration and their expectations towards employers. These factors stem from, in part, the political and economic situation of the society of origin. Since they are likely to have emigrated from a low income country, Latino workers may have lower expectations about wages, benefits, and working conditions. For example, Grzywacz et al. [2008] found that Latino farm workers in the US did not experience the high work demands

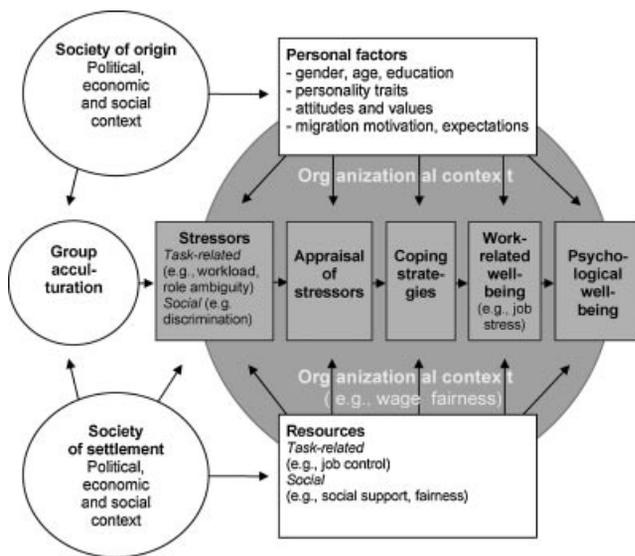


FIGURE 1. Conceptual framework guiding research on immigrant workers [adapted from Lazarus and Folkman, 1984; Berry, 1997].

of farm work as stressful. They argued that financial security may be more important than decent working conditions for many Latino workers. Moreover, norms of the society of origin shape an individual's attitudes and values and may strongly impact work-related coping behaviors [Marsella, 1997]. For example, Farley et al. [2005] found that among rural residents in the US, Mexican immigrants used positive reframing, denial, and religion as coping strategies more often than White Americans, who predominantly engaged in active coping or acceptance.

Apart from these personal factors, situational resources influence the stress process at all stages. Resources may have a direct positive effect on well-being or indirectly buffer the negative effect of stressors [van der Doef and Maes, 1999]. Following Frese and Zapf [1994], we again differentiate between task-related resources, such as job control, and resources of the social environment at work, such as social support and fairness. Job control, social support and organizational justice have been consistently linked to decreased stress levels and improved worker well-being [Karasek, 1979; van der Doef and Maes, 1999]. However, language barriers, in-group favoritism and out-group discrimination may lower the levels of job control, social support and organizational fairness available to Latino workers. For example, Golding and Baezconde-Garbanati [1990] showed that Mexican immigrant workers reported having less coworker and supervisor support than did White workers in the US. Also, de Castro et al. [2006] state that Latino workers are less likely to be treated fairly by their employer or supervisor than are White workers.

Drawing on the transactional model [Lazarus and Folkman, 1984], Berry's [1997] acculturation framework, and Frese and Zapf's [1994] action theory conceptualization of situational stressors and resources, Figure 1 provides a conceptual framework for investigating psychosocial working conditions and their associations with well-being among immigrant workers.

Study Background and Hypotheses

This study examines psychosocial stressors, resources, and well-being among Latino and White warehouse workers in the US. Latinos account for 20% of all workers in the transportation and warehousing industry, a sector with a disproportionately high injury rate [Centers for Disease Control and Prevention, 2008]. The warehouse work of study participants involved heavy manual material handling, for example, sorting and storing of furniture in the warehouse, furniture preparation for delivery, assembly line jobs, and transportation. Study participants worked in five warehousing facilities throughout the Eastern US. To ensure comparability of workers, Latino and White workers were matched according to their exact job title, job tenure,

and facility. This approach allowed us to look at differences between Latino and White warehouse workers performing equivalent jobs.

Based on our conceptual framework, we hypothesized the following:

Hypothesis 1: Latino workers will experience more task-related stressors and fewer task-related resources than their White coworkers.

Hypothesis 2: Latino workers will experience fewer social resources than their White coworkers.

Hypothesis 3: Latino workers will experience poorer work-related and psychological well-being than their White coworkers.

Moreover, we explored differences between the Latino and White workers based on the association of psychosocial working conditions with work-related and psychological well-being. For both Latino and White workers, we investigate (1) direct associations of stressors and resources with well-being and (2) the buffering function of resources on the expected negative association of stressors with well-being.

MATERIALS AND METHODS

Sample and Procedure

The data for this study stem from a larger, longitudinal study of worker health in nine furniture distribution centers in the US. Altogether, 471 warehouse workers completed a baseline questionnaire (response rate = 88%), of whom 65 were Latino, 254 were White, 105 were African American and 47 had a different ethnic background. Latino and White workers showed considerable variation in the type of work they performed and in their job tenure. To ensure a comparison between workers in equivalent jobs, Latino and White workers were matched according to their job title, job tenure and warehouse facility. Four Latino workers had to be excluded because they had worked less than one month and had much missing data. An additional two Latino workers could not be matched with White workers on the selected criteria. The final sample included 59 Latino and 59 White warehouse workers from five warehouse facilities. Table I shows the sample characteristics. Latino workers on average were less educated and had lower wages than their White coworkers. None of the participants had supervisory responsibilities. Almost all of the workers' supervisors were White.

The study was approved by the Ohio State University IRB. All participants signed informed consent forms before participating in the study. Questionnaires were available in both English and Spanish. In small groups, workers were released from their work responsibilities to complete

TABLE I. Demographics by Ethnicity

Variables	Latino workers, N (%) / M (SD)	White workers N (%) / M (SD)	χ^2 / t-test
Gender ^a			
Women	3 (5%)	4 (7%)	$\chi^2 (1, N = 118) = 0.15; P = 0.70$
Men	56 (95%)	55 (93%)	
Education			
Less than high school	26 (44%)	8 (13%)	$\chi^2 (3, N = 118) = 22.48; P < 0.001$
High school degree	26 (44%)	24 (41%)	
Some college	6 (10%)	20 (34%)	
College degree	1 (2%)	7 (12%)	
Hourly wage			
Less than \$9.99	37 (76%)	25 (50%)	$\chi^2 (2, N = 99) = 10.29; P < 0.01$
\$10.00–12.99	1 (2%)	15 (30%)	
More than \$13.99	11 (22%)	10 (20%)	
Survey taken in			
Spanish	52 (88%)	0 (0%)	$\chi^2 (1, N = 118) = 92.97; P < 0.001$
English	7 (12%)	59 (100%)	
Age	33.31 (8.25)	34.58 (12.30)	$t(116) = 0.66; P = 0.51$
Hours worked per week	42.25 (5.47)	41.14 (7.21)	$t(115) = 0.94; P = 0.35$

^aWhere cell counts are less than five, Fisher’s Exact Tests revealed similar results.

the self-administered questionnaires in the language of their choice. Due to low literacy, workers were given the option of having the questionnaire read to them. Seven workers chose this option. Our study did not measure nativity because of the sensitive nature of this question. However, Vega et al. [1998] argue that the language used to complete a survey instrument is an excellent predictor of birthplace. Eighty-eight percent of the Latino workers in this study completed the survey in Spanish, suggesting that they were predominantly first generation immigrants.

Measures

Previously validated multi-item scales were used to measure the major study variables whenever possible. The English scales were pretested in cognitive interviews, which led to slight modifications in the wording and selection of items. The questionnaire was translated into Spanish and back-translated into English by professional translators. The number of items, response scales, reliability coefficients and a sample item for each scale are displayed in Table II. Most

TABLE II. Descriptive Statistics and Sample Items of Major Study Variables

Variable	No. of items	Scale	α for Latinos	α for Whites	Sample item
Task-related stressors and resources					
Workload	3	1–5	0.72	0.64	How often does your job require you to work very fast?
Role conflict	6	1–5	0.71	0.79	How often do you receive conflicting requests from two or more people?
Role ambiguity	4	1–5	0.61	0.73	To what extent do you know exactly what is expected from you?
Job control	6	1–5	0.77	0.79	How much influence do you have over the order in which you do tasks at work?
Social resources and wage fairness					
Supervisor support	4	1–4	0.72	0.86	How much can your boss be relied on when things get tough at work?
Management fairness	21	1–5	0.80	0.92	To what extent does upper management ignore employees’ complaints?
Wage fairness	2	1–5	—	—	To what extent are employees paid what they deserve?
Well-being					
Job stress	10	0–3	0.84	0.86	Irritating
Psychological well-being	12	0–1	0.81	0.86	Have you been feeling unhappy and depressed?

scales demonstrated acceptable to good internal consistencies [Nunnally, 1978]. The internal consistencies are slightly lower for the Latino sample. Confidence intervals for the estimated alpha coefficients show that the alphas do not differ significantly between groups [Iacobucci and Duhachek, 2003].

Task-related stressors and resources

Subscales of the National Institute of Occupational Safety and Health (NIOSH) Generic Job Stress Questionnaire (GJSQ) were used to measure workload, role conflict, role ambiguity, and job control [Hurrell and McLaney, 1988]. One item for workload (“How often does your job leave you with little time to get things done?”) was deleted from the original four-item-scale in both groups to improve the internal consistency for the Latino subgroup. In all questions, employees were asked to report the extent to which they were exposed to certain stressors or resources, rather than asking them how problematic certain aspects of their work environments were.

Social resources and wage fairness

In addition to task-related stressors and resources, we included measures of social support and fairness. Emotional and instrumental support were measured with two subscales of the GJSQ. The measures of fairness were newly designed and validated for the purpose of this study [Fujishiro, 2005].

Well-being

Work-related well-being was measured with the Stress-in-General Scale [Stanton et al., 2001], which is used as a two factor measure for assessing the workers’ level of general job stress. The original Stress-in-General scale consists of 12 adjectives, with employees asked to indicate whether each adjective describes their job. A 10-item version of the scale had been previously validated with a Latino sample [Robert et al., 2000; Cortina et al., 2002] and was applied in this study. The General Health Questionnaire 12-item US version (GHQ12) was used to assess respondents’ overall psychosocial well-being, for example depression, anxiety, and disturbance in social functioning [Goldberg and Williams, 1988]. Each item was scored either 1 or 0 according to the scoring schema for non-clinical settings [Goodchild and Duncan-Jones, 1985], and the sum of the 12 items was calculated for individuals. The score ranges from 0 to 12 with higher scores indicating better health. The scale has been validated in Spanish and used with Latino samples [e.g., Rona et al., 2007; del Pilar Sanchez-Lopez and Dresch, 2008].

Data Analysis

Spearman correlation coefficients were calculated due to the violation of normality. Differences between the Latino and White workers were examined using matched sample *t* tests for each study variable. Where the assumption of normality was violated, non-parametric Wilcoxon paired signed rank tests were calculated.

To test whether the relationship of psychosocial working conditions with well-being differed by ethnicity, we ran regression models. Being limited in sample size, we subsumed task-related variables in a task model, social resources in a social model and wage fairness in a wage model. In each regression, education was entered as a control variable. After running separate regressions for Latino and White workers on job stress and psychological well-being, chow tests [Chow, 1960] were computed to determine whether the regression coefficients were statistically significantly different between the two groups.

Lastly, using separate moderated regressions for Latino and White workers, stressors were tested with resources as potential moderators of the relationship between stressors and well-being. In step 1 we entered education, in step 2 we entered the stressor (e.g., role ambiguity) and the proposed moderator (e.g., supervisor support), followed by the interaction of the stressor and resource in step 3. A change in R^2 in step 3 and a significant beta weight for the interaction indicate the presence of a moderator effect.

In all regression models, the residuals were distributed normally around the regression line. Adjusted R^2 s are reported.

RESULTS

Means, standard deviations, and zero order correlations are presented separately for Latino and White workers in Table III.

Ethnic Differences in the Experience of Psychosocial Working Conditions and Well-Being

The Latino workers reported more role ambiguity ($t(56) = -3.26$; $P \leq 0.01$) and less role conflict ($t(56) = 2.94$; $P \leq 0.01$) than did White workers (Table III). We found no differences in workload and job control. We also found no differences between the groups in social resources. Accordingly, Hypotheses 1 and 2 were not supported. Against expectations, the Latino workers reported lower levels of job stress ($Z = -4.02$, $P \leq 0.001$) and higher levels of psychological well-being ($Z = -3.02$, $P \leq 0.01$). Hence, Hypothesis 3 was not supported. Lastly, Latino workers reported higher wage fairness than did White workers ($Z = -2.40$, $P \leq 0.05$).

TABLE III. Means, Standard Deviations and Zero Order Correlations by Ethnicity

Variables	Latino	White	1	2	3	4	5	6	7	8	9
	workers	workers									
	M (SD)	M (SD)									
Workload	3.33 (0.86)	3.60 (0.79)	—	.37**	.03	.13	-.09	.10	-.20	.37**	-.22
Role conflict ^a	1.92 (0.57)	2.26 (0.66)	.39**	—	.29*	-.13	-.34*	-.28*	-.33*	.40**	-.36**
Role ambiguity ^a	2.44 (0.75)	1.95 (0.75)	-.09	.06	—	-.59**	-.27*	-.23	-.11	.25	-.29*
Job control	3.18 (0.83)	3.15 (0.90)	.30**	.26	-.57**	—	.38**	.25	.14	-.07	.19
Supervisor support	2.98 (0.70)	2.88 (0.81)	-.18	-.28*	-.30*	.24	—	.31*	.28*	-.18	-.13
Mgmt fairness	3.25 (0.54)	3.17 (0.70)	-.23	-.31*	-.31*	.08	.59**	—	.65**	-.28*	.26
Wage fairness	2.21 (1.00)	1.97 (1.03)	-.19	-.15	-.30*	.19	.57**	.55**	—	-.49**	.32*
Job stress ^b	0.79 (0.74)	1.45 (0.86)	.40**	.39**	.16	.04	-.19	-.55**	-.18	—	-.41**
Psychological well-being ^a	9.56 (2.57)	8.11 (2.43)	-.24	-.40**	-.11	.08	.31*	.37**	.21	-.48**	—

Correlations for Latino workers are below the diagonal and for White workers are above the diagonal. Mgmt = management; Variables marked with letters indicate a statistically significant mean difference between ethnic groups.

^a $P < .01$.

^b $P < .001$.

* $P < .05$.

** $P < .01$.

Ethnic Differences in the Association of Psychosocial Working Conditions With Well-Being

Three sets of regression models were run separately for Latino and White workers on the two well-being outcomes: job stress and overall psychological well-being. The task model, the social model, and the wage model appear in Table IV.

Job Stress

Task model

Regressions of the task model revealed that for Latino workers workload and role conflict were significant predictors for job stress. For White workers, workload and role ambiguity were significantly associated with job stress. The chow test reveals that the two models differ significantly from one another ($F(6, 97) = 2.74, P < 0.05$). The variance explained in job stress is higher for the Latino than for the White workers, with 26% compared to 20% of variance explained. However, for the Latino workers education is a significant predictor and contributes to their higher R^2 in job stress. The change in R^2 after education is $\Delta R^2 = 0.22$ for the Latino sample and thus similar to the R^2 of the White sample.

Social model

Regressions of the social model show that for Latino workers management fairness is negatively associated with job stress, while for the White workers social resources are

not associated with job stress. Again, the chow test reveals that the two models differ significantly from one another ($F(4, 94) = 4.88, P < 0.01$). The amount of variance explained in job stress is higher for the Latinos with 35% compared to 5% among White workers.

Wage model

Finally, the regressions of the wage model reveal that wage fairness is associated with job stress only among the White workers, explaining 17% of the variance in job stress. The two models differ significantly from one another ($F(3, 92) = 4.98, P < 0.05$).

Psychological Well-Being

Task model

Regressions of the task model on psychological well-being revealed that for Latino workers role conflict was a significant predictor, whereas for White workers role ambiguity was significantly associated with psychological well-being. The amount of variance explained in psychological well-being is similar for both groups and the models do not differ significantly from one another ($F(6, 97) = 1.43, P > 0.05$).

Social model

Regressions of the social model show that for Latino workers social resources are not associated with psychological well-being. For White workers management fairness

TABLE IV. Regressions of task-related variables, social variables and wage fairness on job stress and psychological well-being

Separate models	Job Stress				Psychological well-being			
	Latino		White		Latino		White	
	β	<i>P</i> -value	β	<i>P</i> -value	β	<i>P</i> -value	β	<i>P</i> -value
Task model								
Education	.26*	.04	-.04	.75	-.13	.34	-.01	.96
Workload	.32*	.02	.32*	.02	-.11	.42	-.05	.70
Role ambiguity	.05	.76	.34*	.03	.11	.50	-.34*	.04
Role conflict	.33*	.02	.16	.25	-.44**	<.01	-.23	.13
Job control	-.18	.27	.09	.55	.28	.09	-.06	.70
Adjusted R ²		.26**		.20**		.15*		.14*
Social model								
Education	.15	.21	-.10	.44	-.12	.41	-.03	.85
Supervisor support	-.01	.97	-.16	.27	.16	.36	-.24	.11
Management fairness	-.59***	<.01	-.22	.13	.21	.20	.36*	.02
Adjusted R ²		.35***		.05		.08		.07
Wage model								
Education	.19	.21	-.08	.54	-.15	.30	.00	.98
Wage fairness	-.18	.24	-.45**	<.01	.22	.13	.35*	.01
Adjusted R ²		.03		.17**		.04		.09*

Note.

* $P < 0.05$.

** $P < 0.01$.

*** $P < 0.001$.

is significantly associated with psychological well-being. However, the amount of variance explained in psychological well-being does not reach significance. The chow test suggests that the models do not differ from one another ($F(4, 97) = 2.32, P > 0.05$).

Wage model

Finally, the regressions of the wage model reveal that wage fairness is only associated with psychological well-being among White workers, explaining 9% of variance. Again, the models do not differ between groups ($F(3, 93) = 1.81, P > 0.05$).

Moderation Effects

We ran moderated regressions to explore the extent to which resources buffered the relationship of stressors with job stress and psychological well-being.

Moderated Regressions for Latino Workers

In the moderated regressions we found that supervisor support moderated the relationship between role ambiguity

and job stress. Figure 2a shows that if supervisor support was low, role ambiguity was associated with higher job stress. If supervisor support was high, role ambiguity was associated with lower job stress (role ambiguity \times supervisor support on job stress: $\Delta R^2 = 0.10, \beta = -1.54, P < 0.05$). We found a similar trend for management fairness (role ambiguity \times fair management on job stress: $\Delta R^2 = 0.05, \beta = -1.36, P = 0.07$) (Fig. 2b).

Moderated Regressions for White Workers

Moderated regressions revealed an interaction effect of wage fairness on the relationship of workload on job stress (workload \times wage fairness on job stress: $\Delta R^2 = 0.07, \beta = -1.45, P < 0.05$). As shown in Figure 3a high levels of wage fairness buffered the association of workload on job stress. Similarly, wage fairness buffered the negative association of role ambiguity on psychological well-being. Figure 3b shows that if wage fairness was low, role ambiguity was associated with lower psychological well-being. If wage fairness was high, role ambiguity was associated with higher psychological well-being (role ambiguity \times wage fairness on psychological well-being: $\Delta R^2 = 0.07, \beta = 0.75, P < 0.05$).

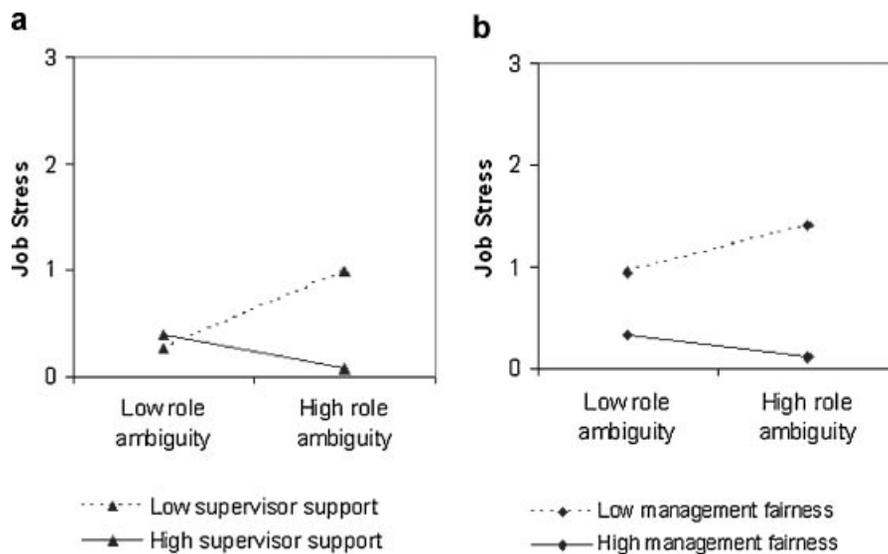


FIGURE 2. Moderating effect of (a) supervisor support and (b) management fairness on the relationship of role ambiguity and job stress for Latino workers.

DISCUSSION

Previous research comparing the work experiences of immigrant with native-born workers or of Latino with White workers in the US has not taken into account the different distributions of these groups of workers across occupations [Golding and Baezconde-Garbanati, 1990; Rosmond et al., 1998; Sundquist et al., 2003; Smith et al., 2005]. Thus, while the documented disparities in work experiences among these groups of workers are instructive, this research does not differentiate between disparities arising from selection into different occupations and from different experiences within an occupation.

The aim of this study was to examine whether Latino workers experienced poorer psychosocial working conditions and well-being than did White workers in the same jobs. We did not find support for our first hypothesis, which assumed more task-related stressors and less job control for the Latino workers. Moreover, we did not find the expected differences in social resources; Latino and White workers reported similar levels of supervisor support and fairness.

While there were no differences in their perceived psychosocial working conditions, the Latino workers consistently reported better work-related and general well-being than their White counterparts. This does not support our

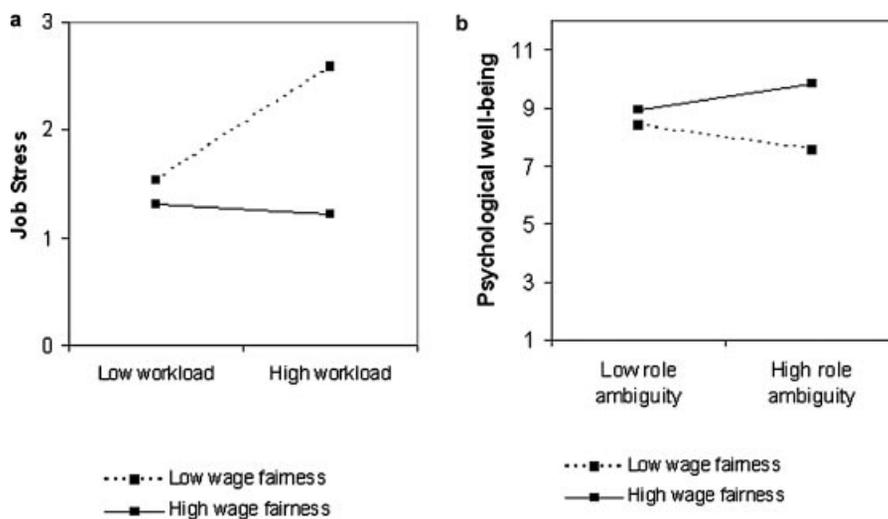


FIGURE 3. Moderating effect of (a) wage fairness on the relationship of workload and job stress and (b) wage fairness on the relationship of role ambiguity and psychological well-being for White workers.

theoretically derived expectations, nor is it consistent with previous empirical findings on work stress among immigrant workers. The few European studies on work stress and ethnicity report an increased level of work stress among skilled immigrant workers from low income countries as compared to skilled White workers in the UK [Smith et al., 2000; Wadsworth et al., 2007]. Rodriguez-Calcagno and Brewer [2005] had similar findings when comparing Latino business economists in the US to a normative group of White American professionals. We do note that comparing these workers to our sample of low wage immigrant and White workers in the US is problematic. However, to the best of our knowledge no studies on ethnicity and work stress among low wage workers in the US are available.

Epidemiological studies provide strong empirical evidence for better physical health among Latinos than non-Latino Whites in the US [see Morales et al., 2002 for a review]. Some studies have shown that Latino immigrants reported better mental health than Whites [e.g., Vega et al., 1998; Farley et al., 2005] although results are less consistent. This phenomenon has been characterized as the Latino health paradox: despite their lower socioeconomic status and poorer access to health care, health outcomes for Latinos in the US are equal to or better than those of White US citizens [Morales et al., 2002]. One possible explanation for the health paradox is the healthy immigrant effect. It postulates that healthier people are more likely to emigrate. Better work-related and general health among our sample of Latino workers may reflect this healthy immigrant effect.

Finally, in our study Latino workers evaluated their wages as fairer than did White workers. This is surprising given that the Latino workers' hourly wages were significantly lower, on average, than those of their White counterparts. This dissimilarity clearly demonstrates different salary expectations among the Latino and White workers.

Ethnic Differences in the Association of Psychosocial Working Conditions With Well-Being

We further explored ethnic differences in the association of psychosocial working conditions with well-being.

Effects of task-related stressors and resources on well-being

Task-related stressors explain a fair amount of variance in job stress and psychological well-being among Latino and White workers. Whereas role conflict is a strong predictor for well-being only for the Latino workers, role ambiguity is associated with well-being only for the White workers. This is surprising as the Latino workers experienced higher levels of role ambiguity than their White coworkers. Studies of

expatriation show that high levels of role ambiguity during short term foreign assignments typically have a negative impact on well-being [e.g., Morley and Flynn, 2003]. It is not clear why role ambiguity among the Latino workers in this study was not associated with poorer well-being. Perhaps the Latino workers have developed some resources or coping strategies to deal with the chronic ambiguity they have experienced as immigrants. Likewise it is not clear why role conflict does not affect well-being among the White workers who experience higher levels of role conflict than their Latino coworkers.

Effects of social resources on well-being

Regression models revealed that social resources explain a significant amount of variance in job stress only among Latino workers. In particular management fairness shows a more positive direct association with job stress for this ethnic group. Also, in moderated regressions we found buffering effects of supervisor support and management fairness on the association of stressors with job stress for the Latino but not for the White workers.

These differential associations of social resources with well-being may derive from different expectations about work and different ideas about what workers deserve from their supervisors and management. Being exposed to discrimination and unfair treatment in US society [see Pérez et al., 2008], Latino workers may have lower expectations for fair treatment from management or support from supervisors in the workplace and therefore react more positively when fairness and social support are experienced. Hui [1990] and Marsella [1997] argue that cultural values influence job expectations and the perceptions of relationships at work.

The Latino workers have emigrated from countries that traditionally have rigid work hierarchies and large "power distances" between workers and their supervisors [e.g., Robert et al., 2000]. In contrast, the US has been classified as a low power distance country with flatter, more flexible work hierarchies [Hofstede, 2000]. Thus, the Latino workers may experience their work relationships in the US, where supervisors and subordinates interact more casually, as particularly pleasant or beneficial. Page and Wiseman [1993] found that Mexican employees in Mexico reported lower levels of supervisor support but higher levels of job satisfaction than did American employees in comparable secretarial jobs in the US. They argue that Mexicans tolerate a strong work hierarchy and thus expect less support from their supervisor. Lower expectations among Latino immigrant workers in the US, paired with appreciation of a less autocratic system, may lead to more positive effects of management fairness and supervisor support on job stress.

Finally, previous research has shown that supervisor support goes along with perceived job security among

employees [Büssing, 1999]. If the immigration status of Latino workers is uncertain they are likely to be more dependent on the mercy of management and their supervisors than White workers [de Castro et al., 2006]. For the Latino workers in our study losing their jobs may have more severe consequences due to responsibilities in supporting their families in the US and their home country, difficulties in finding new employment and the fear of having to leave the US if they become unemployed. Thus, being treated fairly by management may enhance perceptions of job security and thus more strongly enhance their job-related well-being [Büssing, 1999].

For the Latino workers social resources are associated with job stress, but not with psychological well-being. For the White workers management fairness is a significant predictor for psychological well-being. Yet, it does not explain a significant amount of variance. For both groups, other factors that have not been measured in this study must explain significant variance in psychological well-being.

Effects of wage fairness on well-being

Wage fairness explained a significant amount of variance in job stress and psychological well-being only among the White workers and, in addition, buffered the negative association of stressors with well-being. Hundley and Kim [1997] argue that workers of individualistic societies like the US expect that financial rewards will be based on individual performance and status within a group. The White workers in our study are likely to perceive themselves to be in a higher social position when comparing themselves to the Latino workers. In addition, higher pay expectations among White workers in the US as compared to workers from minority groups [Gasser et al., 2002] may enhance the importance of receiving a fair wage and strengthen its effect on well-being. Though Latino workers most likely perceive this wage gap, having paid work and receiving a regular salary may be more important to them than fairness in pay. De Castro et al. [2006] and Grzywacz et al. [2008] both argue that having financial security may be a primary consideration for Latino immigrant workers.

Strengths and Limitations

In contemplating the findings reported here, researchers must consider the limitations of the study. First, all study variables were measured through self-report and thus common method variance may have inflated the results. However, Crampton and Wagner [1994] have pointed out that criticism of self-report measures may be overstated. The differential pattern of relationships across the two groups of workers in this study suggests that common method variance is not a major limitation. Yet, a more objective measure of working conditions, for example, through job observations,

would help investigate how different expectations among Latino and White workers affect their appraisal of stressors and resources at work. Second, cultural differences in responses to Likert scales may have biased our results. We know from cross-cultural research that different cultural groups have different response tendencies [Johnson et al., 2005]. Two such differences include Latino respondents being more likely to choose extreme response options and to agree with a given item than Whites [e.g. Marín et al., 1992]. This response tendency might have inflated the associations we found for the Latino workers. Furthermore, we may deal with differential item functioning for Latino and White respondents, that is, culture may influence the interpretation of items [Azocar et al., 2001]. Third, two of the warehouse facilities where many of the Latino workers were employed went out of business during the course of the larger longitudinal study. Thus, many of the Latino workers were lost to follow-up, and we were limited to using cross-sectional data for the comparisons drawn here. Fourth, the matching of Latino and White workers on several criteria resulted in a small sample, which did not allow for comparisons across facilities. Future research should investigate workplace level phenomena, such as the effect of ethnic diversity in each facility on social characteristics of the work environment and workers' well-being. Finally, even though Latino and White workers were matched, there may still be other ways in which the two groups differ from one another. As this study deals with a highly specific group of Latino workers, the results cannot be generalized across occupations or ethnic groups.

Although these limitations should be taken into account, this study has certain strengths that may enhance the relevance of our results. By matching Latino and White workers by job title, job tenure and facility, our design allowed a comparison of workers holding similar jobs. To the best of our knowledge, no other published study has investigated the work experiences of low wage immigrant workers using such a strategy. Also, with our focus on task-related stressors and resources, we investigated aspects of work that have rarely been considered in previous studies of immigrant workers. Lastly, providing the options of completing the survey in Spanish and/or having the questionnaire read to them ensured that those with little English proficiency or low literacy skills had the opportunity to participate.

CONCLUSIONS

In investigating stressors, resources and well-being among Latino and White workers, this study contributes to the small body of research on occupational health among immigrant workers. The findings challenge us to think carefully about how immigrant workers' expectations influence their work experience. Our results suggest the

need for further investigation of the relationships among job expectations, the experience of psychosocial working conditions, and their causal effects on immigrant workers' well-being. Future research should address immigrant workers in different occupations and from various ethnic groups in order to examine whether the results of this study are generalizable.

ACKNOWLEDGMENTS

Funding for the data collection for this study was provided by a grant (5 R01 OH03914-03) from the National Institute for Occupational Safety and Health. Additional funding was provided by the German Academic Exchange Program (DAAD) in supporting Annkatrin Hoppe with a fellowship for research at Stanford University.

REFERENCES

- Azocar F, Areán P, Miranda J, Muñoz RF. 2001. Differential item functioning in a Spanish translation of the Beck Depression Inventory. *J Clin Psychol* 57:355–365.
- Berry JW. 1997. Immigration, acculturation, and adaptation. *Applied Psychology*. *Int Rev* 46:5–34.
- Bureau of Labor Statistics. 2006. Fatal occupational injuries, employment, and rates of occupational injuries by selected worker characteristics, occupations, and industries, 2006. Washington, DC: U.S. Department of Labor.
- Bureau of Labor Statistics. 2008. Employed persons by occupation, race, Hispanic or Latino ethnicity, and sex. Washington, DC: U.S. Department of Labor.
- Büssing A. 1999. Can control at work and social support moderate psychological consequences of job insecurity? Results from a quasi-experimental study in the steel industry. *Eur J Work Organ Psychol* 8:219–242.
- Centers for Disease Control and Prevention. 2008. Work-related injury deaths among Hispanics: United States, 1992–2006. *Morb Mortal Wkly Rep* 57:597–600.
- Chow GC. 1960. Tests of equality between sets of coefficients in two linear regressions. *Econometrica* 28:591–605.
- Cooper CL, Payne R, editors. 1991. *Personality and stress: Individual differences in the stress process*. Oxford: John Wiley & Sons.
- Cortina LM, Fitzgerald LF, Drasgow F. 2002. Contextualizing Latina experiences of sexual harassment: Preliminary tests of a structural model. *Basic Appl Soc Psychol* 24:295–311.
- Crampton SM, Wagner JA. 1994. Percept-percept inflation in micro organizational research: An investigation of prevalence and effect. *J Appl Psychol* 79:67–76.
- de Castro AB, Fujishiro K, Schweitzer E, Oliva J. 2006. How immigrant workers experience workplace problems: A qualitative study. *Int Arch Occup Environ Health* 61:249–258.
- del Pilar Sanchez-Lopez M, Dresch V. 2008. The 12-item General Health Questionnaire (GHQ-12): Reliability, external validity, and factor structure in the Spanish population. *Psicothema* 20:839–843.
- Farley T, Galves A, Dickinson LM, de Jesus Diaz Perez M. 2005. Stress, coping, and health: A comparison of Mexican immigrants, Mexican-Americans, and non-Hispanic whites. *J Immigrant Health* 7:213–220.
- Frese M, Zapf D. 1994. Action at the core of work psychology: A German approach. In: Triandis HC, Dunette MD, Rough LM, editors. *Handbook of industrial and organizational psychology*. Palo Alto: Consulting Psychologists Press. pp. 271–340.
- Fujishiro K. 2005. *Fairness at work: Its impacts on employee well-being*. Columbus, OH: Ohio State University.
- Gasser M, Flint N, Tan R. 2002. Reward expectations: The influence of race, gender and type of job. *J Bus Psychol* 15:321–329.
- Goldberg D, Williams P. 1988. *A User's Guide to the General Health Questionnaire*. Windsor: NERF-Nelson.
- Golding JM, Baezconde-Garbanati LA. 1990. Ethnicity, culture, and social resources. *Am J Community Psychol* 18:465–486.
- Goodchild ME, Duncan-Jones P. 1985. Chronicity and the general health questionnaire. *Br J Psychiatry* 146:55–61.
- Grzywacz JG, Quandt SA, Arcury TA. 2008. Immigrant farmworkers' health related quality of life: An application of the job demands-control model. *J Agric Saf Health* 14:79–92.
- Hofstede G. 2000. *Culture's consequences: International differences in work-related values*. Newbury Park, CA: Sage Publications.
- Hogg MA, Abrams D. 2003. Intergroup behavior and social identity. In: Hogg MA, Cooper J, editors. *The Sage Handbook of Social Psychology*. London: Sage. pp. 407–431.
- Hui CH. 1990. Work attitudes, leadership styles, and managerial behaviors in different cultures. In: Brislin RW, editor. *Applied cross-cultural psychology: Cross-cultural research and methodology series*. Thousand Oaks, CA: Sage Publications. pp. 186–208.
- Hundley G, Kim J. 1997. National culture and the factors affecting perceptions of pay fairness in Korea and the United States. *Int J Organ Anal* 5:325–341.
- Hurrell JJ, McLaney MA. 1988. Exposure to job stress: A new psychometric instrument. *Scand J Work Environ Health* 14:27–28.
- Iacobucci D, Duhachek A. 2003. Advancing alpha: Measuring reliability with confidence. *J Consum Psychol* 13:478–487.
- Johnson T, Kulesa P, Cho Y, Shavitt S. 2005. The relation between culture and response styles: Evidence from 19 countries. *J Cross Cult Psychol* 36:264–277.
- Karasek RA. 1979. Job demands, job decision latitude, and mental strain: Implications for job redesign. *Adm Sci Quart* 24:285–308.
- Kochhar R. 2007. 1995-2005: Foreign-born Latinos make progress on wages. Washington, DC: PEW Hispanic Center.
- Lazarus RS, Folkman S. 1984. *Stress, appraisal, and coping*. New York: Springer.
- Marín G, Gamba RJ, Marín BV. 1992. Extreme response style and acquiescence among Hispanics: The role of acculturation and education. *J Cross Cult Psychol* 23:498–509.
- Marsella AJ. 1997. Migration, ethnocultural diversity and future worklife: Challenges and opportunities. *Scand J Work Environ Health* 23:28–46.
- Morales LS, Lara M, Kington RS, Valdez RO, Escarce JJ. 2002. Socioeconomic, cultural, and behavioral factors affecting Hispanic health outcomes. *J Health Care Poor Underserved* 13:477–503.
- Morley MJ, Flynn M. 2003. The relationship between work-role characteristics and intercultural transitional adjustment domain patterns among a sample of US and Canadian expatriates on assignment in Ireland. *Cross Cult Manage* 10:42–57.
- Nunnally JC. 1978. *Psychometric Theory*. New York: McGraw-Hill.

- Page NR, Wiseman RL. 1993. Supervisory behavior and worker satisfaction in the United States, Mexico, and Spain. *J Bus Commun* 30:161–180.
- Pérez DJ, Fortuna L, Alegría M. 2008. Prevalence and correlates of everyday discrimination among U.S. Latinos. *J Community Psychol* 36:421–433.
- Robert C, Probst TM, Martocchio JJ, Drasgow F, Lawler JJ. 2000. Empowerment and continuous improvement in the United States, Mexico, Poland, and India: Predicting fit on the basis of the dimensions of power distance and individualism. *J Appl Psychol* 85:643–658.
- Rodriguez-Calcagno M, Brewer EW. 2005. Job stress among Hispanic professionals. *Hispanic J Behav Sci* 27:504–516.
- Rona RJ, Smeeton MC, Amigo H, Vargas C. 2007. Do psychological distress and somatization contribute to misattribution of asthma? A Chilean study. *J Psychosom Res* 62:23–30.
- Rosmond R, Lapidus L, Björntorp P. 1998. A cross-sectional study of self-reported work conditions and psychiatric health in native Swedes and immigrants. *Occup Med* 48:309–314.
- Smith A, Johal S, Wadsworth E. 2000. The scale and impact of occupational stress: The Bristol stress and health at work study. Health and safety executive research report No. 265. London: Cardiff University.
- Smith A, Wadsworth E, Shaw C, Stanfeld S, Bhui K. 2005. Ethnicity, work characteristics, stress and health. Health and Safety Executive. Cardiff: Cardiff University.
- Stanton JM, Balzer WK, Smith PC, Parra LF, Ironson G. 2001. A general measure of work stress: The Stress In General Scale. *Educ Psychol Meas* 61:866–888.
- Sundquist J, Östergren PO, Sundquist K, Johansson SE. 2003. Psychosocial working conditions and self-reported long-term illness: A population-based study of Swedish-born and foreign-born employed persons. *Ethn Health* 8:307–317.
- Tajfel H, Turner JC. 1979. An integrative theory of intergroup conflict. In: Austin WG, Worchel S, editors. *The social psychology of intergroup relations* Monterey, CA: Broke/Cole, pp. 33–48.
- van der Doef M, Maes S. 1999. The job demand-control(-support) model and psychosocial well-being: A review of 20 years of empirical research. *Work Stress* 2:87–114.
- Vega WA, Kolody B, Aguilar-Gaziola S, Alderete E, Catalano R, Caraveo-Anduaga J. 1998. Lifetime prevalence of DSM-III-R psychiatric disorders among urban and rural Mexican Americans in California. *Arch Gen Psychiatry* 55:771–778.
- Wadsworth E, Dhillon K, Shaw C, Bhui K, Stanfeld S, Smith A. 2007. Racial discrimination, ethnicity and work stress. *Occup Med* 57:18–24.