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# Precarious Work and Housing for Michigan Farmworkers During the COVID-19 Pandemic and Beyond

Lisbeth Iglesias-Rios, Alexa Kort, and Alexis J. Handal

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## ABSTRACT

**Objectives:** Farmworkers in Michigan face precarious and exploitative labor conditions that affect their access to affordable, fair, and quality housing, which are key social determinants of health. We sought to assess the health, working conditions, and housing access, affordability, and quality of farmworkers living in and outside of employer-provided housing during the COVID-19 pandemic.

**Methods:** We conducted a mixed methods cross-sectional study in collaboration with community partners from the Michigan Farmworker Project and the Michigan Department of Civil Rights. We assessed housing, labor conditions, and general health through in-depth phone interviews with seasonal, migrant, and H-2A farmworkers ( $n=63$ ) during the height of the COVID-19 pandemic (2020–2021) in Michigan. Descriptive analyses of these data included comparisons by type of farmworker and type of housing (employer-provided or other).

**Results:** The majority of farmworkers interviewed were women and seasonal farmworkers and spoke primarily Spanish. A significant share of farmworker participants reported living in poverty (38.3%) and had low or very low food security (27.0%). Nearly half of farmworkers (47.6%) rated their health as “fair” or “poor” during the year prior to the interview, and more than a third reported 3 or more chronic conditions (39.6%) and lack of health insurance coverage (38.7%). Among the 43 workers tested, 25.6% reported testing positive for COVID-19. Farmworkers reported experiences of objectification and dehumanization. Three-quarters of workers reported feeling that they were treated as less than human by supervisors and one-third reported verbal abuse. Farmworkers also experienced challenges exacerbated by their social vulnerability that impeded them from finding affordable, quality housing. Regarding housing quality, the majority of workers (80.6%) reported one or more environmental hazards around their residence, and about a third reported not having air conditioning (33.%) and lacking a functioning washing machine (33.9%). Concerns about the quality of drinking water accessible to workers and exposure to chemicals were shared by participants.

**Conclusion:** This study adds valuable knowledge to the understanding of the systemic barriers to housing and work conditions for female and male seasonal, migrant, and H-2A farmworkers in Michigan. Shortcomings in the regulatory and policy environment result in precarious housing and work conditions, including exploitative labor practices. These conditions negate equality, fairness, and health equity, important tenants for public health.

## KEYWORDS

Farmworkers; housing; precarious work; labor exploitation; COVID-19

## Introduction

The agricultural industry in Michigan is estimated to contribute \$104.7 billion annually to the state’s economy, with approximately 94,167 farmworkers including family members.<sup>1,2</sup> Across the United States (U.S.), including in Michigan, farmworkers are largely (83%) from Latin American countries and approximately half are undocumented.<sup>3,4</sup> The social vulnerability of these workers (e.g., poverty, lack of insurance, educational and language barriers, and limited access to fair and safe housing) is amplified by the historical exclusion from social and labor protections, exacerbated by the COVID-19 pandemic.<sup>5,6</sup> Latinos, including those in farmworker communities,<sup>7</sup> have accounted for a disproportionate share of COVID-19

cases in the U.S., with five to seven times higher mortality than White people.<sup>8</sup> In Michigan, agricultural working housing has emerged as a hotspot for COVID-19 outbreaks.<sup>9,10</sup> Research, including our own, shows that agricultural work is often precarious and characterized by insufficient wages, job insecurity, irregular working hours, unfair/abusive treatment, and hazardous working conditions.<sup>11–13</sup>

For farmworkers, these labor conditions are closely related to housing access, affordability, and quality given that housing for these workers depends on insecure, temporary, low-paying jobs, and often reliance on employers to provide housing.<sup>14–19</sup> Housing and labor are intertwined factors that agricultural employers have used to incentivize recruitment and

retention of workers, historically and today.<sup>20–22</sup> The Bracero Program (1942–1964), created to fill labor shortages, gained access to a readily available and cheap labor workforce, relaxing regulations on housing provisions, and exerting greater control over the living conditions of workers while removing public housing programs.<sup>23,24</sup> Today, these same issues continue to be a concern for this workforce. The current federal regulatory scheme for farmworker housing is deficient and may be deleterious to the health and well-being of many farmworkers and their families.<sup>25–27</sup> In 2010, a Michigan Civil Rights Commission Report described farmworker housing in the state as substandard, unhygienic, hazardous, structurally unsound, and lacking safe water.<sup>28</sup> Following this report, progress updates have indicated limited improvements in the working and living conditions of farmworkers in Michigan.<sup>28</sup> As part of the state Workforce Innovation and Opportunity Act (WIOA) program (2020–2023), Michigan's Governor Whitmer recognized the growing concern across the state regarding affordable housing, as well as the needs of health, education, safety, and security concerns for farmworkers in Michigan.<sup>29</sup> Given that our previous research for the Michigan Farmworker Project (MFP) revealed precarious work and substandard living conditions in farmworkers,<sup>11,30</sup> we were commissioned by the Michigan Department of Civil Rights (MDCR) to develop a study to describe work characteristics and housing access, affordability, and quality for farmworkers living in and outside of agricultural work sites during the COVID-19 pandemic (2020–2021) in Michigan.

## Methods

We conducted a mixed methods cross-sectional study with migrant, seasonal, and H-2A farmworkers in Michigan with established community partners from the MFP<sup>31</sup> and the MDCR. Outreach workers from Migrant Resource Councils (MRCs) in Oceana, Kent, and Van Buren counties provided referrals, while the UM research team recruited, consented, and conducted all research activities. These counties were chosen due to the high agricultural activity, as recommended by community partners. The community–university partnership designed the survey and data collection protocols, as described elsewhere.<sup>32</sup>

Phase I of the study consisted of collecting qualitative data through 20 in-depth phone interviews with farmworkers (male and female) between August 2020 and January 2021. These data informed the development of the quantitative survey, administered to 63 farmworkers between May 2021 and August 2021 via phone call (Phase II). This paper focuses primarily on the quantitative survey findings. However, we present some quotations from the in-depth interviews as examples, as they provide rich contextual information for the quantitative findings presented here.

Participants were eligible for the study if they were aged 18 years or older, spoke Spanish or English, and worked in agriculture in Michigan. All phone surveys were conducted by bilingual (English and Spanish) trained interviewers and lasted approximately 1.5–2 hours.

Housing-related survey topics covered affordability and access, quality, and physical characteristics. The survey instrument also collected information on the participants' socio-demographic characteristics, general health and COVID-19 specific questions, psychosocial factors, and work conditions and dynamics. In addition, we recorded farmworkers suggestions to address their overall living conditions. To assess food insecurity, we employed the validated 6-item US Department of Agriculture (USDA) Household Food Security Scale. This scale assesses access to food and hunger over the past 12 months defined as follows: high food security, marginal food security, low food security, and very low food security.<sup>33</sup> We created a poverty index ratio from the 2020 federal poverty guidelines using two variables: (1) How many people, including yourself, live off your personal income? and (2) Currently, what is your household's total monthly income, in US dollars?<sup>34</sup>

We assessed potential environmental exposures by asking workers about their residential proximity to potential sources of exposures such as pesticides (e.g., smell of pesticides or insecticides from their house), landfills, noise, factories, and fumes (e.g., from cars or trucks). We summarize responses into tertiles based on the distribution of responses to these variables. To assess safety issues, we combined factors considered housing hazards in farmworker housing inspection lists, for example, non-working or no access to a fire extinguisher; exposed electrical

wires; non-working smoke detectors, among others. Responses were recoded as follows: no safety hazards, 1–2 and 3–4 hazards present in the home.

The survey instrument was pilot-tested and finalized as a community-university collaboration. Participants were compensated with a \$35 gift card. Details on the methods of this housing study are described elsewhere.<sup>32</sup> All research activities were approved by the University of Michigan Health Sciences and Behavioral Sciences IRB (HUM00165344).

Descriptive statistics were calculated to assess demographic, housing, working, and health data using frequencies and means to assess distributions, outliers, and missing data. We performed bivariate analyses to evaluate associations between type of farmworker and type of housing (employer-provided or other) with sociodemographic, health, housing, and work characteristics by using Chi-square, Fisher exact, and Kruskal Wallis tests, where appropriate. For validity and data quality assurance, we used a double-data entry and verification process. All data analyses were performed using SAS 9.2 (SAS Institute, Cary, NC).

## Results

### *Sociodemographic characteristics*

We enrolled 63 farmworkers total, two-thirds of whom were seasonal workers (66.7%), 10 were migrant workers (15.8%), and 11 were H-2A workers (17.5%). Female workers made up 60% of our sample, most of whom were seasonal workers. On average, workers were 39 years old and had 8–9 years of formal education. Most of the farmworkers interviewed were from Mexico (85.7%), self-identified as Latinos (as) and spoke primarily Spanish. A little more than two-thirds were married or in a relationship (66.7%), and most had children under 18 years old living with them (78.2%) (Table 1a). In the sections below, we highlight key findings regarding farmworker social vulnerability; health; housing conditions, affordability, access, and working conditions.

### *Social vulnerability*

Some salient social vulnerability factors included poverty, food insecurity, and lack of health

insurance (Table 1b). Most of the workers (72.9%) reported annual individual incomes below \$30,000 a year and an average household income of \$2,821 per month with an average of four people dependent on the worker's income (including the participant). Other dependents reported by participants included family (e.g., children, husband, wife, parents, and other family members) either in Mexico or the US. Based on the 2020 federal poverty guidelines, more than a third of farmworkers (38.3%) were classified as living in poverty. In terms of social assistance services, 65.1% of workers reported experiencing marginal, low, or very low food security. More than two-thirds of farmworkers reported not receiving food stamps (69.8%). Of migrant and seasonal farmworkers with children under age 18 living with them, more than half (57.0%) reported not receiving food stamps. A little more than a third (38.7%) of workers reported not having health insurance.

### *General health and COVID-19*

Our survey assessed farmworkers' self-rated health, chronic health conditions, and specific questions on COVID-19 testing and infection history. Nearly half of all farmworkers (47.6%) rated their health as "fair" or "poor" during the last year (Table 1c). In terms of chronic health conditions and among all workers, more than half reported that they were diagnosed by a health care provider with between one and four chronic conditions (54.2%), the top five most common chronic health conditions among farmworkers included high cholesterol and triglycerides (28.3%), high blood pressure (25.0%), obesity (22.0%), digestive disorders (e.g., gastritis, gallbladder disease or stones, pancreatitis) (21.3%), and diabetes (18.0%) (Figure 1). More than two-thirds of farmworkers (68.3%) reported experiencing body pain after work.

Almost 70% percent of workers self-reported being tested for COVID-19. Among those tested, 26% self-reported testing positive for COVID-19 at least once, with the majority who tested positive being seasonal workers (8 of 11: 72.7%). More than half of seasonal (57.1%), six migrant, and six H-2A farmworkers self-report receiving the COVID-19 vaccine at least once.

**Table 1.** Sociodemographic characteristics of farmworkers: the Michigan Farmworker Project (MFP) 2020–2021.

	Total* n (%)	Seasonal <sup>a</sup> n (%)	Migrant <sup>b</sup> n (%)	H-2A <sup>c</sup> n (%)
	63 (100.0)	42 (66.7)	10 (15.8)	11 (17.5)
<b>A. Socio Demographics<sup>d</sup></b>				
Gender				
Female	38 (60.3)	30 (71.4)	6 (60)	2 (18.2)
Male	25 (39.7)	12 (28.6)	4 (40)	9 (81.8)
Country of origin				
Mexico	54 (85.7)	36 (85.7)	7 (70.0)	11 (100.0)
Guatemala	1 (1.6)	1 (2.4)	0	0
United States	8 (12.7)	5 (11.9)	3 (30.0)	0
Self-reported ethnicity/race				
Latino/Hispanic	56 (88.9)	36 (85.7)	9 (90.0)	11 (100.0)
Indigenous from Latin America	3 (4.8)	3 (7.1)	0	0
White	4 (6.4)	3 (7.1)	1 (10.0)	0
Primary language spoken at home				
Spanish	58 (92.1)	39 (92.9)	8 (80.0)	11 (100.0)
English	4 (6.4)	2 (4.8)	2 (20.0)	0
Other	1 (1.6)	1 (2.4)	0	0
Relationship status				
Married or in a relationship	42 (66.7)	30 (71.4)	5 (50.0)	7 (63.6)
Not in a relationship (single, divorced, widowed, separated with no current partner)	21 (33.3)	12 (28.5)	5 (50.0)	4 (36.4)
Children under 18 years old living with participant				
Yes	43 (78.2)	32 (84.2)	5 (55.6)	6 (75.0)
No	12 (21.8)	6 (15.8)	4 (44.4)	2 (25.0)
<b>B. Social Vulnerability</b>				
Yearly personal income				
< \$10,000	1 (1.7)	1 (2.6)	0	0
\$10,000 to \$19,999	26 (44.1)	23 (59.0)	2 (22.2)	1 (9.1)
\$20,000 to \$29,999	16 (27.1)	11 (28.2)	4 (44.4)	1 (9.1)
\$30,000 or more	12 (20.3)	3 (7.7)	2 (22.2)	7 (63.6)
Unknown	4 (6.8)	1 (2.6)	1 (2.6)	2 (18.2)
Monthly personal income				
Mean M, Standard deviation (SD), n	\$2,167.03 (1669.61), 63	\$2,502.70 (1895.50), 42	\$1,689.10 (1146.90), 10	\$3,686.73 (2245.70), 11
Monthly household income				
Mean M, Standard deviation (SD), n	\$2,821.62 (1607.23), 63	\$2,875.00 (1102.84), 42	\$2,662.30 (1514.83), 10	\$3,381.30 (2249.19), 11
Number of people dependent on worker's income, including the participant				
1–2 people	11 (17.5)	8 (19.1)	1 (10.0)	2 (3.2)
3–4 people	33 (52.4)	21 (50.0)	7 (70.0)	6 (45.5)
5–6 people	15 (23.8)	9 (21.4)	2 (20.0)	4 (36.4)
7 or more people	4 (6.4)	4 (9.5)	0	0
Living in poverty (federal poverty guideline)				
Yes	23 (38.3)	16 (39.0)	2 (20.0)	5 (55.6)
No	37 (61.7)	25 (61.0)	8 (80.0)	4 (44.4)
Food security				
High food security	22 (34.9)	13 (30.9)	4 (40.0)	5 (45.5)
Marginal food security	24 (38.1)	17 (40.5)	4 (40.5)	3 (27.3)
Low food security	8 (12.7)	7 (16.7)	1 (10.0)	0
Very low food security	9 (14.3)	5 (11.9)	1 (10.0)	3 (27.3)
Receive food stamps				
Yes	19 (30.2)	16 (42.1)	3 (30.0)	0
No	44 (69.8)	26 (57.9)	7 (70.0)	11 (100.0)
Health insurance				
No insurance	24 (38.7)	14 (33.3)	6 (60.0)	4 (40.0)
Emergency Medicaid	12 (19.4)	10 (23.8)	0	2 (20.0)
Medicaid	18 (29.0)	13 (30.9)	3 (30.0)	2 (20.0)
Private insurance	3 (4.8)	3 (7.1)	0	0
Unknown	5 (8.1)	2 (4.8)	1 (10.0)	2 (05)
Level of formal education (years)				
Mean M, Standard deviation (SD), n	8.7 (3.3), 63	8.4 (3.6), 42	10.0 (2.4), 10	8.9 (2.6), 11

(Continued)

Table 1. (Continued).

	Total* n (%)	Seasonal <sup>a</sup> n (%)	Migrant <sup>b</sup> n (%)	H-2A <sup>c</sup> n (%)
<b>C. General Health &amp; COVID-19</b>				
During the past year, how would you rate your general health?				
Very good	10 (16.4)	7 (16.7)	1 (11.1)	2 (20.0)
Good	22 (36.1)	14 (23.0)	4 (44.4)	4 (40.0)
Fair	22 (36.1)	15 (35.7)	3 (33.3)	4 (40.0)
Poor	7 (11.5)	6 (14.3)	1 (11.1)	0
Number of chronic conditions diagnosed by health care provider				
None	14 (29.2)	8 (25.8)	3 (37.5)	3 (33.3)
1–2	15 (31.3)	8 (25.8)	2 (25)	5 (55.6)
3–4	11 (22.9)	8 (25.8)	2 (25)	1 (11.1)
5 or more	8 (16.7)	7 (22.6)	1 (12.5)	0
Experiencing bodily pain after work <sup>e</sup>				
Agree	41 (68.3)	28 (70.0)	7 (70.0)	6 (60.0)
Neutral	8 (13.3)	5 (12.5)	1 (10.0)	2 (20.0)
Disagree	11 (18.3)	7 (17.5)	2 (20.0)	2 (20.0)
Number of times tested for COVID-19				
Never tested	19 (30.6)	12 (28.6)	2 (20.0)	5 (50.0)
1–2 times	33 (53.2)	22 (52.4)	6 (60.0)	5 (50.0)
3–5 times	10 (16.1)	8 (19.1)	2 (20.0)	0
Ever tested positive for COVID-19 (among those 43 participants tested)				
Yes	11 (25.6)	8 (26.7)	3 (37.5)	0
No	32 (74.4)	22 (73.3)	5 (62.5)	5 (100.0)
Have you gotten a coronavirus vaccine?				
Yes	36 (58.1)	24 (57.1)	6 (40.0)	6 (40.0)
No	26 (41.9)	18 (42.3)	4 (40.0)	4 (40.0)
<b>D. Emotional and Mental Well-being</b>				
Feeling not having someone to talk about my concerns or problems				
Agree	19 (31.1)	13 (31.7)	2 (20.0)	4 (40.0)
Neutral	8 (13.1)	6 (14.6)	1 (10.0)	1 (10.0)
Disagree	34 (55.7)	22 (53.7)	7 (70.0)	5 (50.0)
Feeling not having the opportunity to have quality family time because of work				
Agree	43 (69.4)	28 (66.7)	7 (70.0)	8 (80.0)
Neutral	7 (11.3)	5 (11.9)	2 (20.0)	0
Disagree	12 (19.4)	9 (21.4)	1 (10.0)	2 (20.0)
Feeling not having time to do personal things outside of work				
Agree	33 (53.2)	25 (59.5)	4 (40)	4 (40)
Neutral	13 (21.0)	7 (16.7)	3 (30)	3 (30)
Disagree	16 (25.8)	10 (23.8)	3 (30)	3 (30)
Worry about relationship with partner because of job demands				
Agree	16 (37.2)	10 (33.3)	1 (16.7)	5 (71.4)
Neutral	6 (14.0)	5 (16.7)	1 (16.7)	0
Disagree	21 (48.8)	15 (50.0)	4 (66.7)	2 (28.6)

\*The differences in the denominators presented throughout the results section of this report represent missing data and non-applicable responses, as some questions were not applicable to all types of farmworkers.

<sup>a</sup>Seasonal farmworkers were defined as those who work during crop seasons or work in agriculture year-round and live permanently in Michigan.

<sup>b</sup>Migrant farmworkers were defined as individuals who migrate to Michigan to work seasonally and travel year-round to work in agriculture in other states.

<sup>c</sup>H-2A workers were defined as those who are part of the temporary agricultural program and were considered nonimmigrant foreign workers who came to the US with a temporal H-2A visa to perform agricultural labor of a temporary or seasonal nature.

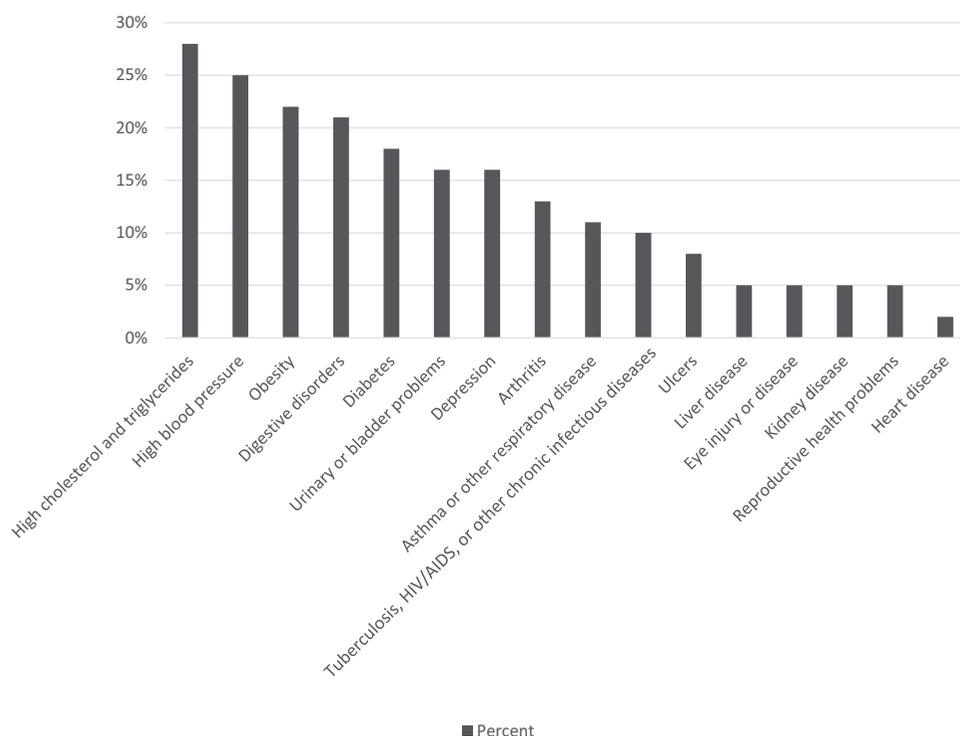
<sup>d</sup>The mean age of participants was 39 years old, with the youngest participant being 21 and the oldest 62 years old.

<sup>e</sup>Significant difference across farmworker groups:  $p = .056$ .

### Emotional and mental well-being

Nearly a third of farmworkers (31.1%) shared they did not have someone to talk to about their concerns or problems (Table 1d). Almost 70% felt

they did not have the opportunity for quality family time outside of work, with a similar pattern observed across all work types. Similarly, more than half (53.2%) felt that they did not have time



**Figure 1.** Self-reported diagnosed chronic conditions in farmworkers: the the Michigan Farmworker Project (MFP), 2020–2021.

to do personal things outside of work (e.g., leisure time, go to church). Over a third (37.2%) of workers who had a significant other or were in a personal relationship shared they were worried about their relationship due to their job demands.

### **Housing affordability and expenses**

Migrant and seasonal farmworkers were asked about their housing affordability and expenses given their current economic situation (Table 2). Both migrant and seasonal workers consider that their salaries were insufficient to afford paying rent and utilities (68.6%). Almost all migrant and seasonal farmworkers considered that housing rental options in Michigan are expensive (88.0%). Similarly, more than half of workers (56.3%) consider that housing that is available and affordable is in poor conditions and have the experience of being asked for a rent deposit that they were not able to afford (43.8%). More than a quarter (28%) of farmworkers were denied housing when trying to find rental housing. Some workers attributed this denial to discrimination. One worker said, “*We came [to see the rental house] dirty from work, and maybe they thought we would destroy it.*” Other reasons workers cited for

denial included being a single mother; earnings being just above the threshold to qualify for public assistance; lacking a social security number; having no credit or poor credit; lacking money for rent deposit; lacking a driver license and state identification; struggling to find housing to rent for short work seasons (e.g., four or six months); and facing challenges with prospective landlords not understanding how the seasonality and informality of farm work affects their earning history (which is often intermittent and poorly documented with workers lacking formal paystubs).

### **Housing characteristics**

We describe housing provided by an employer as an “agricultural worker housing site” and “other housing” for those workers living in non-employer housing (Table 3). The vast majority of seasonal workers live in non-employer housing while migrant and H-2A farmworkers live in agricultural worker housing sites provided by the employer. Most females (78.1%) live in housing not provided by their employer, and more than half of males (58.1%) report living in agricultural worker housing sites. Just over half of the workers living with children

**Table 2.** Housing affordability and expenses for migrant and seasonal farmworkers<sup>a</sup>: the Michigan Farmworker Project (MFP), 2020–2021.

	Total <sup>a</sup> n (%)	Seasonal n (%)	Migrant n (%)
Believes that housing options available in Michigan are expensive.	52 (100.0)	42 (80.8)	10 (19.2)
Agree	45 (88.2)	37 (88.1)	8 (88.9)
Neutral	5 (9.8)	4 (9.5)	1 (11.1)
Disagree	1 (2.0)	1 (2.4)	0
Believes that their salary is insufficient to pay rent and utilities (water, electricity, gas, etc.).			
Agree	35 (68.6)	30 (71.4)	5 (55.6)
Neutral	9 (17.6)	7 (16.7)	2 (22.2)
Disagree	7 (13.7)	5 (11.9)	2 (22.2)
Believes that housing that is available and affordable is in poor condition (e.g., dirty, not well-maintained).			
Agree	27 (56.3)	22 (55.0)	5 (62.5)
Neutral	11 (22.9)	10 (25.0)	1 (12.5)
Disagree	10 (20.8)	8 (20.0)	2 (25.0)
Has had experience of being asked for a rent deposit that you were unable to pay.			
Agree	21 (43.8)	17 (43.6)	4 (44.4)
Neutral	5 (10.4)	5 (12.8)	0
Disagree	22 (45.8)	17 (43.6)	5 (55.6)
Has had experience of being denied housing when trying to find rental places			
Yes	14 (28.0)	12 (30.0)	2 (20.0)
No	36 (72.0)	28 (70.0)	8 (80.0)

<sup>a</sup>H-2A workers were excluded from this table because employers are required to provide them housing as part of the H-2A program.

<18 years of age reside in housing not provided by the employer (56%). The most common type of dwelling for workers included mobile home or trailers, house and apartments with an average of five occupants, including the participant. Farmworkers living in agricultural worker housing sites reported a monthly average of expenditures in rent and/or utilities of \$201.90 (SD \$82.03), with more spent on utilities (56%). Those living in other housing (not employer-provided) reported higher expenses on rent and/or utilities, with a monthly average of \$830.43 (SD \$784.25), with the majority of these expenditures related to rent costs (71%). The average monthly household income for those living in non-employer housing was \$2,976.47; therefore, these workers reported spending approximately 28% of their monthly household income in paying utilities and/or rent. However, this amount does not account for other expenses such as food, child care, health care, and does not adjust for the number of dependents or family members reliant on the worker's reported monthly household income.

### **Interior of dwelling (Table 3A)**

#### **Kitchen**

Overall, all workers independently of their living arrangement reported having kitchen space to

store food and cooking utensils. Similarly, the majority of workers had working kitchen appliances (e.g., stove) and access to hot water to wash their dishes.

#### **Bathroom**

Those living in housing not provided by their employer were more likely to report having a bathroom with a sewer or bad odor compared to those living at agricultural working sites (28% vs 10%, respectively).

#### **Bedroom**

A little more than a third (38.7%) of those in agricultural worker housing sites, and 31.3% of workers in other housing reported that their bedroom where they sleep sometimes or always doubled as a common area for other living activities. Most workers (>60%), independently of living arrangement, reported having a mattress that was "somewhat clean" or "not clean at all," with 10.0% of workers indicating their mattress or sleeping area was located on the floor. In total, 17.7% of workers reported they use plastic to cover the poor conditions of the mattress (e.g., dust, stains), with the majority of those living in agricultural worker housing sites (73%).

**Table 3.** Housing characteristics for farmworkers; the Michigan Farmworker Project (MFP), 2020–2021.

	Total n (%)	Agricultural worker housing site <sup>a</sup> n (%)	Other housing (not provided by employer) <sup>b</sup> n (%)
	63	31 (49.2)	32 (50.7)
Type of worker			
Seasonal	42 (66.7)	13 (41.9)	29 (90.6)
Migrant	10 (15.8)	7 (22.6)	3 (9.3)
H-2A	11 (17.5)	11 (35.5)	0
Gender			
Female	38 (60.3)	13 (41.9)	25 (78.1)
Male	25 (39.7)	18 (58.1)	7 (21.9)
Children under the age of 18 years old living with participant			
Yes	43 (78.2)	19 (79.2)	24 (77.4)
No	12 (21.8)	5 (21.8)	7 (22.6)
Dwelling type			
Mobile home or trailer	24 (38.1)	11 (35.5)	13 (40.6)
House	23 (36.5)	10 (32.3)	13 (40.6)
Apartments	13 (20.6)	8 (25.8)	5 (15.6)
Hotel room	1 (1.6)	0	1 (3.1)
Other	1 (1.6)	1 (3.2)	0
	Mean (SD), n	Mean (SD), n	Mean (SD), n
Monthly household income	\$2,821.62 (1607.20), 63	\$2,661.77 (1630.70), 31	\$2976.47 (1594.50), 32
Monthly utilities expenditure	\$178.54 (155.04), 63	\$113.50 (80.10), 31	\$241.50 (183.20), 32
Monthly rent expenditure	\$342.63 (598.10), 63	\$88.38 (2.15) 31	\$588.93 (766.90) 32
Total monthly expenditures (rent and/or utilities)	\$521.17 (641.17), 63	\$201.90 (82.03), 31	\$ 830.43 (784.25), 32
Number of people sharing the dwelling or unit, including participant	4.50 (2.03), 63	5.03 (2.27), 31	4.00 (1.66), 32
<b>A. Interior of dwelling</b>			
<b>Kitchen</b>			
Space to store utensils and other cooking supplies			
Yes	56 (90.3)	30 (100.0)	26 (41.9)
No	6 (9.7)	0	6 (18.8)
Kitchen stove works			
Yes	60 (96.8)	29 (96.7)	31 (96.9)
No	2 (3.2)	1 (3.3)	1 (3.1)
Refrigerator/freezer cools food properly			
Yes	60 (96.8)	29 (96.7)	31 (96.9)
No	2 (3.2)	1 (3.3)	1 (3.1)
Refrigerator/freezer large enough to store the food of all the occupants			
Yes	58 (93.6)	30 (100.0)	28 (87.5)
No	4 (6.5)	0	4 (12.5)
Hot water to wash dishes in the kitchen sink			
Always	59 (95.2)	29 (96.7)	30 (93.8)
Often	1 (1.6)	0	1 (3.1)
Rarely	1 (1.6)	0	1 (3.1)
Never	1 (1.6)	1 (3.3)	0
<b>Bathroom</b>			
Bathroom have a sewer smell or bad odor			
Yes	12 (19.4)	3 (10.0)	9 (28.1)
No	50 (80.7)	27 (90.0)	23 (71.9)
Type of toilet			
Flushable toilet with a seat	61 (98.4)	29 (96.7)	32 (100.0)
Portable bathroom or latrine outside the house	1 (1.6)	1 (3.3)	0
Toilet works properly (e.g., flush)			
Always	52 (83.9)	24 (80.0)	28 (87.5)
Often	3 (4.8)	3 (10.0)	0
Sometimes	1 (1.6)	0	1 (3.1)
Rarely	3 (4.8)	2 (6.7)	1 (3.1)
Never	3 (4.8)	1 (3.3)	2 (6.3)
Take a shower without running out of hot water			
Yes	60 (98.4)	28 (93.0)	32 (100.0)

(Continued)

**Table 3.** (Continued).

	Total n (%)	Agricultural worker housing site <sup>a</sup> n (%)	Other housing (not provided by employer) <sup>b</sup> n (%)
No	1 (1.6)	1 (3.3)	0
Bathroom has enough ventilation (exterior window or exhaust fan)			
Yes	53 (85.5)	26 (86.7)	27 (84.4)
No	9 (14.5)	4 (13.3)	5 (15.6)
Bathroom door can be locked when using the bathroom or shower			
Yes	53 (85.5)	26 (86.7)	27 (84.4)
No	9 (14.5)	4 (13.3)	5 (15.6)
Privacy to use the toilet			
Yes	58 (93.5)	29 (96.7)	29 (90.6)
No	4 (6.5)	1 (3.3)	3 (9.4)
Privacy to use the shower			
Yes	57 (91.9)	29 (96.7)	28 (87.5)
No	5 (8.1)	1 (3.3)	4 (12.5)
<b>Bedroom</b>			
Area or room where you sleep in used as a common living space by you or others, in addition to sleeping room			
Always	9 (14.3)	5 (16.1)	4 (12.5)
Sometimes	13 (20.6)	7 (22.6)	6 (18.8)
Rarely	8 (12.7)	3 (9.7)	5 (15.6)
Never	33 (52.4)	16 (51.6)	17 (53.1)
Cleanliness of mattress			
Very clean	22 (35.5)	10 (32.3)	12 (38.7)
Somewhat clean	37 (59.7)	20 (64.5)	17 (54.8)
Not clean at all	3 (4.8)	1 (3.2)	2 (6.5)
Mattress or place where you sleep is located on the floor			
Yes	6 (10.0)	3 (10.0)	3 (10.0)
No	54 (90.0)	27 (90.0)	27 (90.0)
Do you cover your mattress or area where you sleep with plastic?			
Yes	11 (17.7)	8 (25.8)	3 (9.7)
No	51 (82.3)	23 (74.2)	28 (90.3)
<b>Ventilation</b>			
Access to a working fan in your home or room to help ventilate your living room			
Yes	51 (81.0)	23 (74.2)	28 (87.5)
No	12 (19.1)	8 (25.8)	4 (12.5)
Windows have proper fitted screens that are in good condition and free of rips and tears			
Yes	53 (86.9)	28 (96.6)	25 (78.1)
No	8 (13.1)	1 (3.5)	7 (21.9)
Windows open and close properly			
Yes	59 (95.2)	30 (100.0)	29 (90.6)
No	3 (4.8)	0	3 (9.4)
Air conditioning <sup>c</sup>			
Does not have air conditioning in dwelling	21 (33.3)	16 (51.6)	5 (15.6)
Has air conditioning in dwelling	42 (66.7)	15 (48.4)	27 (84.4)
<b>B. General Housing Features</b>			
<b>Interior</b>			
Exterior windows cracked or broken			
Yes	7 (11.3)	1 (3.3)	6 (18.8)
No	55 (88.7)	29 (96.7)	26 (81.3)
Walls of the house with large holes and cracks			
Yes	4 (6.5)	3 (10.0)	1 (3.1)
No	58 (93.6)	27 (90.0)	31 (96.9)
Ceiling in house with large holes, cracks or bulges			
Yes	9 (14.8)	3 (10.3)	6 (18.8)
No	52 (85.3)	26 (89.7)	26 (81.2)
Floor of dwelling with buckling			
Yes	10 (16.4)	3 (10.3)	7 (21.9)
No	51 (83.6)	26 (89.7)	25 (78.1)
Paint on the inside of house peeling			
Yes	7 (11.7)	1 (3.6)	6 (18.8)

(Continued)

Table 3. (Continued).

	Total n (%)	Agricultural worker housing site <sup>a</sup> n (%)	Other housing (not provided by employer) <sup>b</sup> n (%)
No	53 (88.3)	27 (96.4)	26 (81.2)
Condition of furniture in the house			
Very good	3 (4.8)	2 (6.7)	1 (3.1)
Good	31 (50.0)	14 (46.7)	17 (53.1)
Fair	25 (40.3)	13 (43.3)	12 (37.5)
Bad	3 (4.8)	1 (3.3)	2 (6.3)
Functioning washing machine in the place participant is living			
Yes	41 (66.1)	15 (50.0)	26 (81.3)
No	21 (33.9)	15 (50.0)	6 (18.8)
Functioning dryer machine in the place participant is living			
Yes	37 (60.7)	12 (41.4)	25 (78.1)
No	24 (39.3)	17 (58.6)	7 (21.9)
<b>Exterior</b>			
Paint outside dwelling peeling			
Yes	8 (13.6)	3 (11.1)	5 (15.6)
No	51 (86.4)	24 (88.9)	27 (84.4)
Garbage in the yard outside your house			
Often	5 (8.1)	2 (6.7)	3 (9.4)
Sometimes	8 (12.9)	3 (10)	5 (15.6)
Rarely	17 (27.4)	11 (36.7)	6 (18.8)
Never	32 (51.6)	14 (46.7)	18 (56.3)
Standing water or sewage outside the house			
Yes, just standing water	5 (8.1)	1 (3.3)	4 (12.5)
No	57 (91.9)	29 (96.7)	28 (87.5)
Door has a screen without rips and tears			
Yes	43 (69.4)	23 (76.7)	20 (62.5)
No	19 (30.7)	7 (23.3)	12 (37.5)
<i>Safety hazards</i>			
No safety hazards	29 (52.7)	16 (61.5)	13 (44.8)
1–2 safety hazards	22 (40.0)	9 (34.6)	13 (44.8)
3–4 safety hazards	4 (7.3)	1 (3.9)	3 (10.4)
<b>C. Pests, Environmental Exposures, Water</b>			
Cockroaches			
Always	1 (1.6)	0	1 (3.1)
Often	2 (3.2)	0	4 (12.5)
Sometimes/rarely	12 (19.0)	6 (19.4)	4 (12.5)
Never	48 (76.2)	25 (80.6)	23 (71.8)
Mice or rats			
Always	4 (6.4)	2 (6.5)	2 (6.3)
Often	7 (11.1)	3 (9.7)	4 (12.5)
Sometimes/rarely	14 (22.2)	4 (13.0)	10 (31.3)
Never	38 (60.3)	22 (71.0)	16 (50.0)
Insects (ants, wasps) inside the house			
Always	3 (4.8)	1 (3.2)	2 (6.3)
Often	7 (11.1)	2 (6.5)	5 (15.6)
Sometimes/rarely	31 (49.2)	16 (51.6)	15 (47.0)
Never	22 (34.9)	12 (38.7)	10 (31.3)
Environmental Problems: Noise, Landfill, Pesticides or Insecticides, Fumes			
No environmental hazards	12 (19.4)	3 (10.0)	9 (28.1)
1–2 environmental hazards	39 (62.9)	21 (70.0)	18 (56.3)
3–4 environmental hazards	11 (17.7)	6 (20.0)	5 (15.6)
<b>Water</b>			
Drink water from faucet without boiling it			
Always	7 (11.1)	3 (9.7)	4 (12.5)
Often	2 (3.2)	1 (3.2)	1 (3.1)
Sometimes	13 (20.6)	4 (12.9)	9 (28.1)
Never	41 (65.1)	23 (74.2)	18 (56.3)
Reasons and perceptions for not drinking water from faucet (among those that do not always drink water from the faucet)			
Water contaminated with chemicals			
Yes	4 (7.8)	2 (7.7)	2 (8.0)

(Continued)

**Table 3.** (Continued).

	Total n (%)	Agricultural worker housing site <sup>a</sup> n (%)	Other housing (not provided by employer) <sup>b</sup> n (%)
No	47 (92.2)	24 (92.3)	23 (92.0)
Water has a bad taste			
Yes	11 (21.2)	7 (26.9)	4 (15.4)
No	41 (78.9)	19 (73.1)	22 (84.6)
Water has a brown color			
Yes	12 (22.2)	5 (18.5)	7 (25.9)
No	42 (77.8)	22 (81.5)	20 (74.1)
Water has a bad odor			
Yes	8 (14.8)	4 (14.8)	4 (14.8)
No	46 (85.2)	23 (85.2)	23 (85.2)
Water has sediments			
Yes	13 (24.1)	7 (25.9)	6 (22.2)
No	41 (75.9)	20 (74.1)	21 (77.8)
How often do you drink bottled water?			
Always	43 (68.3)	25 (80.6)	18 (56.3)
Often	7 (11.1)	1 (3.2)	6 (19.4)
Sometimes	12 (19.0)	4 (12.9)	8 (25.8)
Rarely	1 (1.6)	1 (3.2)	0

<sup>a</sup>We describe housing provided by an employer as an "agricultural worker housing site".

<sup>b</sup>Other housing' for those workers living in housing that is not provided by the employer.

<sup>c</sup>Significant difference across farmworker groups:  $p = .002$ .

### Ventilation

A little more than half (51.6%) of workers living in agricultural worker housing sites and 15.6% in non-employer provided housing did not have air conditioning in their units.

### General housing features (interior and exterior of dwelling) (Table 3B)

The condition of interior features of the living units including windows, walls, floors, paint, and the condition of furniture was adequate, according to the majority of interviewees. But more than a third of all workers lacked access to a functioning washing machine (33.9%) and dryer (39.3%).

Workers observed structural issues in their dwellings such as cracked or broken exterior windows (11.3%); rips and tears in their window screens (13.1%); holes, cracks, or bulges in their ceiling (14.8%); buckling in their flooring (16.4%); and chipped paint in the interior (11.7%) and exterior (13.6%) of the dwelling. About 21% of workers reported garbage in the yard outside their house sometimes or often, and 8.1% reported standing water outside the house. Nearly a third of participants (30.7%) reported having doors with torn screens. In terms of safety hazards, more

than half of workers (55.2%) in housing not provided by employer and more than a third (38.5%) in housing at the agricultural working sites experienced between 1 and 4 safety hazards.

### Pests, environmental exposures, and water (Table 3C)

Workers reported the frequency with which they saw pests in their home sometimes, often, or always: 23% reported cockroaches, 39.7% mice and rats, and 65.2% insects (e.g., ants, wasps). Most workers (80.6%), regardless of their living situation, reported being exposed to between one and four environmental exposures (e.g., smell of pesticides or insecticides from their house, landfill, noise, factories, and fumes from cars or trucks). We assessed farmworkers' self-reported water consumption and water quality in their homes. More than two-thirds of farmworkers (65%) reported never drinking water from the faucet without boiling it. Reasons for not drinking water directly from faucet were related to perception of water contaminated with chemicals (7.8%), bad taste (21.2%), brown coloration (22.2%), bad odor (14.8%), and sediments in water (24.1%). Most farmworkers reported they always drank bottled water, though this share was larger among those

in agricultural worker housing sites (80.6% compared to 56.3% in other housing). Bottled water was a significant expense for workers, ranging from \$5 to \$200 per month with an average of \$45 per month.

### **Work characteristics and conditions**

General work characteristics and work dynamics were assessed (Table 4). Migrant and seasonal farmworkers reported more than 16 years working in agriculture, while H-2A workers had worked a little more than 11 years. Compared to seasonal and migrant, on average. H-2A farmworkers worked almost twice as many hours per day, reporting approximately 18 hours. A greater share of seasonal farmworkers reported working in the field, packing plant, and nursery or greenhouses, while most migrant and H-2A workers reported working in the fields.

Regarding safety equipment, 45.2% of workers reported they always received personal protective equipment (e.g., gloves, hat) from their employer at their job, though notably only one H-2A worker reported always receiving it with most of these workers reporting that they never receive protective equipment. Overall, nearly a half of workers (48.4%) were concerned (always, often, sometimes) with the exposure to chemicals and pesticides at the workplace. Nearly 15% of workers reported that they did not receive additional breaks outside of their lunch break, and more than two-thirds felt their work was stressful to some extent (always, often, sometimes) (64.5%) (Table 4).

#### *Factors of vulnerability at work and work dynamics*

When asked about interpersonal dynamics at work, just under a third (30.6%) reported verbal abuse by their direct supervisor (i.e., their crew leader or employer) in the form of yelling, insults, and being threatened (Table 4a). A little more than a quarter (25.8%) of workers had been threatened that they would be deported, not invited to come the following year to work in the US, or fired. While the majority of workers did not report being sexually harassed on the job, those who did were all women. Most workers (74.2%) reported feeling that they were not treated as human beings by their direct supervisor, rather as part of the

farm equipment which can easily be replaced – a sentiment expressed by workers in this study (Table 5) and in our previous study.<sup>11</sup>

As part of the in-depth qualitative interviews (Phase 1), farmworkers offered suggestions to improve their work and housing conditions as following: recognizing the need for a dignified and safe working environment, fair treatment and payments, more housing options for workers, having balance and equity in the hiring process of workers, a path to obtain residency and work permits, and the creation of an independent easily accessible reporting system through a neutral party to be able to anonymously present and address work-related and housing-related complaints without fear of retaliation (Table 5).

### **Discussion**

Working and housing conditions are key social determinants of health. Our results are consistent with the extensive farmworker literature on precarious work and living conditions for farmworkers in the U.S.<sup>12,13,35–38</sup> This study adds valuable knowledge to the understanding of the systemic barriers to housing and work conditions for seasonal, migrant, and H-2A farmworkers living in both employer-provided housing and housing not provided by employers in Michigan.

From a public health perspective, our results highlight how the socioeconomic marginalization of farmworkers may impact their housing situation and is closely tied to their working environment. According to the federal poverty guidelines, more than a third of farmworkers in our sample were classified as living in poverty, with female farmworkers in our study reporting the lowest annual incomes. The levels of poverty found in our study are more than three times the official poverty rate in the general U.S. population in 2020 at 11.4%, and U.S.-born Michiganders at 13%.<sup>39,40</sup>

Food insecurity is an important issue for farmworkers. Our findings demonstrate high levels of food insecurity, with approximately two-thirds of farmworkers classified as having marginal or low/very low food security. This prevalence is higher than what has been reported for the general U.S. population (10.5%) in 2020, and almost four times greater even among the

**Table 4.** Work characteristics and conditions for farmworkers: the Michigan Farmworker Project (MFP), 2020–2021.

	Total M (SD), n	Seasonal M (SD), n	Migrant M (SD), n	H-2A M (SD), n
Years working in agriculture	15.8 (9.6), 63	16.6 (9.2), 42	17.3 (11.1), 10	11.52 (9.6), 11
Working hours per day	10.2 (11.5), 63	8.5 (1.87), 42	9.0 (1.6), 10	17.7 (27.1), 11
Number of coworkers in working place	36.5 (46.8)	35.9 (49.2), 42	36.5 (54.4), 10	38.8 (31.5), 11
	n (%)	n (%)	n (%)	n (%)
Works in field				
Yes	34 (54.8)	19 (46.3)	5 (50.0)	10 (90.9)
No	28 (45.2)	22 (53.7)	5 (50.0)	1 (9.1)
Works in packing plant				
Yes	27 (43.6)	22 (53.7)	4 (40.0)	1 (9.1)
No	35 (56.5)	19 (46.3)	6 (60.0)	10 (90.9)
Works in nursery or greenhouse				
Yes	6 (9.7)	5 (12.2)	1 (10.0)	0
No	56 (90.3)	36 (87.8)	9 (90.0)	11 (100.0)
How often worker receives free personal protective equipment from employer at current job				
Always	28 (45.2)	20 (47.6)	7 (70.0)	1 (10.0)
Often	6 (9.7)	4 (9.5)	2 (20.0)	0
Sometimes	8 (12.9)	6 (14.3)	0	2 (20.0)
Rarely	4 (6.5)	3 (7.1)	0	1 (10.0)
Never	16 (25.8)	9 (21.4)	1 (10.0)	6 (60.0)
Workers' concern with exposure to chemicals and pesticides at the workplace				
Always	12 (19.4)	8 (19.0)	2 (20.0)	2 (20.0)
Often	2 (3.2)	2 (4.8)	0	0
Sometimes	16 (25.8)	12 (28.6)	2 (20.0)	2 (20.0)
Rarely	10 (16.1)	9 (21.4)	1 (10.0)	0
Never	22 (35.5)	11 (26.2)	5 (50.0)	6 (60.0)
Breaks at work other than lunch				
Yes	53 (85.5)	39 (92.9)	10 (100.0)	4 (40.0)
No	9 (14.5)	3 (7.1)	0	6 (60.0)
How often do you feel your work is very stressful?				
Always	8 (12.9)	6 (14.3)	1 (10.0)	1 (10.0)
Often	3 (4.8)	3 (7.1)	0	0
Sometimes	29 (46.8)	20 (47.6)	4 (40.0)	5 (50.0)
Rarely	6 (9.7)	5 (11.9)	1 (10.0)	0
Never	16 (25.8)	8 (19.1)	4 (40.0)	4 (40.0)
<b>Factors of Vulnerability at Work and Work Dynamics</b>				
Verbal abuse by direct supervisor (either crew leader or grower) in the form of yelling or insults				
Yes	19 (30.6)	13 (31.0)	4 (40.0)	2 (20.0)
No	43 (69.3)	29 (69.1)	6 (60.0)	8 (80.0)
Have you ever been threatened at work (e.g., being deported, not invited to work the next year, losing your job)				
Yes	16 (25.8)	8 (19.1)	5 (50.0)	3 (30.0)
No	46 (74.2)	34 (81.0)	5 (50.0)	7 (70.0)
Have you ever been sexually harassed on the job?				
Yes	3 (4.8)	3 (7.1)	0	0
No	59 (95.2)	39 (92.9)	10 (100.0)	10 (100.0)
Do you feel that you are treated as a human being by your direct supervisor?				
Agree	10 (16.1)	5 (11.9)	2 (20.0)	3 (30.0)
Neutral	6 (9.7)	5 (11.9)	1 (10.0)	0
Disagree	46 (74.2)	32 (76.2)	7 (70.0)	7 (70.0)

3.9% of U.S. households facing very low food security.<sup>40–42</sup> Our results are consistent with previous studies reporting a prevalence of food insecurity in the range of 47% to 82% in farmworkers.<sup>43,44</sup> The majority of workers in our study reported not receiving food stamps,

even though many participants reported having children under the age of 18 years living with them. Food insecurity is an important indicator of economic insecurity, which in turn can affect housing affordability and access and other key determinants of health.

**Table 5.** Farmworkers suggestions to improve their living and work conditions: the Michigan Farmworker Project (MFP), 2020-2021.

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*"They should give them permits to work in the United States, they should give driver's licenses. There are a lot of single mothers and they should provide driver's licenses because many mothers have problems taking their kids to the doctor. Regulations for workers would help. It would help so that they get a Mexican passport or Mexican registration to help us more. An ID would at least help us. I know people that have been here for years, and they do not have any identification. Having adequate housing for families with children that are appropriate. In the labor camps, I once lived with 3 or 4 men in a house. It is dangerous. Very complicated when you have children. It would be good to help out workers with security deposits for housing. Have an agency that helps workers look for housing for families and everyone in general. Have information about housing and work and that we get that information in Michigan. A way so that all agencies are giving out the same information." —Female Farmworker*

*"They do not hire local people and families they prefer H2A that come from Mexico. They should provide information of access and labor camps that allow access to local workers. There is no housing for local workers and migrants. Everything is for H-2A workers." —Male farmworker*

*"I would like for workers to have a more humane and equal treatment. Agriculture is a very important and dignified job but they do not value our work. I wish there was more conscious and a better treatment for workers. We suffer a lot. I would like a form to talk with the growers so they can treat better the workers. There are places where they pay very little. I would like for the workers to have rights. I would like the creation of a commission for workers to be able to present complaints. I have the experienced of working with a grower that got upset and insulted me because I needed to go and work somewhere else but I came to work for him to help him and on top of that he treat me badly. They have [government] incentives for the growers because they create employment but they do not have incentives for farmworkers. We are the ghosts, they do not see and recognize us, they do not pay well and if you are illegal there is no equality." —Male farmworker*

*They do not hire local people and families they prefer H-2A that come from Mexico. They should provide information of access and labor camps that allow access to local workers. There is no housing for local workers and migrants. Everything is for H-2A workers." —Male farmworker*

*"I wish they would help us more, At least, give us an identification would help us. I know people living many years in the US and they do not even have an identification. I would also like that they would have better housing for the families with children and more appropriate for the labor camps. Living in a labor camp, I used to live with three or four men in a house, and that is dangerous, and it is very complicated when you have children. I would like to have help with the deposits for housing and have help from an agency to find housing for families and everyone [for all the workers]. I would like to have information about housing and work and receive this information in Michigan. Maybe through outreach programs they can give us this information, the schools for the children because a lot of families go there and all the agencies should provide consistent and same information." —Female farmworker*

*"Receiving help from organizations for housing, one needs to have housing before you arrive to Michigan because if you do not have housing you will not be able to find a job on time. I would like less people in the apartments because they have 2 rooms and 1 bed and then they put 8 people. That is a lot of people for the space." —Female farmworker*

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Over half of the workers reported lacking any kind of health insurance or only reported access to emergency Medicaid, which has limited health coverage. The lack of or limited access to health insurance is problematic in terms of access to screening and preventive services as a regular source of care. Many of the workers in the study reported suffering from various chronic health conditions, including cardiovascular risk factors (e.g., hypertension), consistent with what has been reported in studies of farmworkers in the U.S.<sup>35,45,46</sup>

Migrant and seasonal workers reported that their salaries were insufficient to afford paying rent and utilities. Minimum wage in Michigan is \$9.87, \$1.50 price per pound if pay is by the piece rate.<sup>47</sup> Even under minimum wage and working 40 h per week, workers will be able to afford only a \$473 rent a month, which is at a minimum 30% of their gross income yet the average cost of living for a single person in any of the counties in Michigan is more than \$1,000 per month, which is unaffordable for single farmworkers, and even more so for those with dependents.<sup>48</sup> This is consistent with our findings for those living in non-employer-provided housing, who reported spending 28% of their monthly household income on rent and utilities. Of note, workers living in an agricultural worker

housing site reported housing expenditures (rent and/or utilities) as well. While by law, these expenses cannot be withdrawn from paychecks unless authorized in writing by the worker and the employer should not charge the worker if utilities do not work or the housing is unsafe,<sup>47</sup> it is unknown how this process is enforced.

Farmworkers faced additional barriers to accessing housing related to their employment situation. For example, some workers reported that having an insecure job situation, including a lack of steady income and the migratory or temporal nature of farm work contributed to their denial of rental opportunities. Additionally, workers shared that the denial of housing was closely linked to their social vulnerability. For example, workers who are undocumented, who lack a social security number or identification documents (e.g., driver's license), may have more difficulty securing housing. Women workers and workers with children were less likely to live in housing provided by their employer, which may suggest less access to agricultural worker housing sites.

Overall, farmworkers considered the physical housing conditions and characteristics to be functional and adequate. However, some aspects of housing quality are important to note from a health

perspective. For instance, the lack of air conditioning in living spaces and work-related heat exposure in workers can affect the ability to cool down at night and can adversely affect sleep, exacerbate musculoskeletal pain, and negatively impact mental health.<sup>49–</sup>

<sup>51</sup> More than a third of workers did not have access to a functioning washer and dryer which is difficult for health promoting behaviors such as washing clothes daily due to potential exposure to dust, chemicals, and pesticides. Another important area of concern for workers related to housing was residential environmental exposures and exposure to standing water, garbage, and sewage. Some workers expressed concerns about the quality and cleanliness of drinking water and preferred purchased bottled water, which is a considerable expense for workers.

Long working hours were common among all farmworkers but H-2A farmworkers reported double the number of work hours per day, which reflects dangerous and exploitative work conditions. Workers discussed feelings of isolation and not being able to have personal or family quality time due to their work has been associated with stress, burnout, lower productivity, and poorer psychological well-being resulting in job and economic insecurity.<sup>52</sup> Additionally, workers shared stressful work experiences of dehumanization, mistreatment, verbal abuse, threats at work, and sexual harassment. These experiences exemplify the objectification and the denial of humanity of these workers, as voiced by the workers themselves (Table 5), and are tenants of precarious and exploitative work conditions.<sup>13,53,54</sup>

Because work is closely linked to housing access and quality, these dynamics at work may also translate into accepting inadequate or poor housing conditions, as often housing is provided by the employer as well as unsafe or exploitative working conditions.

There are some systems in place that attempt to provide resources for workers to denounce unsafe working or living conditions but may fall short due to the unique context for farmworkers. For example, the Michigan Occupational Safety and Health Administration (MIOSHA) gives employees the right to file complaints about workplace safety and health hazards. Complaints with the signature of the employee or employee representative are more likely to result in an onsite inspection than anonymous reports, which may jeopardize the safety and job of workers.<sup>55,56</sup> Furthermore, work-related violence and

threats are not addressed as issues for inspection by MIOSHA. In these instances, the agency recommends contacting the local police department, unlikely an effective way to oversee these issues given farmworkers' social marginalization. As another example, the Michigan Migrant Labor Housing Program (MLHP), which performs inspections of all housing in agricultural work sites, includes a pre-occupancy (prelicensing) inspection each year for each licensed housing site for living quarters accommodating five or more farmworkers (Ghussaini, M, MLHP Program Manager, personal communication, November 7, 2022). MLHP operates with seven non-bilingual housing inspectors, as noted in a 2019 recommendations report from the Interagency Migrant Services Committee Policy and Advocacy and Civil Rights Subcommittee.<sup>20,57,58</sup> Yet, their 2022 MLHP Annual report shows that these inspectors conducted more than 3,000 housing inspections for more than 28,000 farmworkers in Michigan.<sup>20</sup> This low ratio of number of inspectors may affect the process of conducting these inspections and the ability of workers to communicate any housing issues with the inspectors.<sup>57</sup> Moreover, while MLPH does perform inspections when the housing is occupied, the frequency of these inspections is unclear. Additionally, referral and enforcement inspections are also conducted as needed, based on violations reported through an online or phone referral system – a process which may be difficult for farmworkers to access due to language barriers, or because of fear of retaliation and loss of employment and/or housing. An anonymous, confidential, and standardized reporting system managed by a neutral non-state or non-agribusiness entity may also facilitate referrals of workers for services, mediate labor and housing disputes, and empower workers to raise important issues such as the ones identified in this study.

Finally, in 2020, Governor Whitmer issued Executive Order 2020–111 “Protecting the Food Supply and Migrant and Seasonal Agricultural Workers from the effects of COVID-19”, Executive Order 2020–97 “Safeguards to protect Michigan’s workers from COVID-19” to include Michigan’s agricultural workers living in employer-provided housing, and Emergency Order Under MCL 333.225 “Mandatory Testing, Preventative Measures, and Safe Housing for Agricultural Workers” to address mandatory COVID-19 testing and infection prevention

measures by employers and operators of employer provided agricultural housing sites.<sup>59–62</sup> These orders created temporary new protections for Michigan farmworkers living in employer-provided housing and extended worker protections. Some of the housing measures addressed physical distancing in housing (i.e., distance between beds and sleeping head to toe), isolation of bathroom and dining facilities, provision of housing accommodations to isolate workers who test positive for COVID-19, provision of protective equipment, and COVID-19 screening and other infection control measures guided by the Michigan Department of Health and Human Services (MDHHS).<sup>59,63,64</sup> The executive orders and mandatory COVID-19 testing faced backlash and unsuccessful lawsuits by the Michigan Farm Bureau citing that the orders were a violation of farmworker's civil rights.<sup>65,66</sup> While these orders addressed important and critical aspects of housing access and quality during the pandemic, it is not clear how these orders were enforced or how impactful these orders were on the housing situation of farmworkers in the state.

### **Strengths and limitations**

This is the first study in Michigan assessing housing and work conditions among different types of farmworkers living in employer and non-employer provided housing. While the goal of this cross-sectional study was not to compare housing and labor conditions before and during the COVID-19 pandemic, our study was able to highlight issues regarding housing access and housing conditions that were already present before the pandemic and which may have been exacerbated by the pandemic. Our previous studies, conducted before the pandemic, have shown similar challenges for farmworkers.<sup>11</sup> The cross-sectional study design was a limitation as was the convenience sample, precluding the identification of statistically significant differences across most of the factors assessed; however, the nature of the study intended to be descriptive and provide prompt data about the situation of farmworkers during the unique circumstances of the pandemic.

### **Conclusion**

The dehumanizing treatment of farmworkers in Michigan speaks to the systematic policy failure and

the critical need to prioritize funding for research and agencies working with this population. Workplace dehumanization objectifies and deprives workers of their agency and human rights. As the workers themselves suggested, to protect this vulnerable workforce and their valuable contributions to the economy of Michigan, supporting unionization, a path to legal immigration status, higher fair labor standards, active enforcement of occupational, safety, and health regulations, and better coordination of resources regarding housing access, affordability, and quality is essential. Taking these steps to empower workers could drive better housing, work conditions, and health outcomes for these workers and their families.

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