

8-9-2019

Marshallese Migrants and Poultry Processing


Jin Young Choi

Sam Houston State University, jyc002@shsu.edu

Douglas H. Constance

Sam Houston State University, soc_dhc@shsu.edu

Follow this and additional works at: <https://egrove.olemiss.edu/jrss>

 Part of the [Demography, Population, and Ecology Commons](#), and the [Rural Sociology Commons](#)

Recommended Citation

Choi, Jin Young, and Douglas Constance. 2019. "Marshallese Migrants and Poultry Processing." *Journal of Rural Social Sciences*, 34(1): Article 6. Available At: <https://egrove.olemiss.edu/jrss/vol34/iss1/6>

This Article is brought to you for free and open access by eGrove. It has been accepted for inclusion in Journal of Rural Social Sciences by an authorized editor of eGrove. For more information, please contact egrove@olemiss.edu.

Marshallese Migrants and Poultry Processing

Cover Page Footnote

Please address all correspondence to Dr. Jin Young Choi (jyc002@shsu.edu).

Marshallese Migrants and Poultry Processing

Jin Young Choi and Douglas H. Constance
Sam Houston State University

ABSTRACT

This descriptive study investigates the work and health conditions of Marshallese poultry-plant workers in Northwest Arkansas, a global center of the poultry industry. Poultry processing is very dangerous work including numerous human rights and ethical concerns. Processing work has historically been carried out by marginalized workers, such as women, minorities, and immigrants. The Marshallese, one of the Pacific Islander groups, are the latest wave of migrants sourced as processing workers. A survey was conducted with a site-based, convenience sample of current and former Marshallese poultry-plant workers. The final analysis was based on a total of 198 questionnaires. The study showed that Marshallese poultry workers experienced significant safety and health risks at work. It revealed similarities and differences between the Marshallese and previous worker groups. Although their special visa status makes them very attractive workers, their language barriers and health disparities created challenges for the Marshallese workers and the poultry industry.

KEYWORDS

Marshallese; migrant labor; minorities; poultry processing

INTRODUCTION

Poultry processing is dangerous work (Human Rights Watch 2005; Oxfam America 2015; Quandt et al. 2013). It tends to be non-union, with high reliance on women and minorities for the workforce (Griffith 1995; Striffler 2005). Social science research has consistently expressed ethical concerns regarding the treatment of poultry processing plant workers (Constance et al. 2013; Stuesse 2009; Stull, Broadway, and Griffith 1995; Stull and Broadway 2004). Poultry production and processing is a major agricultural industry in Arkansas with several major poultry corporations active in the area (ARFB 2019). The Marshallese, one of the US Affiliated Pacific Islander groups, are the latest wave of migrants sourced as poultry processing plant workers in Arkansas. Similar to the experience of some other immigrant groups such as Latinos, one of the largest employers of Marshallese migrants in Arkansas is the poultry industry (Jimeno 2013). The Marshallese' unique legal status in the United States (e.g. they are lawfully-present migrants, not immigrants or refugees, as they have the right to live and work permanently without visas or labor certification) seems to make them a favorable labor force in the poultry industry. Their experience might be similar to those of other migrant poultry-plant workers, or might be different given their unique legal status. However, there is very limited understanding of the health and work conditions of these Marshallese poultry workers.

This study investigates the health and safety issues, as well as work environment, of Marshallese poultry processing plant workers in Northwest Arkansas. As far as we know, this is the first research on Marshallese migrants working in poultry processing plants in the United States. The study findings can be used to inform policy considerations regarding health and safety regulations and discrimination for the Marshallese workers in particular, and all poultry processing workers in general.

The sections of the article proceed as follows. The first section presents a brief overview of the poultry industry and the processing sector to provide historical and sociological context. This part includes sub-sections on the poultry industry, poultry processing plant labor, and the health and safety aspects of poultry processing. Special attention is paid to the situation facing migrant workers. Finally, the historical background and special migration status of the Marshallese related to their emergence as poultry processing workers in Northwest Arkansas is covered. The next section describes research methods, including research design, sampling, recruitment procedure, data collection, measures, and analysis. The findings section is organized to address five common themes in the literature: (1) sociodemographic characteristics, (2) employment characteristics, (3) work and safety information received from the company, (4) perceived work environment, and (5) workplace illness and injuries.

The last sections provide discussion and conclusions regarding the contribution of this research to the literature on the work and health aspects of poultry processing workers, including the implications and limitations of the study.

THE POULTRY INDUSTRY AND PROCESSING PLANT LABOR

The Poultry Industry

The poultry industry was the first livestock sector to industrialize. Northwest Arkansas was an early center of poultry industrialization (Constance 2008). By the 1960s vertically integrated firms that controlled all aspects of the supply chain (e.g. feed, hatcheries, production, processing, and transportation) dominated the industry in the US South (Boyd and Watts 1997; Heffernan 1984; Reimund, Martin, and Moore 1981). Underemployed farm labor, favorable climate, access to feedstuffs, lower wages and less unionization, and cotton crop failures contributed to the increasing advantage of the US South in this industry (Daniels 1985). Southern social structures grounded in racism, sexism, and anti-unionism kept the workers “relatively docile” (Griffith 1995:130). During the 1960s the poultry integrated firms modernized the processing plant through automation and increased line speed. Smaller firms that did not modernize or integrate went out of business (Constance 2008). By the 1980s the largest four firms controlled about half of production in the United States (Heffernan 1984; Marion 1986). The largest four companies in the United States at the time of this writing were Tyson Food, Inc., Pilgrim’s Pride/JBS (a Brazilian-based corporation), Sanderson Farms, and Purdue Farms (Howard 2016).

Chicken is the most popular meat in America today. In recent years poultry companies have enjoyed major income and profit margin increases (Oxfam America 2015). Although output has tripled and the size of the workforce has doubled since the 1970s, the real value of wages is more than 40 percent lower. For example, Tyson’s profits increased 14-fold during the 1980s, but over the past 15 years Tyson’s revenue per employee has grown 12 percent each year. In this “race to the bottom” to find the highest profits, companies cannot control their biggest cost – the price of chicken feed – but they can control the cost of labor. Processing workers are estimated to only get about 2% of the sale price of chicken (Oxfam America 2015).

Poultry Processing Plant Labor

Poultry processing work has been described as a “3-D” job: dirty, demanding, and dangerous (Quandt et al. 2013). The poultry processing workplace is a disciplined work environment driven by the processing line, with numerous occupational hazards and little opportunity for unionization (Striffler 2005). The poultry industry has a very high turnover rate and is always in need of low-skilled

workers; an annual turnover rate of 100% is common (SPLC 2013). Poultry industry labor needs are met through the increased hiring of minorities and migrants.

Starting in the 1940s the labor force steadily changed from poor Whites to African Americans and females, but with substantial geographic variability depending on the broader demographic makeup of the region (Fite 1984). In the 1980s the labor supply in all the meat processing industries shifted rapidly toward Latino immigrants (Griffith 1995). By 2005 Latinos made up about three-fourths of the processing workers, with the remainder mostly from Southeast Asia and Micronesia (Kandell and Parrado 2005). About 25% of these Latino workers were undocumented (Passel 2006). The continuous flow of new migrants reduced labor costs and served as a constant threat to US-born workers (Striffler 2005). The poultry industry preferred migrant workers, often undocumented, who were willing to work in dangerous and difficult situations, and who could be exploited due to their undocumented and/or precarious status (Constance et al. 2013; Human Rights Watch 2005; Whittaker 2005). Latino male agricultural migrants would find year-round employment in poultry plant towns, send for their families, and settle in those towns permanently (Kandel and Parrado 2005; Passel 2006; Striffler 2005).

This pattern is part of the “Nuevo South” phenomenon characterized by a Latinization of manufacturing and processing industries in the US South (Deeb-Sossa and Mendez 2008; Fink 2003; Mohl 2003; Smith and Furuseth 2008), a sociodemographic change that often increases tensions between locals and the new migrants (Gisolfi 2007; Guthey 2001; Murphy, Blanchard, and Hill 2001; Smith and Winders 2008; Stuesse 2009; Stull et al. 1995). Processing plants frequently exhibit a split labor market made up of a core of local workers who have the better jobs and migrants with the lower-paying and more dangerous jobs (Griffith 1995). Since the 1980s, wages have tended to remain stagnant even when line speeds increased, repetitive motion injuries increased, and the industry continued to block unionization (Human Rights Watch 2005; Passel 2006; Smith-Nonini 2003).

These characteristics continue today. Poultry company profits are rising, consumer demand is growing, products and brands are expanding, and executive compensation is increasing rapidly. However, poultry plant processing workers continue to work long hours under difficult conditions, earn low wages of diminishing value, suffer high rates of injury and illness, and have little recourse for collective action. Critics of the industry maintain that the workers are a disposable and replaceable commodity (Human Rights Watch 2005; Oxfam America 2015).

Hazardous Work and Health in Poultry Processing

Despite the decline of injury and illness rates for the last ten years, the meat and poultry industry still has much higher injury and illness rates than manufacturing overall in the United States (GAO 2016). The Department of Labor classifies poultry as a “hazardous” industry, with occupational injury rates five times the national average (OSHA 2013). Occupational risks include musculoskeletal disorders, repetitive trauma disorders, chronic low back pain, and respiratory and dermatologic conditions (GAO 2005; Lipscomb et al. 2005; Grzywacz et al. 2007; Quandt et al. 2006; Ramsey, Musolin, and Mueller 2015). According to a Southern Poverty Law Center (SPLC) report (2013), over 40% of line workers had carpal tunnel syndrome. Migrant workers are much more likely to suffer workplace injuries and occupational health problems (Human Rights Watch 2005; Passel 2006; Whittaker 2005). The work involves long periods of standing, rapid repetitive motions, rapid line speeds, and heavy reliance on hand tools, which creates stress and contributes to illness and injury (Human Rights Watch 2005; Oxfam America 2015). Furthermore, the unsafe environment including the increased line speed, inadequate job and safety training, and lack of proper safety equipment place workers in a high risk for occupational injury and illness (Arcury et al. 2012; Rosenbaum et al. 2014). For example, although processing line speeds today are twice as fast as they were in 1979 (Oxfam America 2015), the majority of workers reported that they were often “thrown into their assignments” in the plant without any training (Smith-Nonini 2003).

The Occupational, Safety, and Health Administration (OSHA) is responsible for oversight regarding injuries related to poultry processing. OSHA has developed detailed protocols for the prevention of injuries in poultry plants (OSHA 2013). However, OSHA does not have any mandatory specific safety standards regarding the poultry industry, but recommends that the industry provide health and safety training in a manner and language that all employees can understand. A 2013 report indicated that the four largest companies committed over 100 separate violations of OSHA health and safety regulations over the preceding five years (SPLC 2013). The main violations included record-keeping violations (e.g. underreporting injuries), fast line speeds, unsafe tools, improperly securing equipment, improperly securing hazardous chemicals, ergonomic hazards, and denial of adequate bathroom breaks (Fagan and Hodgson 2017; Oxfam America 2015; Smith-Nonini 2003).

Proper and timely health care for workplace injury and illnesses is a major challenge for poultry processing workers. Poultry firms often fail to report injuries, discourage workers from seeking medical treatment, and conceal the extent of workplace injuries (GAO 2005). According to the survey conducted by SPLC (2013) with current and former workers of poultry industry in Alabama, two-thirds

of workers were scared or reluctant to report injuries – mostly due to fear of being fired. Immigrant workers were less likely to report injuries out of fear of retaliation. They were similarly scared to file an OSHA complaint, as there was little protection from the threat of retaliation or deportation. Moreover, they were not paid for sick days. When injured they were penalized if they went to a doctor outside the company. Those who did report injuries had serious problems with access to medical care and recovery time. Workers often could not afford the health insurance premium and co-pay, even though most workers were provided health insurance options (SPLC 2013; see also Smith-Nonini 2003).

As noted above, the poultry industry has a history of suppressing unions and exploiting migrant labor (Griffith 1995; Stull et al. 1995). Many of these migrant workers come from Mexico and other Latin American countries, as well as Laos, the Marshall Islands, China, and Haiti. This labor control strategy has been referred to as a “climate of fear” whereby line supervisors use threats of replacement to suppress workers from speaking out about workplace hazards (Smith-Nonini 2003; SPLC 2013). In particular, foreign-born workers have a greater risk for occupational injury and illness due to communication difficulties (GAO 2005; 2017). Latino workers experienced disproportionately high levels of occupational injuries and illnesses (Grzywacz et al. 2007; Marin et al. 2009; Mirabelli et al. 2012; Quandt et al. 2006). Actual injury rates were often higher than what were reported to the OSHA by the poultry companies (Fagan and Hodgson 2017). The long-term negative health consequences for migrants is elevated as they are less likely to seek health care services due to their lower socioeconomic status, cultural/language barriers, and social structural factors (Choi 2008).

THE MARSHALLESE ISLANDERS: FROM THE PACIFIC TO ARKANSAS

The Republic of the Marshallese Islands (RMI) is a small country in the North Pacific Ocean with a population of 74,539¹ (CIA 2017). Since World War II the RMI has had a unique relationship with the United States. Formal relations began in 1947 with the Trust Territory of the Pacific Islands. Between 1946 and 1958 the United States conducted 67 nuclear tests within the RMI, which resulted in significant environmental contamination and serious negative health issues for the Marshallese. In 1977 the RMI became one of the Freely Associated States, and finally entered into the Compact of Free Association (COFA) agreement with the United States in 1986 and 2004. Based on the COFA agreement², the United States obtained exclusive territorial use for operating military bases. In exchange the Marshallese were granted a unique social entitlement, including the right to work, receive medical treatment, and live permanently or travel freely to the United States without visas or permanent resident cards.

According to the 2010 Census (Hixson, Hepler, and Kim 2012), about 22,434 Marshallese lived in the United States. This is an increase of more than three hundred percent since 2000, a trend that is predicted to continue. The Marshallese out migrate from the RMI to the United States to seek better employment, education, housing opportunities, and medical treatment for their progressive chronic diseases (e.g. cancer, diabetes, kidney failure), as well as for family unification (Jimeno 2013; Rikon et al. 2010). Arkansas is a new home for many of them, as this state has the second largest percentage of Marshallese migrants (19 percent) in the United States (Hixson et al. 2012).

The poultry industry is one of Arkansas' major industries, accounting for 40 percent of state agricultural sales (ARFB 2019). Faced with recent stricter immigration policies, the Marshallese's unique legal status (e.g. the right to work without a visa) makes the Marshallese an attractive labor force for the poultry industry in Arkansas. At the same time, job opportunities in the poultry plants are an appealing pull factor for the Marshallese who have low levels of education and limited job skills. According to the 2009 survey with Marshallese in Northwest Arkansas (Jimeno 2013), only 51 percent of them had a high school education, 98 percent did not have US citizenship, and 76 percent were working for poultry processing plants. They are replacing Latinos as a favorable processing workforce, as evidenced by a 2005 study that found that Latinos composed about three-quarters of all poultry processing workers (Kandell and Parrado 2005). According to an Associated Press news report (Perry and Kissel 2015), the Marshallese made up about 40% of workers at one processing plant in Northwest Arkansas.

The literature shows that foreign-born workers have higher risks for occupational injury and illness. The Marshallese workers are mostly foreign-born so they may be more vulnerable to workplace injury. Moreover, their limited access to health care in the United States might jeopardize their workplace health and safety. Under the COFA agreement the Marshallese were eligible for government health benefits. However, in 1996 the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) (called the 1996 Federal Welfare Reform Act) restricted Marshallese migrants from most government benefits unless their state government provides special assistance for them. In Arkansas, Marshallese migrants are not eligible for any government-assisted health insurance, such as Medicaid and ARKids³, unless they are US citizens. They are denied the Private Option⁴ under the Affordable Care Act (ACA), which results in delays or underuse of proper care (McElfish, Post, and Rowland 2016).

For the Marshallese, the combination of hazardous processing work, lack of English proficiency, and limited government-assisted health insurance might place them in a precarious situation. Nevertheless, there is no empirical data to

document the experience of this new labor force in the poultry processing plants. This exploratory empirical study addresses the following research question: How do Marshallese poultry processing plant workers perceive their work environment? The work environment includes the following dimensions: employment characteristics; work and safety information; hazardous and hostile working conditions; and workplace illness and injury.

METHODS

This project was part of a larger study of occupational health among Marshallese poultry processing plant workers. A cross-sectional survey design was employed to collect information on work environment, injuries, and illnesses at workplace, as well as about the healthcare of current and former Marshallese poultry workers. The survey was conducted between June 2016 and July 2017 in Northwest Arkansas. These counties have a large Marshallese community and a high concentration of poultry processing plants.

Sampling and Recruitment

Despite its limitations, a site-based (Arcury and Quandt 1999; Muhib et al. 2001), convenience sampling method was employed due to the absence of a list of all eligible Marshallese poultry processing workers. A site-based approach assumes that every individual is a member of at least one residential group or site of high worker concentration (e.g. residential enclave or area). With assistance from Marshallese community key informants, workers were recruited from a variety of sites where Marshallese individuals or families were commonly found (e.g. Marshallese churches, apartment complexes, parks, and stores) to reflect sample variability in the community. This approach was particularly useful to recruit Marshallese workers. It was not feasible to have a random probability sample of Marshallese workers from the community or from the workplaces for two reasons. First, it is not possible to identify all Marshallese residents due to their high mobility and clandestine resident behaviors resulting from the housing regulation limiting the number of occupants that may legally reside in one housing unit.⁵ Second, it is difficult to get permission from the poultry processing plants to conduct surveys with their workers. Even if the company agreed, workers might experience possible job loss and/or other forms of retaliation as a result of the study findings.

For the sampling procedure, the investigators first compiled a list of Marshallese churches and apartment complexes with high concentrations of Marshallese poultry processing workers in the study counties because: (1) a majority of Marshallese migrants attend a Marshallese church, and (2) many Marshallese workers stay in specific apartment complexes near the poultry

plants. Second, Marshallese recruiters visited each “site” and invited potential respondents for surveys if they met the inclusion criteria: (1) self-identified as being Marshallese, and (2) either were currently working or had worked within the last three years in a poultry processing plant. Questionnaires were administered to those who agreed to participate in the study. More than one resident per household was included only when they were not working in the same plant. A total of 198 questionnaires were collected and used for analyses. The final sample included 137 (69.2%) current workers and 61 (30.8%) former workers⁶.

Data Collection

Although the self-administered survey is the major form of data collection, an investigator and/or Marshallese bilingual interpreters were present at the survey site to answer questions raised by the workers while responding to the survey. The survey instrument was developed based on an existing questionnaire and report of the Southern Poverty Law Center and Alabama Appleseed (SPLC 2013) related to poultry workers’ health, safety, and workplace environment. Additional questions emerged from the investigators’ previous interviews with Marshallese migrants. A structured, survey questionnaire was created in English, translated into Marshallese, reviewed by two other Marshallese bilingual translators, and revised several times to assure translation accuracy and correct ambiguity. All procedures were approved by the Protection of Human Subjects Committee Review Board of Sam Houston State University.

Measures and Analysis

The questionnaire included measures related to the following five areas: (1) sociodemographic characteristics; (2) employment characteristics; (3) work and safety information received from the company; (4) perceived work environment; and (5) workplace illness and injuries. Sociodemographic characteristics included gender, age, education, marital status, the number of people in the household, place of birth, years of stay in the United States, years of stay in the Northwest Arkansas, and attendance at religious meeting. Nine variables were included for employment characteristics: (1) total years of working in the poultry plants; (2) number of poultry plants at which the respondent had worked; (3) years of working in the current and most recent (for former workers) poultry plant; (4) current or most recent job title; (5) type(s) of work in the plant (14 different types of work organized by major stages of poultry production), considering possible work rotation in the plant; (6) normal working hours; (7) hourly wage; (8) working overtime; and (9) pay scale for overtime (overtime rate, normal rate, or not paid).

Next, the provision of work-related information and workers' understanding about the information were measured. Respondents were asked whether they received the information about the following 11 topics as part of orientation or trainings: (1) number of hours expected to work per week, (2) shift, (3) wages, (4) discrimination policy, (5) health insurance policy, (6) sick leave benefits, (7) paid time off or vacation benefits, (8) safety policy, (9) injury and illness policy, (10) workers' compensation, and the (11) point system⁷. They were also asked the mode of information delivery (four categories: formal training; handbook, posters, or other written form; conversation; and other) and the language used for information delivery (a dichotomous variable – whether all or some Marshallese language was used or not).

Then, respondents were asked three questions about safety policies. Regarding the mode of provision of safety policies, workers were asked to choose one of six response categories: (1) at orientation, (2) at regular meetings for safety policy, (3) from information posted on the wall, (4) the time that they received a safety training, (5) don't know the safety policy, and (6) received nothing. The categories (5) and (6) were combined later. The workers' level of understanding about safety policies was examined with a five-point scale, but recoded into three categories ("Not at all/A little bit," "Somewhat," and "Well/Very well"). The workers' perception of implementation of safety policies in their plant was measured as "Never/rarely," "Sometimes/often," "Always," and "Not sure."

Perceived work environment was measured in terms of line speed, harassment or discrimination, worker's response to the work environment, and response of the company and/or a government agency to the worker's complaint. For line speed, three items were measured: (1) the perceived job safety at the current line speed, (2) the change of the processing line speed that workers experienced, and (3) the perceived risks when the line moved faster. Regarding harassment or discrimination, two variables were included: (1) a dichotomous variable of whether workers had experienced harassment or discrimination in their workplace; and (2) multiple responses for the types of harassments or discriminations they had experienced. Two questions addressed the worker's response to their work environment: (1) whether they had reported harassment or discrimination at the workplace if experienced; and (2) whether they had filed a complaint to a government agency about workplace safety, discrimination, or a wage issue. Lastly, respondents were asked whether a government agency or their company made any changes responding to complaints.

In terms of injury and illness at the workplace, respondents were asked whether they experienced work injuries or illnesses at the current and/or most recent (for former workers) poultry processing plant. They were asked to check all injuries and illnesses they experienced at the workplace: (1) pain (e.g. cannot

close hand, swollen, pinches/itches, numb) in hands, fingers, or wrists; (2) pain in arms, back, or shoulders; (3) cuts; (4) skin problems; (5) vision/eye pain; (6) respiratory/breathing; and (7) other health problems. Respondents were queried regarding the ways in which they responded to work-related injury or illness (a multiple response question), their reluctance to report injury or health issues (a dichotomous variable), and the reasons for their reluctance (a multiple response question). In addition, the variable measuring workers' compensation was constructed from two questions: whether they had applied for workers' compensation when they had a work-related injury or illness, and whether they had received workers' compensation if they applied. Lastly, health insurance status was measured with a source of insurance question: no insurance, employer-sponsored health insurance, purchasing own health insurance, Medicaid/government, and other.

After entering survey data, descriptive statistics were calculated depending on the type of variable. Frequencies and percentages for categorical variables and mean with standard deviations were calculated using SPSS V22.

FINDINGS

Sociodemographic Characteristics

Table 1 presents the respondents' sociodemographic characteristics. There were more males (56.6%) than females (43.4%). About half (48.2%) were younger than 35 years old (mean = 36). More than 52% of the respondents did not complete high school. A majority of the respondents were married or lived with partners (75.4%), and more than six people on average lived in a household. Almost all the respondents were born in the Marshall Islands (98.4%), and the dominant spoken language was Marshallese. The mean years lived in the US and in Northwest Arkansas were 11.14 and 9.37, respectively. About 60% reported going to religious services or meetings at least once a week.

Employment Characteristics

The employment characteristics of respondents are shown in Table 2. On average, the respondents worked less than 5 years and in 2.3 poultry processing plants. In the current or the most recent poultry processing plant, respondents worked 3.11 years on average. A majority of respondents were line workers (85.4%). The most common jobs were deboning (38.4%) and packing (16.2%), followed by cutting, evisceration, and sanitation. More than half of the respondents worked in the second shift (53.7%), 31.4% in the first shift, and 14.9% in the third shift. The mean hourly wage was \$11.25. About 90% of respondents worked overtime, but more than 42% of them reported that they did not get paid an overtime rate.

TABLE 1. Sociodemographic Characteristics of Marshallese Poultry Worker Survey Respondents

VARIABLES	n	%
Gender		
Male	112	56.6
Female	86	43.4
Age (years)		
≤24	31	16.2
25-29	32	16.8
30-34	29	15.2
35-39	31	16.2
40-44	20	10.5
≥45	48	25.1
Education		
< High school	99	52.4
= High school or equivalent	56	29.6
> High school	34	18.0
Marital status		
Married	75	39.3
Living with partner	69	36.1
Divorced/Separated/Single/Widow	47	24.6
Number of people in the household ^a	6.39	±2.44
Place of birth		
Marshall Islands (Major Islands)	112	59.3
Marshall Islands (Outer Islands)	74	39.2
US	3	1.6
Years of stay in the US	11.14	±7.09
≤ 4	44	23.3
5-9	44	23.3
10-14	36	19.0
≥15	65	34.4
Years of stay in NW Arkansas	9.37	6.70
≤ 4	60	31.7
5-9	47	24.9
10-14	32	16.9
≥15	50	26.5
Religious meeting attendance		
More than once a week	68	36.4
Once a week	44	23.5
Less than once a week	67	35.8
Never	8	4.3

^a Mean ± standard deviation

Note: Total N=198, but due to missing responses, this variable has less than 198 cases.

TABLE 2. Employment Characteristics of Marshallese Poultry Worker Survey Respondents

VARIABLES	n	%
Total years of working in the poultry plants ^a	4.93	±4.15
Total number of poultry plants worked ^a	2.30	±1.43
Years of working in the most recent/current poultry plant ^a	3.11	±3.71
Most recent/current job title		
Line worker	163	85.4
Supervisor	1	0.5
Manager/Assistant manager	0	0.0
Human resources	1	0.5
Other	26	13.6
Type of work at the most recent/current plant ^b		
Chicken catcher	7	3.5
Receiving	5	2.5
Trimming	6	3.0
Deboning	76	38.4
Chilling	1	0.5
Cutting	18	9.1
Evisceration	14	7.1
Sanitation	14	7.1
Wash up	3	1.5
Hanging	11	5.6
Plucking	2	1.0
Packing	32	16.2
Killing	2	1.0
Other	17	3.5
Normal working hours		
1 st Shift	59	31.4
2 nd Shift	101	53.7
3 rd Shift	28	14.9
Hourly wage ^a	11.25	±2.28
Worked overtime	167	89.8
Paid for overtime work ^c		
Overtime rate	89	57.8
Normal rate	54	35.1
Not paid	11	7.1

^a Mean ± standard deviation

^b It is a multiple response measurement. Thus, the total percent of all the response categories is not 100.

^c The percent is calculated based on those who have worked overtime.

Note: Total N=198, but due to missing responses, this variable has less than 198 cases.

Work and Safety Information Received from the Company

More than half of the respondents indicated that they received job-related information, except for the information about workers' compensation (46.5%) (see Table 3). The highest proportion of respondents reported that they received the information about safety policy (74.2%), followed by work shift (61.6%), wage (61.6%), point system (60.6%), and hours per week of work (59.1%). Relatively fewer respondents reported that they received the information about health insurance policies (54.5%), sick leave benefit (53.5%), injury and illness policies (52.0%), discrimination policy (50.5%), paid time off or vacation benefits (50.5%), and workers' compensation (46.5%). Only 58.6% of the respondents reported that they received the information through formal training. They also received it from conversations (17.2%) or from a handbook, posters, and other written formats (14.6%). More than 80% received the information in non-Marshallese languages. With respect to the safety policy, four-fifths (80.3%) of respondents reported that they were informed as part of the hiring orientation process, but more than half (53%) did not understand the safety policy of their plant well. Furthermore, only 40% of the respondents thought that the safety policies were always implemented in their workplace.

Perceived Work Environment

Table 4 presents the workers' perception of their work environment. Regarding the processing line speed, almost half (48%) reported that they did not feel safe to do their job at the current line speed. More than half (53%) experienced increased processing line speeds since working at the plant. All the respondents who underwent an increased line speed or a variation of line speed reported increased difficulties at work. Among them, 37.2% felt less safe, 33.9% had more physical pain during and after work, 27.3% felt that their job became more difficult to do, 25.6% felt a higher risk for injuries, and 20.7% had more supervisor/manager discipline issues.

About half of the respondents (47.3%) experienced various kinds of harassment or discrimination at their workplace. Among them, verbal harassment (31.5%) was the most common form, followed by prejudice/discrimination (25.8%). Only 30% of those who experienced harassment or discrimination reported it. Regarding workplace safety, discrimination, or wage payment issues, 9.6% filed a formal complaint to a government agency such as OSHA, Equal Employment Opportunity Commission (EEOC), or Department of Labor (DOL). Only one respondent reported that the agency responded and some changes actually happened.

TABLE 3. Work-related Information Provided by Poultry Company

VARIABLES	n	%
OVERALL INFORMATION		
Information provided by company ^a		
Number of hours expected to work per week	117	59.1
Shift	122	61.6
Wages	122	61.6
Safety policy	147	74.2
Discrimination policy	100	50.5
Workers' compensation	92	46.5
Health insurance policies	108	54.5
Sick leave benefit	106	53.5
Paid time off or vacation benefits	100	50.5
Injury and illness policies	103	52.0
Point system	120	60.6
Mode of information delivery		
Formal training	116	58.6
Handbook, posters, or other written format	29	14.6
Conversation	34	17.2
Other	19	9.6
All or some Marshallese language used to provide information overall	38	19.2
SAFETY POLICY		
Mode of safety policy information provision		
At orientation when hired	147	80.3
Regular meetings for safety policy	15	8.2
Posted the information on the wall	5	2.7
When receiving a safety training	12	6.6
Don't know policy/received nothing	4	2.2
Understanding safety policies		
Not at all/ A little bit	65	32.8
Somewhat	41	20.7
Well/Very well	92	46.5
Perceived implementation of safety policies in the workplace		
Never/rarely	15	7.6
Sometimes or often	75	37.9
Always	80	40.4
Not sure	28	14.1

^a It is a multiple response measurement. Thus, the total percent of all the response categories is not 100.

Note: Total N=198, but due to missing responses, this variable has less than 198 cases.

TABLE 4. Hazardous and Hostile Working Conditions Experienced by Marshallese Poultry Workers

VARIABLES	n	%
LINE SPEED		
Workers who perceived their job to be safe at the current line speed	103	52.0
Changes of line speed		
Increased	106	53.5
Stayed the same or decreased	52	26.3
Varied sometimes	15	7.6
Not sure	25	12.6
Perceived risk when line moves faster ^{a b}		
Nothing different happens	0	0.0
I feel less safe	45	37.2
I feel higher risk for injuries	31	25.6
The job becomes more difficult to do	33	27.3
I have more physical pain during and after work	41	33.9
There is more supervisor/manager discipline	25	20.7
Other	9	7.4
HARASSMENT/DISCRIMINATION		
Experienced harassment or discrimination	89	47.3
Type of harassment or discrimination ^{a c}		
Verbal harassment	28	31.5
Physical harassment	5	5.6
Sexual harassment	6	6.7
Prejudice/discrimination	23	25.8
Other	19	21.3
Reported harassment or discrimination ^c	27	30.3
Filed to a government agency about workplace safety, discrimination, or wage issue	19	9.6
Agency or company response to complaint ^d	1	5.9

^a It is a multiple response measurement. Thus, the total percent of all the response categories is not 100.

^b The percent is calculated based on those who have experienced the line speed increased or varied sometimes.

^c The percent is calculated based on those who have experienced harassment or discrimination in the workplace.

^d The percent is calculated based on those who have had a complaint about workplace safety, discrimination, or wage payment.

Note: Total N=198, but due to missing responses, this variable has less than 198 cases.

Workplace Illness and Injuries

As shown in Table 5, more than 60 percent of the respondents experienced injuries or illnesses since beginning their job at the plant. Over half of workers (54.5%) reported arm, back, and/or shoulder pain, and almost half (48.5%) reported hands, finger, and/or wrist pain. They reported other issues, including skin problems (14.6%), cuts (8.6%), eye problems (6.1%), and respiratory problems (3.0%). However, only 37% of those who had work-related injuries or illnesses reported their health issue to the company officials, such as the nurse, line supervisor, or manager. Less than one-third (31.5%) went to see a doctor. Eleven percent kept completely quiet without even telling their family members.

More than half of the respondents (51.5%) were reluctant or scared to report work-related injuries or illness due to “fear of being fired” and “fear of getting points” (46.6% and 25.0%, respectively). Of those who had workplace injuries or illnesses, only 13.8% received workers’ compensation, 58.7% were denied their compensation request, and 27.5% did not even request it. Less than 70% of respondents had medical insurance from their employer, and about one-fourth did not have any medical insurance.

DISCUSSION

This descriptive study showed that Marshallese workers had similar sociodemographic characteristics and faced similar risks for injury and harassment/discrimination in the workplace compared to other studies of foreign-born workers (GAO 2005; Grzywacz et al. 2007; Smith-Nonini 2003). Most Marshallese respondents were foreign-born migrants who had lived less than ten years in the United States. About half did not complete high school and most had limited English language proficiency. These are similar characteristics to other migrant workers who face higher occupational risk in the meat processing industries (Fagan and Hodgson 2017; Human Rights Watch 2005; Oxfam America 2015; Stull et al. 1995).

Despite the importance of proper job information and training for workers’ safety and health, two major issues for the Marshallese workers were lack of understanding of workplace policies and improper job training. Although the highest percentage of respondents indicated that the company provided training information about safety policy (75%) and the point system (60%), this still left many workers uninformed on these topics. Much lower rates of Marshallese reported that they received information about injury and illness, workers’ compensation, and discrimination policies. The orientation and trainings were often done in an informal process and not in the Marshallese language. These data support similar findings regarding increased risks faced by immigrant labor due to language barriers and marginal status (GAO 2005; Human Rights Watch

TABLE 5. Injury and Illness Related Experiences of Marshallese Poultry Workers in the Workplace

VARIABLES	n	%
Ever experienced injury or illness	127	64.1
Types of injury or illness ^a		
Pain in hands, fingers, or wrists	96	48.5
Pain in arms, back, or shoulders	108	54.5
Cuts	17	8.6
Skin problems	29	14.6
Vision/eye pain	12	6.1
Respiratory/breathing problem	6	3.0
Other health problems	69	34.8
Response to injury or illness ^{a b}		
Report to company official	47	37.0
Go to see a doctor	40	31.5
Keep quiet	14	11.0
Talk to family members, relatives, and/or church members	5	3.9
Ask help from community organization/government office	1	0.8
Other	18	14.2
Reluctance to report injuries	88	51.5
Reasons for reluctance of injury report ^{a c}		
Fear of being fired	41	46.6
Fear of suspension/other discipline	16	18.2
Fear of getting points	22	25.0
Fear of not getting incentive/reward for safety	6	6.8
Other	22	25.0
Received workers' compensation ^b		
Yes	15	13.8
No	64	58.7
Injured but never applied for compensation	30	27.5
Health insurance		
No health insurance	46	25.7
Employer-sponsored health insurance	124	69.3
Purchasing own health insurance	1	0.6
Medicaid/government	5	2.8
Other	3	1.7

^a It is a multiple response measurement. Thus, the total percent of all the response categories is not 100.

^b The percent is calculated based on those who have experienced injuries or illnesses in the workplace.

^c The percent is calculated based on those who are reluctant to report injuries or illnesses in the workplace.

Note: Total N=198, but due to missing responses, this variable has less than 198 cases.

2005; Lipscomb et al. 2005; Passel 2006; Ramsey et al. 2015; Whittaker 2005). Moreover, many Marshallese workers reported that safety policies were often not enacted by the company. This study of Marshallese poultry workers in Northwest Arkansas revealed that the poultry companies might have been more concerned with government reporting (e.g. injury reports) and employee termination (e.g. point systems), rather than workers' safety and wellbeing. These arguments go hand in hand with previous works (Griffith 1995; Striffler 2005) on poultry processing as a hazardous work environment with few opportunities for redress by the workers. Despite the importance of proper job information and training for workers' safety and health, two major issues for the Marshallese workers were lack of understanding of workplace policies and improper job training. Although the highest percentage of respondents indicated that the company provided training information about safety policy (75%) and the point system (60%), this still left many workers uninformed on these topics. Much lower rates of Marshallese reported that they received information about injury and illness, workers' compensation, and discrimination policies. The orientation and trainings were often done in an informal process and not in the Marshallese language. These data support similar findings regarding increased risks faced by immigrant labor due to language barriers and marginal status (GAO 2005; Human Rights Watch 2005; Lipscomb et al. 2005; Passel 2006; Ramsey et al. 2015; Whittaker 2005). Moreover, many Marshallese workers reported that safety policies were often not enacted by the company. This study of Marshallese poultry workers in Northwest Arkansas revealed that the poultry companies might have been more concerned with government reporting (e.g. injury reports) and employee termination (e.g. point systems), rather than workers' safety and wellbeing. These arguments go hand in hand with previous works (Griffith 1995; Striffler 2005) on poultry processing as a hazardous work environment with few opportunities for redress by the workers.

Most Marshallese worked in the second shift. Almost all of them worked on the line, which is the most dangerous job in the plant for injury and illness. Workers reported high levels of pain in the hands, arms, back and shoulders, as well as skin, eye, and respiratory problems. Many were concerned about the current line speed and the impact of the increased line speed. They felt that the increased line speed created an unsafe work environment, higher occupational injuries, and more challenges to do their job. Additionally, almost all of them worked overtime, but many of them were not paid for overtime. The findings are similar to previous studies regarding injury and illness for other migrant poultry processing workers (Grzywacz et al. 2007; Marin et al. 2009; Mirabelli et al. 2012; Public Justice Center n.d.; Quandt et al. 2006; SPLC 2013). Even with these risks, more than 30% of Marshallese workers did not have employer-

sponsored health insurance, resulting in an underutilization of needed healthcare. The restriction on government-assisted health benefits under the PRWORA in 1996 further jeopardized timely healthcare for the Marshallese workers living in poverty.

Although company policy required it, most workers did not report their work-related injuries and illnesses due to fear of negative sanctions and job termination. Even when injuries were reported, they rarely received workers' compensation. Similarly, although about half of the respondents experienced harassment or discrimination, most did not report it to superiors or government agencies. Very few workers filed a formal complaint to a government agency in spite of their concerns about safety and discrimination in the workplace due to fear of retaliation. This finding may indicate a "climate of fear" faced by Marshallese processing plant workers, in line with other studies (Smith-Nonini 2003; SPLC 2013; Striffler 2005). Moreover, only one worker who filed a formal complaint to a government agency got a response that resulted in changes in the workplace. Such lack of government agency response may suppress workers activism regarding hostile work environment and safety issues. Constrained activism is problematic given the high levels of occupational injuries and discrimination for the Marshallese workers. Our results are in line with previous research (Griffith 1995; SPLC 2013; Striffler 2005) on the lack of opportunities to redress safety and discrimination issues in poultry processing.

As discussed above, scientific studies have documented the negative relationship between the hazardous work environment in the poultry plant and worker wellbeing (Arcury et al. 2012; Grzywacz et al. 2007; Rosenbaum et al. 2014). Similarly, advocate groups have expressed strong concerns about the dangerous situation facing foreign-born poultry workers (Human Rights Watch 2005; Oxfam America 2015; Public Justice Center n.d.; SPLC 2013). Finally, the government urges better coordination between agencies to improve worker safety, as studies continue to indicate that poultry processing workers face higher rates of injury and illness than the manufacturing sector overall and that documenting these hazardous work conditions is difficult due to underreporting and inadequate data collection procedures (GAO 2016; 2017)

Our study echoes these concerns and points to several suggestions at different levels (e.g. government, industry, and community) to improve the working conditions for the Marshallese and other poultry processing workers. First, the government needs to intervene to improve the overall work environment for poultry processing workers. It should create a standard maximum line speed that adequately protects all workers from injury. A federal ergonomics standard⁸ should be reinstated to reduce injuries and illness

related to repetitive motions and tasks, including rotating work positions. This standard should require that poultry companies provide proper information and trainings for safety via formal sessions and in a language that workers can understand, and ensure that workers understand them. Additionally, federal standards and enforcement of anti-retaliation protections should be enhanced regarding workers reporting discrimination, injury and illness, and safety hazards, and/or filing a claim. The government should have greater oversight of the industry to meet all government health and safety requirements.

Second, poultry companies should provide a healthy and safe work environment, as well as fair compensation for workers' labor. They should allow workers to report work-related injury and illness without fear and receive proper and timely health care to reduce workers' permanent impairments. It is particularly important to ensure that workers are aware of their rights to workers' compensation. To do so, poultry companies must provide meaningful training and information sessions in a language that workers understand. In order to reduce work-related injuries and illness, the company should rotate workers to different positions and provide rest breaks for workers at risk of musculoskeletal injuries. It is also important to reduce the hostile work environment with better training for managers and supervisors. Regarding fair compensation, poultry companies should provide a fair wage including overtime and benefits (e.g. health insurance coverage, paid sick leave). Lastly, the Marshallese community organizations and local and state agencies should increase outreach and education efforts to help Marshallese workers understand their rights and the importance of safety in the workplace.

This study has some limitations. First, the sample was a site-based (Arcury and Quandt 1999; Muhib et al. 2001), convenience sampling method. Therefore, the findings cannot be generalized to all of the Marshallese poultry processing workers. Second, the analysis was limited to descriptive statistics to provide an overview of Marshallese workers' work conditions and health and safety issues in their workplace. Thus, it does not provide any relationships among study variables. Lastly, the study employed a survey method, and does not provide a deeper understanding of either the context of injury, illness, and/or harassment and discrimination or the underlying reasons, perceptions, and behaviors of responding workers.

CONCLUSIONS

This research provided an exploratory and descriptive assessment of the health, safety, and work environment that Marshallese migrants experienced in the

poultry processing industry in Northwest Arkansas. The poultry industry is booming. Consumption and profits are up, but real wage values are down for the processing workers. Poultry processing is a very dangerous occupation with numerous ethical concerns regarding discrimination and health and safety issues for the workers. Northwest Arkansas has a long history of poultry production and processing and remains a global center of the industry today.

The Marshallese followed Latinos as the favorable labor force in Northwest Arkansas, pulled by work opportunities and their special legal status. Results of the study revealed similarities between the Marshallese and previous migrant groups, as well as some notable differences. Although the poultry industry reported that safety in its plants has improved (National Chicken Council 2016), evidence from this study indicated that the historical concerns expressed in the literature remain valid today. Job training for immigrants was still problematic due to language barriers and modes of delivery. Line speed was still increasing, resulting in higher risks for more injuries, and the real value of wages has declined. Safety policies and procedures were often not enforced. Harassment and discrimination were common. Workers operated in a “climate of fear”; they were scared to speak up or file complaints as they might lose their jobs and/or face other forms of retaliation.

Although the Marshallese faced similar situations to previous poultry processing plant workers, they were different regarding two key aspects. First, their special visa status made them an especially attractive workforce that “pulls” them to the poultry industry. Based on of the COFA Agreement, they can travel and work in the United States without visa restrictions. Faced with labor shortages due to increased immigration oversight in the United States, the poultry firms searched for and found a new labor force that did not have the legal restrictions associated with the previously favored immigrant labor force – Latinos. This is an important difference between the Marshallese and the Latino immigrants and the primary contribution of our research to the literature. The poultry companies are following a similar labor recruitment strategy as they source other marginalized migrant groups who are refugees and/or asylum seekers.

Second, their particular situation regarding healthcare access further marginalizes their quality of life. Although Marshallese migrants had access to government-assisted health insurance based on the COFA agreements, their access was restricted by the PRWORA in 1996 and continued under the ACA. In spite of their poverty, these policies either left them uninsured or increased their financial burden to participate in expensive company-sponsored insurance. The change in government healthcare status is another major difference between the Marshallese and other immigrant poultry processing workers.

This research provides evidence of the continued need of support for policies and safety enforcement efforts to improve the work conditions for poultry processing workers at the national, state, and individual plant level. Unfortunately, without government and social movement assistance, the opportunity for collective action leading to improved quality of life is minimal, because the Marshallese are a relatively small population in the United States with limited resources.

The Marshallese are the latest wave of migrants sourced by the poultry industry to staff its processing plants. Their special visa status makes them attractive workers. But, the lack of safety training in their native language, increased occupational risk of injury, and limited healthcare access create special challenges for the Marshallese, the poultry companies, and the receiving communities in Northwest Arkansas. This research reveals some of the complexities of the intersection of precarious work, migration, and the global agriculture and food system (Bonanno and Cavalcanti 2014; Gertel and Sippel 2014). More research is needed to better understand the specific dynamics of their situation, as well as other recent immigrant and refugee poultry processing workers such as the Karen from Myanmar, the Hmong from Vietnam, and/or the Somalians. This last point is especially important because the poultry industry is a preferred model of the globalization of the agriculture and food system due to its flexible labor arrangements based on migrant and marginalized workers (Boyd and Watts 1997; Constance 2008; Stull et al. 1995).

ENDNOTES

¹ This is the estimated population as of July 2017.

² The RMI had the initial Compact of Free Association (COFA) agreement with the United States in 1986 for the period 1986-2001. It was extended to 2004 and amended for the period from 2004 to 2024 (Riklon et al. 2010).

³ ARKids is Medicaid for children and low-income families in Arkansas.

⁴ Private Option is Arkansas's Medicaid-funded private insurance coverage for people whose incomes are at or near the poverty level.

⁵ In most Marshallese households in the research site, the number of people living in a house often surpasses the number of occupants limited to one housing unit under the housing regulation. To avoid penalty or termination of tenancy, they often do not honestly report the number of people who live in a household. This tendency, combined with their high mobility, makes it very difficult to accurately estimate the number of Marshallese in the community.

⁶ We asked three experienced Marshallese community liaisons to assist collecting surveys. Almost every eligible Marshallese worker (current and former poultry processing workers) were willing to participate in the survey, except those who already had a prior commitment at the time of the survey.

⁷ Point systems are a commonly used system in the poultry processing plants to monitor workers and enforce rules. The points keep track of employees' infractions, including tardiness, absences, mistakes, or injuries (Oxfam America 2015). Employees who reach a certain number of points receive disciplinary action or employment termination.

⁸ OSHA's ergonomics program was issued on November 14, 2000, and went into effect January 16, 2001. However, President George W. Bush signed a joint resolution of Congress (Senate Joint Resolution 6) rescinding the OSHA's ergonomics standard, and the standard is no longer in effect. Currently, OSHA provides industry specific guidelines to help employees and employers in minimizing ergonomic-related problems (OSHA 2001; 2019). For details, see the following two OSHA websites: <https://www.osha.gov/archive/ergonomics-standard/archive.html> (OSHA 2001); and <https://www.osha.gov/SLTC/ergonomics/faqs.html> (OSHA 2019).

ACKNOWLEDGMENTS

The authors thank the three anonymous reviewers and the JRSS Editor for the helpful comments on this paper.

DISCLOSURE STATEMENT

No potential conflict of interest was reported by the authors.

FUNDING

Funding for this project was provided by the Sam Houston State University Enhancement Research Grant program.

REFERENCES

- Arkansas Farm Bureau (ARFB). 2019. *Arkansas Agriculture: Poultry*. Retrieved April 4, 2019 (<https://www.arfb.com/pages/arkansas-agriculture/commodity-corner/poultry/>).
- Arcury, Thomas, and Sara Quandt. 1999. "Participant Recruitment for Qualitative Research: A Site-based Approach to Community Research in Complex Societies." *Human Organization*, 58(2):128-133. doi:10.17730/humo.58.2.t5g838w7u1761868
- Arcury, Thomas, Joseph G. Grzywacz, Andrean M. Anderson, A, Dana C. Mora, Lourdes Carrillo, Haiying Chen, and Sara A. Quandt. 2012. "Use of Personal Protective Equipment, and Work Safety Climate: Latino Poultry Processing Workers." *American Journal of Industrial Medicine* 56(2):180-188. doi:10.1002/ajim.22101
- Bonanno, Alessandro, and Josefa Salete Barbosa Cavalcanti, eds. 2014. *Labor Relations in Globalized Food*. Bingley, UK: Emerald Press.

- Boyd, William, and Michael J. Watts. 1997. "Agro-industrial Just-in-time: The Chicken Industry and Postwar Capitalism." Pp. 192-255 in *Globalizing Food: Agrarian Questions and Global Restructuring*, edited by D. Goodman and M. J. Watts. London: Routledge.
- Choi, Jin Young. 2008. "Seeking Health Care: Marshallese Migrants in Hawaii." *Ethnicity and Health* 13(1):73-92. doi:10.1080/13557850701803171
- Central Intelligence Agency (CIA). 2017. The World Factbook: Australia-Oceania: Marshall Islands. Retrieved August 30, 2018 (<https://www.cia.gov/library/publications/the-world-factbook/geos/rm.html>).
- Constance, Douglas H. 2008. "The Southern Model of Broiler Production and its Global Implications." *Culture and Agriculture* 30(1):17-31. doi:10.1111/j.1556-486X.2008.00004.x
- Constance, Douglas, Francisco Martinez, Gilberto Aboites, and Alessandro Bonanno. 2013. "The Problems with Poultry Production and Processing." Pp. 155-176 in *The Ethics and Economics of Agrifood Competition*, edited by H. James. New York: Springer Press.
- Daniels, Peter. 1985. *Breaking the Land: The Transformation of Cotton, Tobacco, and Rice Culture since 1880*. Urbana, IL: University of Illinois Press.
- Deeb-Sossa, Natalia, and Jennifer Bickham Mendez. 2008. "Enforcing Borders in the Nuevo South: Gender and Migration in Williamsburg, Virginia, and the Research Triangle, North Carolina." *Gender & Society* 22(5):613-638. doi: 10.1177/0891243208321380
- Fagan, Kathleen M., and Michael J. Hodgson. 2017. "Under-recording of Work-related Injuries and Illnesses: An OSHA Priority." *Journal of Safety Research* 60:79-83. <https://doi.org/10.1016/j.jsr.2016.12.002>
- Fink, Leon. 2003. *The Maya of Morganton: Work and Community in the Nuevo New South*. Durham, NC: University of North Carolina Press.
- Fite, Gilbert C. 1984. *Cotton Fields No More: Agriculture in the U.S. South*. Lexington, KY: University of Kentucky Press.
- Government Accountability Office (GAO). 2005. *Workplace Safety and Health: Safety in the Meat and Poultry Industry, While Improving, Could Be Further Strengthened*. Washington, DC: US Government Accountability Office. Publication GAO-05-096.
- Government Accountability Office (GAO). 2016. *Workplace safety and Health: Additional Data Needed to Address Continued Hazards in the Meat and Poultry Industry*. Washington, DC: US Government Accountability Office. Publication GAO-16-337.
- Government Accountability Office (GAO). 2017. *Workplace Safety and Health: Better Outreach, Collaboration, and Information Needed Help Protect*

- Workers at Meat and Poultry Plants*. Washington, DC: US Government Accountability Office. Publication GAO-18-12.
- Gertel, Jorg, and Sarah Ruth Sippel, eds. 2014. *Seasonal Workers in Mediterranean Agriculture: The Social Costs of Eating Fresh*. London and New York: Earthscan.
- Gisolfi, Monica. 2007. *From Cotton Farmers to Poultry Growers: The Rise of Industrial Agriculture in Upcountry Georgia, 1914-1960*. New York: Columbia University Press.
- Griffith, David. 1995. "Hay Trabajo: Poultry Processing, Rural Industrialization, and the Latinization of Low-Wage Labor." Pp. 131-150 in *Any Way You Cut It: Meat Processing and Small Town America*, edited by D. Stull, M.J. Broadway, and D. Griffith. Lawrence, KS: University Press of Kansas.
- Grzywacz, Joseph G., Thomas A. Arcury, Antonio Marin, Lourdes Carillo, Michael L. Coates, Bless Burke, and Sara A. Quandt. 2007. "The Organization of Work: Implications for Injury and Illness among Immigrant Latino Poultry-Processing Workers." *Archives of Environmental & Occupational Health* 62(1):19-26.
- Guthey, Grieg. 2001. "Mexican Places in Southern Spaces: Globalization, Work, and Daily Life in and Around the North Georgia Poultry Industry." Pp. 57-67 in *Latino Workers in the Contemporary South*, edited by A. Murphy, C. Blanchard, and J. A. Hill. Athens, GA: University of Georgia Press.
- Heffernan, William D. 1984. "Constraints in the Poultry Industry." Pp. 237-260 in *Research in Rural Sociology and Development: Vol. 1*, edited by Harry Schwarzweller. Greenwich, CT: JAI Press.
- Hixson, Lindsay, Bradford B. Hepler, and Myoung Ouk Kim. 2012. *The Native Hawaiian and Other Pacific Islander Population: 2010*. 2010 Census Briefs C2010BR-12. Washington, DC: US Census Bureau. Retrieved September 30, 2014 (www.census.gov/prod/cen2010/briefs/c2010br-12.pdf).
- Howard, Philip H. 2016. *Concentration and Power in the Food System: Who Controls What We Eat?* New York: Bloomsbury Academic.
- Human Rights Watch. 2005. *Blood, Sweat and Fear: Workers' Rights in U.S. Meat and Poultry Plants*. January 24. Retrieved November 13, 2008 (<http://www.hrw.org/en/reports/2005/01/24/blood-sweat-and-fear>).
- Jimeno S., Rafael A. 2013. *A Profile of the Marshallese Community in Arkansas, Vol. 3*. Little Rock, AR, and Fayetteville, AR: Winthrop Rockefeller Foundation and University of Arkansas.
- Kandell, William, and Emilio A. Parrado. 2005. "Restructuring of the US Meat Processing Industry and New Hispanic Migrant Destinations." *Population and Employment Review* 31(3):447-471.

- Lipscomb, Hester J., Robin Argue, Mary Anne McDonald, John M. Dement, Carol A. Epling, Tamara James, Steve Wing, and Dana Loomis. 2005. "Exploration of Work and Health Disparities among Black Women Employed in Poultry Processing in the Rural South." *Environmental Health Perspectives* 113(12):1833–1840. doi:10.1289/ehp.7912
- Marion, Bruce W. 1986. *The Organization and Performance of the U.S. Food System*. Lexington, KY: Lexington Books, D.C. Heath and Co.
- Marin, Antonio J., Joseph G. Grzywacz, Thomas A. Arcury, Lourdes Carillo, and Sara A. Quandt. 2009. "Evidence of Organizational Injustice in Poultry Processing Plants: Possible Effects on Occupational Health and Safety Among Latino Workers in North Carolina." *American Journal of Industrial Medicine* 52(1):37-48. doi:10.1002/ajim.20643
- McElfish, Pearl Anna, Jennifer Post, and Brett Rowland. 2016. "A Social Ecological and Community-Engaged Perspective for Addressing Health Disparities among Marshallese in Arkansas." *International Journal of Nursing & Clinical Practices* 3:191. doi:10.15344/2394-4978/2016/191
- Mirabelli, Maria C., Arjun B. Chatterjee, Thomas A. Arcury, Dana C. Mora, Jill N. Blocker, Joseph G. Grzywacz, Haiying Chen, Antonio J. Marin, Mark R. Schulz, and Sara A. Quandt. 2012. "Poultry Processing Work and Respiratory Health of Latino Men and Women in North Carolina." *Journal of Occupational & Environmental Medicine* 54(2):177-183. doi:10.1097/JOM.0b013e31823d86f2
- Mohl, Raymond A. 2003. "Globalization, Latinization, and the Nuevo New South." *Journal of American Ethnic History* 22(4):31-36.
- Muhib, F. B., L. S. Lin, A. Stueve, R. L. Miller, W. L. Ford, W. D. Johnson, P. J. Smith, and the Community Intervention Trial for Youth Study Team. 2001. "A Venue-based Method for Sampling Hard-to-Reach Populations." *Public Health Reports* 116(Suppl 1):216.
- Murphy, Arthur D., Colleen Blanchard, and Jennifer A. Hill, eds. 2001. *Latino Workers in the Contemporary South*. Athens, GA: University of Georgia Press.
- National Chicken Council. 2016. *Poultry Workers' Injury, Illness Rate Remains at All-Time Low*. November 2, 2016. Retrieved September 15, 2018 (<https://www.nationalchickencouncil.org/poultry-workers-injury-illness-rate-remains-time-low/>).
- Occupational Safety and Health Administration (OSHA). 2001. *OSHA Archive: Ergonomics Background*. Updated April 30, 2001. Retrieved March 17, 2019 (<https://www.osha.gov/archive/ergonomics-standard/archive.html>).

- OSHA. 2013. *Prevention of Musculoskeletal Injuries in Poultry Processing*. OSHA 3213-12R 2013. Retrieved October 30, 2016 (<https://www.osha.gov/Publications/OSHA3213.pdf>).
- OSHA. 2019. *Ergonomics: Standards and Enforcement FAQs*. Retrieved March 17, 2019 from <https://www.osha.gov/SLTC/ergonomics/faqs.html>.
- Oxfam America. 2015. *Lives on the Line: The Human Cost of Cheap Chicken*. Retrieved October 30, 2016 (https://www.oxfamamerica.org/static/media/files/Lives_on_the_Line_Full_Report_Final.pdf).
- Passel, Jeffrey S. 2006. *The Size and Characteristics of the Unauthorized Migrant Population in the U.S.* Pew Hispanic Center. Retrieved July 24, 2008 (<http://www.pewhispanic.org/2006/03/07/size-and-characteristics-of-the-unauthorized-migrant-population-in-the-us/>).
- Perry, Nick, and Kelly P. Kissel. 2015. "Arkansas a Refuge from Rising Seas in Marshall Islands." *Associated Press*. November 26, 2015. Retrieved September 12, 2018 (<https://www.apnews.com/151c97eb4916418bb459d413fd1fc2ca>).
- Public Justice Center. n.d. *The Disposable Workforce: A Worker's Perspective*. Retrieved May 13, 2013 (www.upc-online.org/workers/Poultrystudy.pdf).
- Quandt, Sara A., Joseph G. Grzywacz, Maria C. Mirabelli, Antonio J. Marin, Lourdes Carrillo, Michael L. Coates, Bless Burke, and Thomas A. Arcury. 2006. "Illnesses and Injuries Reported by Latino Poultry Workers in Western North Carolina." *American Journal of Industrial Medicine* 49:343-351. doi:10.1002/ajim.20299
- Quandt, Sara A., Alice E. Arcury-Quandt, Emma J. Lawlor, Lourdes Carrillo, Antonio J. Marín, Joseph G. Grzywacz, and Thomas A. Arcury. 2013. "3-D Jobs and Health Disparities: The health Implications of Latino Chicken Catchers' Working Conditions." *American Journal of Industrial Medicine* 56(2):206-215. doi:10.1002/ajim.22072
- Ramsey, Jessica G., Kristin Musolin, and Charles Mueller. 2015. *Evaluation of Carpal Tunnel Syndrome and Other Musculoskeletal Disorders among Employees of a Poultry Processing Plant*. HHE Report No. 2014-0040-3232. Retrieved September 16, 2015 (<http://www.cdc.gov/niosh/hhe/reports/pdfs/2014-0040-3232.pdf>).
- Reimund, Donn A., J. Rod Martin, and Charles V. Moore. 1981. "Structural Change in Agriculture: The Experience for Broilers, Fed Cattle, and Processing Vegetables." Technical Bulletin No. 1648. Washington DC: US Department of Agriculture, Economics and Statistics Service.
- Rosenbaum, Daryl A., Dana C. Mora, Thomas A. Arcury, Haiying Chen, and Sara A. Quandt. 2014. "Employer Differences in Upper-Body

- Musculoskeletal Disorders and Pain among Immigrant Latino Poultry Processing Workers.” *Journal of Agromedicine* 19(4):384- 394.
doi:10.1080/1059924X.2014.945710
- Riklon, Sheldon, Wilfred Alik, Allen Hixon, and Neal A. Palafox. 2010. “The ‘Compact Impact’ in Hawaii: Focus on Health Care.” *Hawaii Medical Journal*, 69 (6 suppl. 3):7-12.
- Smith, Barbara Ellen, and Jamie Winders. 2008. “We’re Here to Stay: Economic Restructuring, Latino Migration and Place-making in the US South.” *Transactions of the Institute of British Geographers* 33:60-72.
doi:10.1111/j.1475-5661.2007.00287.x
- Smith, Heather A., and Owen J. Furuseth. 2008. “The ‘Nuevo South’: Latino Place Making and Community Building in the Middle-Ring Suburbs of Charlotte.” Pp. 281-307 in *Twenty-First Century Gateways: Immigrant Incorporation in Suburban America*, edited by A. Singer, S.W. Hardwick and C.B. Brettell. Washington, DC: The Brookings Institution.
- Smith-Nonini, Sandy. 2003. “Back to ‘The Jungle’: Processing Migrants in North Carolina Meatpacking Plants.” *Anthropology of Work Review* 24(3-4):14-20. doi:10.1525/awr.2003.24.3-4.14
- Southern Poverty Law Center (SPLC). 2013. *Unsafe at These Speeds*. February. Retrieved September 23, 2015
(<https://www.splcenter.org/20130301/unsafe-these-speeds>).
- Striffler, Steven. 2005. *Chicken: The Dangerous Transformation of America’s Favorite Food*. New Haven, CT: Yale University Press.
- Stuesse, Angela. 2009. “Race, Migration, and Labor Control: Neoliberal Challenges to Organizing Mississippi’s Poultry Workers.” Pp. 91-111 in *Latino Immigrants and the Transformation of the U.S. South*, edited by M. Odem and E. Lacy. Athens, GA: University of Georgia Press.
- Stull, Donald, and Michael J. Broadway. 2004. *Slaughterhouse Blues: The Meat and Poultry Industry in North America*. Belmont, CA: Wadsworth.
- Stull, Donald, Michael J. Broadway, and David Griffith, eds. 1995. *Any Way You Cut It: Meat Processing and Small Town America*. Lawrence, KS: University Press of Kansas.
- Whittaker, William G. 2005. *Labor Practices in the Meat Packing and Poultry Processing Industry: An Overview*. Congressional Research Service. Washington, DC: The Library of Congress.