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ORIGINAL ARTICLE

Experiences of women farmworkers in Michigan: Perspectives from the Michigan Farmworker Project

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Abstract

Agricultural work presents significant physical and social challenges globally and in the United States, with women farmworkers facing unique risks that remain underexplored. This study examines the social and occupational hazards confronted by women farmworkers in Michigan using data from the Michigan Farmworker Project. In-depth interviews with farmworkers were thematically analyzed. Results highlight five main dimensions of working and living conditions: gender-based discrimination, sexual harassment, reproductive health concerns, pregnancy challenges, and work-life balance issues. Women and men participants ($n = 35$; average age of 42 years; 57% women) reported hazardous and exploitative conditions including sexual harassment, chemical exposures, and challenges with proper hygiene and sanitation—especially during menstruation—including lack of bathroom access and other problems leading to urinary tract infections. Participants discussed pregnancy-specific concerns and concerns regarding work-life balance and childcare (i.e., insufficient time for family, challenges with coordination of childcare). Findings underscore the need for policies to address these disparities, especially for single women farmworkers. Interventions and policies informed by this study can improve the well-being of women workers and their families in agricultural settings.

KEYWORDS

community-based participatory research, environmental justice, farmworkers, occupational exposures, pregnancy outcomes, women

Highlights

- An estimated third of farmworkers in the United States are women.
- Women farmworkers in Michigan face precarious work conditions and heightened occupational stressors.
- Interventions and policies are needed especially for single women farmworkers and those with children.
- Local, state, and national efforts are needed to ensure women farmworkers have safe and equitable jobs.

Farmworkers play an essential role in the U.S. multi-billion dollar agriculture and food system. The U.S. Department of Agriculture estimates that, of approximately 1.4 million hired crop/farmworkers nationwide, the majority are immigrants (USDA ERS - Farm Labor, 2022). The U.S. Department of Labor's National Agricultural Workers Survey (NAWS), an employment-based, random-sample survey of hired crop workers,

estimates that the majority of farmworkers are Mexican or Central American, many working under H-2A visas, and about half are undocumented (Gold et al., 2022). Although the U.S. farming industry primarily employs men, the proportion of women farmworkers has been rising, a trend that is expected to continue (USDA ERS - Farm Labor, 2022). The NAWS estimates that almost a third of farmworkers are women (Gold et al., 2022). Despite the contributions of women farmworkers to agricultural work, research on their work context and health impacts is limited. This paper explores the unique challenges faced by women farmworkers in Michigan.

Agricultural work is one of the most physically demanding and hazardous occupations and farmworkers face complex social vulnerabilities that create greater health risks from occupational exposures (Holmes, 2013; Iglesias-Rios et al., 2023; Kelley et al., 2020; Sbicca et al., 2020). Women farmworkers in the U.S. face distinct working conditions and occupational stressors that are relatively understudied. Prior research indicates that women engaged in farm work often encounter numerous health risks, including chronic illnesses, mental health, and adverse impacts on reproductive health, including barriers to accessing reproductive healthcare services (Arcury et al., 2018; Castañeda et al., 2015; Galarneau, 2013; Graf et al., 2024; Quandt, Kinzer, et al., 2020; Rodriguez et al., 2016; Runkle et al., 2014).

These disparities are exacerbated by unique stressors faced by women farmworkers. In particular, several studies and reports have documented instances of harassment and violence perpetrated against women farmworkers, highlighting the need for comprehensive interventions to address these issues (Kim et al., 2016; Meng, 2012; Murphy et al., 2015; Prado et al., 2021). Additionally, women farmworkers frequently face challenges related to their working conditions and employment status, including inadequate and inequitable wages, job instability, and irregular working hours (Arcury et al., 2015, 2022; Curl et al., 2020) and report experiences with hazardous working conditions including toxic chemicals and heat exposure, which further contribute to their vulnerability (Curl et al., 2021; Flocks et al., 2013; Quandt, Mora, et al., 2020; Runkle et al., 2013). These conditions are particularly concerning during pregnancy, a period with higher vulnerability to social and environmental hazards (Flocks et al., 2012; M. A. Kelley et al., 2013). Ethnic and racial discrimination further exacerbate the challenges faced by women farmworkers in the U.S., who are mainly Indigenous and Mestiza immigrants from Latin America.

Michigan boasts a thriving agricultural industry, the second most diverse in the nation after California, producing more than 300 commodities and contributing $104.7 billion annually to the state's economy (Michigan Department of Agriculture and Rural Development, 2019). Farmworkers are vital to this industry, with an estimated 94,000 migrant and seasonal workers, and their families (Larson, 2013). Approximately 11,000 of these positions are certified through the H-2A agricultural worker visa program, bringing foreign national temporary workers to Michigan annually (US Department of Labor, 2020). Farmworkers work in fields, greenhouses, and crop packing plants, often holding multiple jobs and frequently migrating throughout the U.S., changing crop types seasonally.

In 2010, the Michigan Civil Rights Commission reported that "substandard living and working conditions for many farmworkers in Michigan have not significantly changed in 45 years" (Michigan Department of Civil Rights, 2010). Subsequent progress reports have indicated minimal improvement, as reflected in our research (Iglesias-Rios et al., 2023, 2024). Despite this, research with this population in Michigan remains scarce, hindering the development of sustainable and effective health-promoting interventions and systematic policy change. Even more limited is a deeper understanding of the work context and its impact on the health and well-being among women farmworkers in Michigan.

To address these and other gaps, the Michigan Farmworker Project was formed as a collaborative research program between academic and community partners, aiming to generate research that informs policies, programs, and interventions for farmworkers in the state (Iglesias-Ríos et al., 2022). This paper presents qualitative findings on aspects of precarious employment experienced by women farmworkers in Michigan. The potential implications for health inequities among these workers may serve as a catalyst for initiatives aimed at enhancing conditions for women farmworkers in the state.

METHODS

Study design and theoretical framework

Details on the Michigan Farmworker Project (MFP) development and implementation are described in detail elsewhere (Iglesias-Ríos et al., 2022, 2023); we summarize our theoretical framework and design below.

The MFP is conceptually informed by critical race theory (CRT) and community-based participatory research (CBPR) principles, rooted in social justice pursuits and critical analysis of systems contributing to structural racism and health inequities (Ford & Airhihenbuwa, 2010; Iglesias-Ríos et al., 2022; Wallerstein et al., 2017). These frameworks help understanding of how farmworkers are marginalized through precarious working conditions and labor exploitation. Agricultural production in the U.S. is rooted in historically racist policies. The legacies of plantation slavery and New Deal era policies significantly impact the farmworker population, exposing them to enduring patterns of structural racism and oppression, contributing to significant social, economic, and health inequities (Dixon, 2021). Further, CRT recognizes that oppression occurs through the intersection of race and

multiple positions and social identities (Lawrence & Hylton, 2022), such as gender and class - an important focus for women farmworkers in particular.

Additionally, the MFP research approach aligns with CBPR principles, recognizing and empowering community knowledge while addressing systemic health inequities at their root (Wallerstein et al., 2017). This community-academic partnership ensures equitable engagement in various research aspects, including study objectives development, study protocol and instrument design, recruitment, analysis of preliminary results, development of dissemination materials and scholarly products. Moreover, as discussed at length in Iglesias-Ríos et al., 2022, the MFP is a bilingual and multicultural community-academic partnership. Academic researchers and community partners include those who are bilingual, Latino(a), and with experience working with farmworker communities, some with personal connections, such as having worked as a farmworker themselves. This diversity within the partnership enriched the development and implementation of the MFP and enriches data analysis and interpretation by acknowledging our diverse ethnic and racial backgrounds and positions of privilege and power within the partnership and in relation to the workers.

Sample and recruitment

Using snowball sampling, we recruited 56 participants (35 farmworkers and 21 stakeholders) from Michigan. This analysis focuses on farmworkers aged 18+ involved in crop-related activities in four Michigan counties with high agricultural worker concentrations. Seasonal farmworkers live permanently or move within Michigan yearround for work. Migrant farmworkers work seasonally in Michigan and may work in other states. H-2A workers are nonimmigrant foreign workers with temporary visas for agricultural work who come to Michigan temporarily during the growing season.

We collaborated with the Office of Migrant Affairs and Migrant Resource Councils (MRCs). MRCs, along with local migrant outreach workers, provide essential services and support networks for farmworkers. Three MRC migrant outreach workers from the target counties and one summer migrant coordinator from a non-profit organization supported recruitment efforts. We used various methods to recruit farmworker participants, including outreach at agricultural work sites, church groups, Migrant Head Start programs, MRC offices, community events, and common gathering places like laundromats and restaurants. Detailed recruitment approach is described elsewhere (Iglesias-Ríos et al., 2022).

All members of the community-academic partnership, including outreach workers were trained in ethical principles and are committed to the ethical conduct of research. The study was approved by the University of Michigan Health Sciences and Behavioral Sciences Institutional Review Board (HUM00165344).

Data collection

Recruitment and enrollment involved outreach workers assessing interest via a screening form, then sharing potential participants' contact information with LIR, who verified eligibility and obtained consent. From September to December 2019, LIR, an epidemiologist with qualitative research expertise and a native Spanish speaker conducted interviews at various community locations. Transportation was arranged as needed. Interviews were conducted in the participants' preferred language, typically Spanish, lasting 45 min to 2 h.

We developed a semi-structured interview guide with questions and prompts informed by the International Labor Organization (ILO) dimensions and indicators of labor exploitation from the ILO's Special Action Programme to Combat Forced Labour (Special Action Programme to Combat Forced Labour SAP-FL, 2012), the Employment Precarious Index of the Poverty and Employment Precarity in Southern Ontario (PEPSO) longitudinal survey (Poverty and Employment Precarity in Southern Ontario, n.d) and the Employment Precariousness Scale (EPRES) (Vives et al., 2010). Our guide also incorporated insights from our knowledge-gathering phase and community partners, reflecting the farmworker context in the U.S. and Michigan (Iglesias-Ríos et al., 2022). The interview guide was pilot tested before application.

The interview guide included open-ended questions about workplace and living environment experiences, covering supervisor and coworker dynamics, injuries, water quality, chemical exposure, and worker protection laws and services. Discussions also addressed compliance, complaints, support from advocacy groups and agencies, and language and cultural barriers. For workers with families, topics included impacts on childcare and education.

Quantitative sociodemographic data were collected, double-entered, and analyzed with descriptive statistics to characterize the study sample. Data were collected from 35 farmworkers: 57% women and 43% men, with an average age of 42 (women: 40). Most (83%) were married or in a civil union (86% of women). All identified as Latino(a), primarily Spanish-speaking, mostly from Mexico. The sample included 49% migrant, 46% seasonal, and 5% H-2A farmworkers, working in various agricultural activities, including crop fields, packing plants, and greenhouses. Most (89%) had one to four children, with 95% of women reporting children. Yearly incomes were generally low ($22,984), with women reporting lower incomes ($19,403).

Qualitative data analysis

Interviews were audio-recorded and transcribed verbatim in the interview's original language by a professional transcription company. Transcripts were analyzed in the original language up to the dissemination stage, to avoid losing cultural richness during translation.

Data analysis and the development of the overall MFP codebook followed a multi-stage systematic process to ensure valid, reliable results that accurately represented the experiences of farmworkers (described in detail in Iglesias-Rios et al., 2023). Briefly, using a framework analysis approach (Smith & Firth, 2011; Strauss, 1987) and using NVivo 12.0 software, we: (a) read each transcript and field observation notes thoroughly; (b) documented the range of responses and emerging themes; (c) developed and sorted data into coding categories based on interview questions/probes; (d) documented responses for each category; (e) searched for meaningful patterns and conclusions; (f) reviewed transcripts to ensure completeness; and (g) summarized responses for each category. For validity, academic researchers independently identified themes, developed coding schemes, compared them, and held discussions to resolve discrepancies and reach consensus. Researchers and community partners then participated in one session to review the codebook along with one transcript. This process was crucial for understanding the different interpretations of community-academic team, discussing unexpected findings, identifying biases, and gaining a deeper understanding of the data.

The full codebook included 42 codes; however, the present analysis focuses on codes and sub-themes detailing the experiences of women farmworkers specifically. This analysis derived from two primary codes: "Gender-based discrimination and women's issues" and "Family." While women mainly shared their own experiences and those of other women, men discussed perceptions and knowledge regarding their spouses and other women in the workplace. Within these codes we identified five sub-themes: (1) gender-based discrimination and differential treatment, (2) sexual harassment, (3) reproductive health and women's health needs, (4) pregnancy, and (5) work-life balance. For the present analysis, MVC developed memos and summaries which were reviewed and discussed with AJH and LIR, each of whom independently reviewed transcripts and codes for validity purposes. Then, findings were discussed to reach consensus by the researcher team.

Author positionality

The aim of this analysis is to gain a deeper understanding on precarious employment and exploitative labor practices experienced by predominantly Mexican Latina women farmworkers in Michigan and the potential implications for health inequities among these workers. Therefore, author positionality is important to consider. AJH is a bilingual social epidemiologist with bicultural roots in Ecuador and the U.S. and has over two decades of extensive experience conducting mixed methods research and partnering with women and pregnant worker populations and minoritized and immigrant communities in both Latin America and the U.S. LIR identifies as a Mexican Latina and social epidemiologist with lived experience as an immigrant and extensive experience working with minoritized communities as a researcher, practitioner and member of these communities. MVC identifies as a Puerto Rican Latino mixed-methods researcher who has worked over 10 years with diverse communities and has close ties to Latin America. MSO is a White Irish American epidemiologist who has lived in Mexico and collaborated closely for 25 years with colleagues both in Mexico and the U.S. in research on environmental health disparities in Latino communities.

RESULTS

Qualitative analyses was based on 34 farmworker interviews, as one audio file was compromised. Results are presented below with deidentified participant quotes.

Gender-based discrimination and differential treatment

Based on their experience working in agriculture in Michigan, participants across all gender identities generally felt there was equal treatment in the physical work standards among women and men workers, and that they receive similar tasks, exert comparable physical labor, and are often subjected to the same productivity quotas, even during pregnancy. This perception of equality was largely due to families often working together. However, this perception was not universal; some participants reported that men typically had more physically strenuous tasks that required "strength" from the employers' perspective. Even so, some women felt they had similarly excessive physical demands from work, often experiencing frequent injuries. One woman seasonal worker noted: *"Once I got bruises all over my legs because I could not carry the boxes with the pumpkins. They were really heavy, I could not do it, and we walked a lot to bring them to where the tractor passed, and I got bruises everywhere."*

Additionally, some women participants reported that even though they experienced similar physically demanding labor as their male counterparts, they were paid less than men, earning up to $1 less per hour. A woman migrant worker shared: *"They know we need the job, but we are people, we are not animals to be overworked. Now, there is a difference, because, I say we work just like men. Or we work—you could say we work even more. Because*

we still arrive home and have to keep going. They arrive and, well, they just rest. And they, men get paid more and women get paid less." Her experience not only highlights the issue of wage inequity, but also speaks to women's unpaid labor in the home, a theme discussed in more depth later.

Nonetheless, this disparity was not widespread. Women workers, particularly those with partners, mostly reported earning the same hourly income as their spouses and largely felt respected in the workplace. However, some acknowledged that women in supervisory roles are less respected than men in similar positions. At least two women expressed disinterest in such roles due to the lack of respect, while others noted that supervisory roles, such as crew leaders, were reserved for men. One woman in a supervisory role noted that she was not considered a crew leader, as that position was reserved for men. Her job was to check the harvested apples for damage, which created tension between her and the workers. She explained, *"Last year was really stressful for me because you get to know all the people, and sometimes they're acquaintances or friends. And you keep thinking, 'Well, I accepted this job and I have to do it.'"*

Sexual harassment

Women frequently reported that inappropriate behavior from male workers—particularly of a sexually suggestive nature—was common at the agricultural worksites. Often, women workers expressed feeling objectified and harassed during work. One woman seasonal worker noted, *"It is infuriating because they look at you from head to toe, and there are times when they eat you up with their eyes."* Another woman migrant worker felt objectified and harassed but expressed that women workers feel they cannot raise complaints: *"When I've worked in the field, a woman simply dressed with boots, I mean, with shoes and all covered up, the men are just staring at them and the women, they feel uncomfortable, but also, they feel like, "If I say something, will they [referring to the supervisor] listen to me?"* This same worker mentioned that even if a worker complains, the supervisors often do not take complaints seriously, *"There are going to be times when a man is flirting, talking to a woman and the woman does not like it, and [she] has the right to say, 'I don't like it, please don't say anything else to me.' But if he still does not understand, well, then you tell the boss, but sometimes the supervisor does not take it seriously."*

In many cases, women indicated preference to avoid working with men—particularly single men—unless accompanied by their spouse to avoid uncomfortable situations and to feel more protected, as exemplified by a woman migrant worker who stated, *"Sometimes I feel bad, because I say to myself, if I were alone without my husband, I [would] not have anyone to defend me because sometimes a woman is not taken as seriously or they try to tell her something."*

To avoid sexual harassment, women often reported acting unfriendly or distant towards male workers, hoping to avoid any unwelcome approaches from them and noting that the woman is the one to blame if they "provoke" men by being friendly or talkative. A woman seasonal worker went on to say: *"As a woman, one should also avoid getting too close to the supervisor or crew leader, because if you get along well with him, he might insinuate something else. It also depends on how you command respect because if you let him harass you and you don't say anything or stop him, he will keep harassing you."*

Others mentioned that their employers, once informed of harassment, will inform male farmworkers that sexually inappropriate behavior will not be tolerated in the fields and do encourage male workers to respect women farmworkers. This culture of respect, as reported by participants, appears to be more encouraged in packing plants, where workers are often in close proximity either packing or washing the crops. One woman seasonal worker shared: *"Employers always say, 'Respect women. Do not go around saying bad words if there are women around,' because there are men who are really crude there. [In the warehouse] is when they call them out the most…because we are all together."* Most married or partnered women reported not experiencing sexual harassment themselves or feeling less threatened and more protected—attributing this to working with their husbands, other family members, or alongside other families, as noted by one woman seasonal worker: *"Yes, it [referring to sexual harassment] happens, but, well, I always go with my husband, I mean, I hardly ever have problems."*

Both men and women participants expressed that sexual harassment towards women workers was not commonly experienced or witnessed by them, as they primarily work with other families and believe married men are unlikely to engage in such behavior. However, our findings indicate that single women are particularly vulnerable to inappropriate comments and harassment. Several women acknowledged that single women face different experiences and have seen or heard from single friends or family members who were sexually harassed in agricultural settings. A few married women reported situations in which male farmworkers looked at them inappropriately and made them feel uncomfortable, but felt they were not approached because they were with their spouses. Interestingly, some of the male workers interviewed perceived sexual harassment as a minor issue, believing comments made towards women workers is just for fun or joking, a perspective exemplified by one male migrant worker, *"In my experience, I see that there is respect. At least where we are working, right? In those places, I don't see anyone, nor do I say anything myself. They joke around, play around, but the attitude isn't - I don't mean to say anything bad. Everything's fine."*

Several participants reported hearing about sexual assaults at agricultural worksites, although none of the

interviewed women experienced it themselves. Some women recounted stories of women they knew who were sexually assaulted and then blamed for being too friendly or "acting too liberally" with male workers or supervisors. Participants described a culture of silence, where most assaults go unreported due to fear of retaliation or vulnerability related to immigration status. Women fear being fired, blacklisted from other worksites, losing income, or being reported to immigration authorities. At least two women reported inappropriate touching by male coworkers but chose not to report it because "it only occurred once."

Reproductive health and women's health needs

Reproductive health and bladder health issues were key concerns highlighted by women farmworkers. In particular, participants reported inadequate access to restrooms and having to delay urination resulting in frequent urinary tract infections and other bladder-related problems. Women working hourly rates often reported only having short breaks insufficient to use the restroom for all their needs (such as to change sanitary pads) or that they were unable to go to the restroom altogether, as illustrated by a woman migrant worker, *"They gave us 10 min there. But they didn't count the time it took to go from here [the worksite] to the break room. They'd say, 'When you get to the break room, check the clock, you have 10 min to come back.'"*

Furthermore, women who worked under the piece rate system frequently forewent restroom visits, but acknowledged that, while they could theoretically go, they often decided against it because the piece rate system discourages breaks to maximize earnings. Others noted a fear of losing their jobs if they use the bathroom thus compromising their productivity.

Additionally, participants reported fields in which supervisors would track bathroom visits by workers by frequency and time spent. Workers who they believed went too often or spent too much time in the bathroom would receive warnings and could potentially get fired. One woman migrant worker shared that a woman coworker was reprimanded by a woman supervisor in charge of the women workers when they go to the bathroom: *"I went to the bathroom…and there was already a young woman worker there who wasn't feeling well, she said she was on her period, and didn't have any supplies. I told her 'if you want, I can bring you one.' I went outside to get a tampon for her, and as I was about to go back in, the supervisor entered and started yelling at her in the bathroom. She even banged on the door. So I went in, I said, 'here, I got this for you,' and then the girl came out crying. Later, the girl went home. It wasn't right because she wasn't feeling well, she was alone in the bathroom, she didn't have any protection with her… and [the supervisor yelled at her]."*

Moreover, participants shared that some fields would have sign-in sheets for each bathroom visit and would limit the number of visits to the restroom. These delays and the resulting reproductive problems were particularly concerning for women during their menstrual period, as they reportedly would spend hours before being able to change sanitary pads. One woman seasonal worker shared an experience of working while suffering debilitating menstrual cramps, *"Yes, I had to go [to the bathroom] because it's tough. And then the discomfort, cramps, that's how you feel, and no, honestly, I didn't accomplish much work that day because suddenly, well, I often have a lot of pain, I get a lot of cramps. And even if I take a Tylenol, I still feel uncomfortable, but yes, it's tough. It's tough because the bathrooms are far away."*

Women would consequently find alternatives such as using double pads or changing pads while working in the fields. Further complicating the issue, some of these women explained that the closest bathroom could be as much as several miles away from the fields they were working. Due to the distance, they would delay bathroom usage. One woman migrant worker discussed her experience, *"There were no bathrooms [nearby]. There were some, but at the warehouse far away. Like a mile and a half. I could not walk all the way there, so I held [urination] from morning until noon and from noon until the afternoon. I got a urinary tract infection, but it is only now that I think maybe that's why. But, at that moment when I got them, honestly, I did not pay attention to why. With [menstruation] I couldn't hold it. So, when we were working in one field and sometimes we would go to another one farther away, I would wait until the last minute and quickly change [referring to sanitary pad] in the field. I would wait for everyone to leave and then change [in the field]. That's what we all did, because nobody went to the bathroom."*

Women also reported that many of these bathrooms had unhygienic and inappropriate conditions. Regarding availability of water and soap in the bathrooms, one woman migrant worker noted, *"There is no soap. Nothing except pure water. They put soap and they have them clean when they know they're going to have an inspection."*

Several women wished that agricultural worksites would make sanitary pads and other essential products for women's reproductive health available at bathrooms but acknowledged that, in their experience, this has never been the case in agricultural worksites. Men and women farmworkers alike expressed that the number of bathrooms is insufficient for the large number of workers. As a result, male workers often use women's bathrooms, creating further accessibility issues for women, as illustrated by one woman migrant worker, *"There are men who don't respect that and simply go into whichever bathrooms, and they know very well that women [need bathrooms]. Let's say it's my turn [referring to menstruation] this week, and the next week it's someone else's turn, and we would like - well, I would like to have a bathroom*

just for women, not to say they have [sanitary napkins] or things like that, just the necessary, because you never know if you'll need it at work and you get stained. Then, after that, one would have to go home."

Another woman seasonal farmworker working in an asparagus packing plant explained the inaccessibility and general lack of bathroom facilities and the impact on her health: *"They make us work 12 h daily and do not give us permission to go to the bathroom. We enter work at 6am and are given one 15 min break at 9am. There are only four bathrooms [for 130 people]. They put locks on the men's bathrooms and every time they go to the bathroom, they have to sign a paper to indicate they're going to the bathroom to see how many times they go to the bathroom. And if they go two or three times to the bathroom, they fire them. So, many workers are fired because of that, going to the bathroom. Because they want to go to the bathroom and they're not given permission. So now what they did to us this year was that we had to line up to go to the bathroom. Imagine, I had to go to the hospital twice. The first year I went twice because I got sick from holding my urine, it blocked me up. And my body swelled up badly I had to go to the hospital because I had to hold it, because they didn't let me go to the bathroom. And this year was the same…everyone, I mean, everyone gets urinary tract infections, everyone. More so the women, because they don't let us go to the bathroom. They take advantage of us."*

Pregnancy

The topic of pregnancy among women farmworkers was salient in our interviews. Most reported working while pregnant, often discovering or becoming pregnant during the agricultural season and not disclosing their status to employers. Some shared that withholding their pregnancy status from their employer was necessary because pregnant women were often denied work or feared being fired or having hours reduced. This stems from a culture of hyper-productivity, where employers want only fully productive workers. Some participants believed employers hesitated to hire pregnant women due to concerns about complications and liability. A woman migrant worker shared her experience looking for work while pregnant, *"I think they simply said "there is no work for you" [referring to not being offered work when 7 months pregnant]. I did not know if I should complain or what to do. But, I think that they did not give me the work because I was pregnant."*

Nonetheless, participants reported that pregnant women working in the fields is common. One seasonal farmworker noted, *"I have seen pregnant women who do not stop working. They risk their pregnancy, for themselves and for the baby, right? Because they have to carry the baby bent over—[in this work] you are crouching."*

Many participants report working well into their pregnancy (or spouses working throughout pregnancy, in the case of male participants), with some working until their third trimester and some continuing to work up to several weeks before delivery. One seasonal worker described how she felt, working until 4 weeks before delivery, *"It [referring to her work] is tough, very tough. You feel your feet, they swell."*

Some farmworkers explained that, despite working well into their pregnancies, women do not always receive accommodations and are often expected to exert the same physical labor and abide by the same productivity quotas as nonpregnant workers—meaning that pregnant workers are still expected to crouch, make repetitive movements, have potential exposure to pesticides and other chemicals, work long hours, often standing most of the time, and, in some cases, climb ladders. One seasonal worker detailed her experience, *"They [employers] give you the same [tasks]. It's just that, well, I never told the boss, 'Oh, I'm pregnant, I can't do this.' Because in the second pregnancy supposedly they had said they weren't going to give work to pregnant women anymore. I had already worked with one [pregnancy] and they hadn't noticed, so I said, 'Oh, well, I won't tell them I'm pregnant now.' And since nothing had happened to me, well, no, I didn't tell them."*

Several workers described having had some accommodations during pregnancy, usually because of support from spouses/partners or family members who would advocate for them. Others said they did not receive accommodations, even when disclosing their pregnancy, as noted by one seasonal worker, *"Everything was the same, normal. Going up and down ladders, carrying stairs, painting, things like that. We were also exposed to fumigation."*

While workers likely experience chemical exposures during pregnancy at agricultural worksites, they often expressed belief that their pregnancies would not be impacted by these chemicals or that they had no other choice. The same seasonal worker quoted in the previous paragraph also spoke in depth about her experience with chemical exposures while pregnant: *"The tank [for washing pumpkins] is the water where there's chlorine. I told her [woman supervisor], 'I can't stand chlorine, not being pregnant, and much less now [while pregnant].' She says, 'don't worry, if you get a ticket'—because they gave us a ticket to see where we were assigned [referring to the work task]—'If you get a ticket for the tank, you return it and let's see what you get.' And then one day I arrived and found her in a bad mood and she [selected a ticket from] the box. I took the ticket and got the tank. I told her, 'Do I return it?' 'No,' she said, 'just exchange it with whoever wants to change with you because, well, too bad, it's your turn.' So I stayed, because that was what I was given. But it really upset me a lot—I was already 7 months pregnant. I worked until November and my girl was born [the first week of] December."*

Moreover, while women acknowledged that working late into their pregnancy could be a risk to their child's health, they felt that the greater priority was to minimize financial risk and continue working to sustain their family. One migrant worker shared her experience of having to work because her husband had been deported: *"When they deported my husband I was 5 months pregnant and working. So I worked until my seventh month of pregnancy."*

In a few cases, women reported taking a break from work during the latter half of their pregnancy since they felt able to depend on their spouse's income alone. Finally, during pregnancy, women workers in the study reported attending their prenatal care appointments and a few were afforded some flexibility from employers who were aware of their pregnancy status. Nonetheless, collectively, access to prenatal care seemed to be a concern as none of the pregnant women had paid time off to lessen the financial impact of attending these clinical appointments.

Work-Life Balance

Participants universally recognized that agriculture is an occupation that does not allow for leisure, sufficient time for rest, quality time with their families, and overall work-life balance. However, women in agriculture seem to face additional challenges due to having to balance agricultural work with being the primary or only caretakers for their family.

Generally, women reported needing to wake up early —sometimes 2 to 3 h before work—to prepare meals for their family, and then needing to cook dinner and clean after the workday. When collectively considering familial responsibilities and agricultural work, women workers could be working from 4:00 am to 10:00 pm each day with few to no days off. The pressure of balancing these responsibilities appears to have mental health implications, as women frequently reported feeling stress, anxiety, and immense pressure. One migrant worker reported feeling overwhelmed with the pressures of working on demand (by her employer), working long hours, and the potential implications of that on her children: *"There are times when we are at home, and they [employer] say, 'Today you are not going to work.' Like, on a Saturday, let's say. And then the next morning, the boss shows up at your door, 'Hey, I want you to go do this job.' And if I have plans to take my kids somewhere or I am going to spend a little time with them, I can't. I have to fulfill my job. I don't have space for my personal life, not even for my family. I have to work. Sometimes I even feel bad with my children. Because I think, they're going to say that I don't take enough time for them. Because I have to work. I don't have any other choice. You feel pressured. A lot of pressure, but well, what else can you do?"*

Childcare emerged as an important challenge for women. Several women felt unable to spend sufficient time taking care of their children, taking them to school, helping them with homework, and participating in extracurricular activities. Women noted that they often rely on family members, friends, and their oldest child to watch over their children while they work. In one case, a migrant worker relied on the employer's wife who would charge workers to watch their kids during the workday—a situation that left her feeling uncomfortable and worried. Further, single mothers faced considerable complications to care for their children, with a substantial financial strain if they had to pay for childcare with an insufficient income. One woman seasonal worker noted, *"Well, if he [referring to having a partner] works, there is no problem, but when you are a single mother, well, one might struggle, I imagine."*

Further sources of stress stem from employers and supervisors not allowing women workers the flexibility to adequately coordinate childcare. For example, some women reported facing conflicts at work because they requested to leave work earlier to get their children from school or childcare, and employers reportedly expressed displeasure for them needing to leave fields earlier than workers without children. A seasonal farmworker described how she would be asked to stay late, even though she had children at home needing her care: *"There was a crew leader who would get angry. He would say, 'You leave very early and the boss told me that you need to be here from when it starts until it ends.' I told him, 'We didn't make a contract [formal work contract]. I have my kids at home and I can't stay longer and they need me there too.' That's why I left because he [crew leader] didn't help people and wanted to do all the things that the employer asked him to do. I mean, forcing us to work almost until it gets dark because according to them [employer], the fruit will go bad. But my kids—no. That's why I left."*

Generally, childcare logistics and other concerns with child welfare appear as a primary source of stress for women farmworkers. Several reported that long work days compounded with domestic responsibilities limit quality time with their children and expressed concern about the potential consequences. One seasonal worker discussed how she would like more time with her children, but faces challenges due to her work schedule, *"One would like to be with them all day, but well, it's not possible. Sometimes, like on Sundays is when we take advantage of being with them all day, even if one is tired, right? One has to split oneself, so to speak. That day is for the children, because there isn't another day, so as long as it doesn't rain and there's no work, we're with them, but when there's work, we struggle with [balancing work and time with children]."*

Our findings suggest that domestic responsibilities often fall on women workers and that their spouses or partners do not necessarily support them in day-to-day

tasks. As a result, women often reported that it can be difficult and tiring to balance work and family needs. Additionally, some male workers acknowledged that their wives usually woke up earlier than them to prepare food for the day and prepare the children for school, while they (the male worker) had few or no domestic responsibilities. A few women reported that their husbands helped with domestic tasks or other responsibilities; however, this was not the case for the majority of participants.

DISCUSSION

Our findings on the aspects of precarious employment experienced by women farmworkers in Michigan corroborate and further contribute to the body of evidence on the unique stressors faced by women farmworkers, including workplace violence, sexual harassment, unfair wages, job instability, unequal treatment, and hazardous working conditions such as toxic exposures and heat, exacerbated by ethnic and racial discrimination, and particularly during pregnancy.

Theoretical implications

In this study, women largely performed the same tasks as men but faced organizational disparities, including limited bathroom access, insufficient support for pregnancy/reproductive concerns, and wage inequities. Limited access to clean bathrooms was a major issue, potentially causing urinary tract infections and poor sanitation during menstruation. Participants discussed specific challenges related to working while pregnant such as inadequate accommodations, physical strain, and chemical exposures without special considerations by employers. These conditions led to fears of job loss or reduced hours and posed significant risks to their health.

Consistent with the broader literature (Block, 2014; Kim et al., 2016; Meng, 2012; Murphy et al., 2015; Prado et al., 2021), women farmworkers in this study reported either experiencing or witnessing inappropriate and sexual harassing behavior from male coworkers, leading to discomfort and avoidance strategies as well as fear and silence. Our findings highlight the pervasive and sexist idea that women "provoke" sexual harassment by the clothes they wear or how they interact with male coworkers, a sentiment exacerbated by cultural beliefs regarding how Latina women should interact or behave around their male counterparts (Prado et al., 2021). Reported instances of sexual harassment and abuse emerged as more significantly impacting single women who were deemed more vulnerable, whereas working alongside partners/spouses or working with family was protective against sexual harassment and abuse. Our study illuminated differences in perceptions of this issue between men and women workers, with men more often noting absence of harassment or that it is just "in fun." This finding underscores the need to examine this issue from a gendered lens, since farm supervisors, crew leaders, contractors, and owners are predominantly men, potentially impeding efforts to enact industry-wide reforms to prevent sexual harassment and abuse.

Women farmworkers in our study found it difficult to balance their agricultural work responsibilities with familial and caregiving duties leading to stress and limited time for rest or leisure activities, a common issue for women workers broadly speaking (Ferrant et al., 2014). This issue was particularly salient for women workers in our study, given the pervasive cultural lens of "machismo" and presumed gender roles, where women, regardless of whether they work outside of the home or not, are expected to handle domestic and caregiving responsibilities. Some men in our study acknowledged the additional burden placed on their working spouses and working women in general because of how gender roles function in their culture.

Childcare logistics further compounded these challenges, often without adequate support from spouses or employers. Access to quality education and developmental opportunities is crucial to break intergenerational cycles of poverty (Aizer & Currie, 2014; Cheng et al., 2016). For children of farmworkers, achieving quality social connections and quality education is challenging due to their families' working and living conditions, particularly for children of migrant farmworkers who are often constantly moving across multiple states and for those children who may be non-English speaking. Supporting access to quality education and opportunities for social and economic development for farmworkers and their children is a fundamental human right with far-reaching implications for communities and society.

A consistent finding of all the results, but especially regarding workplace sexual harassment, and work-life balance and childcare, was a heightened impact of these experiences on single women farmworkers, particularly those with children. Thus, our findings underscore an important and critical focus for interventions and policy development for single women farmworkers.

Practical implications

Our findings highlight important areas that can inform tailored policies, interventions, and programs addressing the unique challenges faced by women farmworkers in Michigan. These workers face not only gender-specific challenges but also those related to race, ethnicity, class, language, and culture, all affecting their social, emotional, and physical well-being. Policies and programs must recognize the intersectionality of these challenges, where oppression and discrimination occur on multiple

levels and in various forms (Crenshaw, 1991). This concept, rooted in antiracist feminist theory, argues that women's oppression, here, women farmworkers, cannot be understood solely through gender but must consider the interconnected systems of inequity they face (Carastathis, 2014; Graf et al., 2022).

Our findings highlight the health impact of the precarity of farm work for pregnant workers and those with children, particularly those who are single. To protect pregnant farmworkers as well as mothers and single mothers, it is imperative to enact clear regulations safeguarding the rights of these workers. While specific employment-based policies targeting pregnant farmworkers are not available in Michigan specifically, federal labor and health regulations apply to protect pregnant workers in various industries, including agriculture. For example, the Pregnancy Discrimination Act (PDA) and the Family and Medical Leave Act (FMLA), which prohibit discrimination based on pregnancy, childbirth, or related medical conditions in employment, and allow eligible employees to take up to 12 weeks of unpaid, job-protected leave for pregnancy-related reasons. Further, the Occupational Safety and Health Administration (OSHA) regulations set standards to protect workers against hazardous working conditions. The recently-enacted Pregnant Workers Fairness Act (PWFA) requires employers to provide "reasonable accommodations" for pregnancy, childbirth, or related medical conditions, particularly for low-wage workers and workers of color, *unless the accommodation causes the employer an "undue hardship"* (US Equal Employment Opportunity Commission, n.d). It is unclear how any of these policies translate to women migrant and seasonal farmworkers, in particular, and if they are benefiting from these policies (Beyond Pesticides, 2023). Further, it is unclear how *or if* these policies, when enforced, address the complex layers of racial, ethnic, class, gender, language and cultural oppression and inequity faced by these women workers.

Developing and implementing prevention strategies that are effective and empowering for women farmworkers, acknowledging and addressing the systems of structural and social oppression faced by these workers, is crucial (Buckingham et al., 2021). This may include providing access to anonymous third-party workplace reporting mechanisms to ensure the confidentiality and protection of farmworkers. This is especially important for women workers who may not feel comfortable disclosing or reporting abuse they experience, particularly sexual harassment and assault by coworkers and supervisors or employers, due to fear of retaliation, losing their jobs, or deportation, as our findings show. Training supervisors, such as crew leaders, to identify and report workplace hazards and harassment, particularly for women workers, could be another strategy. However, this approach may be less effective, as it relies heavily on crew leaders' understanding of the women workers' workplace context and experiences. Typically, crew leaders are men and from the same Latino culture, where behaviors considered harassment by women workers may be viewed as "joking" by the men, as our findings highlight. Empowering more women farmworkers and promoting their advancement into crew leader or other supervisory roles could help foster gender equality, address systemic inequities, and create a safer environment for women farmworkers to express concerns. While some studies highlight gender disparities and lack of women's representation in leadership in farming (Griffeth et al., 2018; Schmidt et al., 2021), more research is needed on women farmworkers in supervisory roles. Policies promoting equal opportunities for leadership positions could empower women and bring valuable perspectives to farm workplaces. Additionally, increasing the number of women in higher leadership roles could support female field supervisors, who may feel pressured to conform to the strict leadership standards set by their male counterparts, as our findings demonstrate. Importantly, community-based programs like California's Lideres Campesinas (Líderes Campesinas, n.d) could be adopted in Michigan to address these areas of prevention by promoting farmworker rights, labor organizing, and effective leadership through a gendered lens, a focus currently missing in the state.

Finally, our findings highlight the need for an updated enumeration study to assess the needs and experiences of women farmworkers in Michigan. Such a study would provide insights into their emerging needs, aiding research, targeted policies, and sustainable interventions to improve their overall well-being and empowerment. Community partners emphasize that lack of data is a significant challenge for stakeholders and policymakers. An enumeration study could be a crucial first step towards implementing effective, sustainable community-driven efforts to enhance the working and living conditions of women farmworkers in Michigan.

Our study has several limitations. The original study was not designed to focus specifically on women farmworkers, so interview prompts did not specifically address their work context. Themes presented in this paper emerged from our overall analysis using a grounded theoretical approach. Additionally, most women in this study were partnered or married; thus, while our findings highlight important issues for single women farmworkers, they may not fully represent the lived experiences of single women farmworkers.

Our study has several key strengths. To our knowledge, it is the first in Michigan to assess precarious employment focusing on the unique challenges faced by women farmworkers. By incorporating perspectives from both men and women, we gained a comprehensive understanding of the working and social context for women farmworkers. Equitable collaborations with community partners were crucial, enhancing both study implementation and our understanding of the social and structural

determinants of precarious employment for women farmworkers. Using our participatory approach, we will present findings to community partners and other stakeholders, fostering ongoing discussions on the implications of these findings and the next steps needed to address the challenges faced by women farmworkers in Michigan.

CONCLUSIONS

Women agricultural workers are essential in Michigan and nationwide. Their equitable and decent employment is crucial for improving agency, lifting households out of poverty, and enhancing their health and education, which benefits their children and the broader community (Morrison et al., 2007). However, research and policy development have largely ignored the lived experiences of U.S. women farmworkers and the systems of oppression they face, promoting feelings of powerlessness and invisibility. To address this, efforts should focus on providing women with equitable and secure employment opportunities in agriculture, free from exploitation and harm, ensuring they enjoy the same benefits and advantages of work as others in the broader workforce.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

ETHICS STATEMENT

The study was approved by the University of Michigan Health Sciences and Behavioral Sciences Institutional Review Board (HUM00165344).

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REFERENCES

Aizer, A., & Currie, J. (2014). The intergenerational transmission of inequality: Maternal disadvantage and health at birth. *Science*, *344*(6186), 856–861. https://doi.org/10.1126/science.1251872

Arcury, T. A., Sandberg, J. C., Talton, J. W., Laurienti, P. J., Daniel, S. S., & Quandt, S. A. (2018). Mental health among latina farmworkers and other employed latinas in north carolina. *Journal of Rural Mental Health*, *42*(2), 89–101. https://doi.org/10.1037/rmh0000091

Arcury, T. A., Smith, S. A., Talton, J. W., & Quandt, S. A. (2022). The abysmal organization of work and work safety culture experienced by North Carolina Latinx women in farmworker families. *International journal of environmental research and public health*, *19*(8), 4516. https://doi.org/10.3390/ijerph19084516

Arcury, T. A., Trejo, G., Suerken, C. K., Grzywacz, J. G., Ip, E. H., & Quandt, S. A. (2015). Work and health among Latina mothers in farmworker families. *Journal of Occupational & Environmental Medicine*, *57*(3), 292–299. https://doi.org/10.1097/JOM.0000000000000351

Beyond Pesticides. (2023). Protection of pregnant farmworkers under civil rights protection; will there be enforcement. *Beyond Pesticides Daily News Blog*. https://beyondpesticides.org/dailynewsblog/2023/12/protection-of-pregnant-farmworkers-under-civil-rights-protection-will-there-be-enforcement/.

Block, S. M. (2014). Invisible survivors: Female farmworkers in the United States and the systematic failure to report workplace harassment and abuse. *Texas Journal of Women, Gender, and the Law*, *24*, 127.

Buckingham, S. L., Langhout, R. D., Rusch, D., Mehta, T., Rubén Chávez, N., Ferreira van Leer, K., Oberoi, A., Indart, M., Paloma, V., King, V. E., & Olson, B. (2021). The roles of settings in supporting immigrants' resistance to injustice and oppression: A policy position statement by the society for community research and action: A policy statement by the society for community research and action: division 27 of the American psychological association. *American Journal of Community Psychology*, *68*(3–4), 269–291. https://doi.org/10.1002/ajcp.12515.

Carastathis, A. (2014). The concept of intersectionality in feminist theory. *Philosophy Compass*, *9*(5), 304–314. https://doi.org/10.1111/phc3.12129.

Castañeda, S. F., Rosenbaum, R. P., Holscher, J. T., Madanat, H., & Talavera, G. A. (2015). Cardiovascular disease risk factors among Latino migrant and seasonal farmworkers. *Journal of agromedicine*, *20*(2), 95–104. https://doi.org/10.1080/1059924X.2015.1010060.

Cheng, T. L., Johnson, S. B., & Goodman, E. (2016). Breaking the intergenerational cycle of disadvantage: The three generation approach. *Pediatrics*, *137*(6), e20152467. https://doi.org/10.1542/peds.2015-2467.

Crenshaw, K. (1991). Mapping the margins: intersectionality, identity politics, and violence against women of color. *Stanford Law Review*, *43*(6), 1241–1299. https://doi.org/10.2307/1229039.

Curl, C. L., Meierotto, L., Castellano, R., Spivak, M. R., & Kannan, K. (2021). Measurement of urinary pesticide biomarkers among Latina farmworkers in southwestern Idaho. *Journal of Exposure Science & Environmental Epidemiology*, *31*(3), 538–548. https://doi.org/10.1038/s41370-020-00285-2.

Curl, C. L., Meierotto, L., & Som Castellano, R. L. (2020). Understanding challenges to well being among Latina farmworkers in rural Idaho using in an interdisciplinary, mixed-methods approach. *International Journal of Environmental Research and Public Health*, *18*(1), 169. https://doi.org/10.3390/ijerph18010169.

Dixon, R. (2021). From excluded to essential: Tracing the racist exclusion of farmworkers, domestic workers, and tipped workers from the Fair Labor Standards Act. Testimony of Rebecca Dixon. Hearing before the US House of Representatives Education and Labor Committee, Workforce Protections Subcommittee, 3.

Ferrant, G., Pesando, L. M., & Nowacka, K. (2014). *Unpaid care work: The missing link in the analysis of gender gaps in labour outcomes* (p. 12). OECD Development Centre.

Flocks, J., Kelley, M., Economos, J., & McCauley, L. (2012). Female farmworkers' perceptions of pesticide exposure and pregnancy health. *Journal of Immigrant and Minority Health*, *14*(4), 626–632. https://doi.org/10.1007/s10903-011-9554-6.

Flocks, J., Vi Thien Mac, V., Runkle, J., Tovar-Aguilar, J. A., Economos, J., & McCauley, L. A. (2013). Female farmworkers' perceptions of heat-related illness and pregnancy health. *Journal of Agromedicine*, *18*(4), 350–358. https://doi.org/10.1080/1059924X.2013.826607.

Ford, C. L., & Airhihenbuwa, C. O. (2010). Critical race theory, race equity, and public health: Toward antiracism praxis. *American Journal of Public Health*, *100*(S1), S30–S35.

Galarneau, C. (2013). Farm labor, reproductive justice: Migrant women farmworkers in the US. *Health and Human Rights*, *15*(1), 144–160.

Gold, A., Fung, W., Gabbard, S., & Carroll, D. (2022). *Findings from the National Agricultural Workers Survey (NAWS) 2019-2020: A Demographic and Employment Profile of United States Farmworkers (Research Report No. 16)*. U.S. Department of Labor.

Graf, M. C., McMahon Bullis, M., Lopez, A. A., Snethen, J., Silvestre, E., & Mkandawire Valhmu, L. (2024). A qualitative analysis of Latina migrant farmworkers' perception of mental health: Voices from Wisconsin. *Journal of Transcultural Nursing*, *35*(1), 11–20. https://doi.org/10.1177/10436596231207490.

Graf, M. C., Ruiz, A., Luebke, J., Olukotun, O., Kendrick, A., Shaw, L., Lopez, A. A., Snethen, J., Silvestre, E., & Mkandawire-Valhmu, L. (2022). Application of postcolonial feminist theory, Chicana feminist thought, and black feminist thought in analyzing the mental health needs of Latina migrant farmworkers: A shared legacy. *Advances in Nursing Science*, *45*(1), 38–52. https://doi.org/10.1097/ANS.0000000000000399.

Griffeth, L., Tiller, L., Jordan, J., & Sapp, R. (2018). Women leaders in agriculture: Data driven recommendations for action and perspectives on furthering the conversation. *Journal of Extension*, *56*(7), 21. https://doi.org/10.34068/joe.56.07.21.

Holmes, S. (2013). *Fresh fruit, broken bodies: Migrant farmworkers in the United States* (27). Univ of California Press.

Iglesias-Rios, L., Kort, A., & Handal, A. J. (2024). Precarious work and housing for Michigan farmworkers during the COVID-19 pandemic and beyond. *Journal of agromedicine*, *29*(3), 432–450. https://doi.org/10.1080/1059924X.2024.2341803.

Iglesias-Ríos, L., Marin, D., Moberg, K., & Handal, A. J. (2022). The Michigan Farmworker Project: Development and implementation of a collaborative community-based research project assessing precarious employment and labor exploitation. *Journal of Community Engagement and Scholarship*, *15*(1), 1–16. https://doi.org/10.54656/jces.v15i1.466.

Iglesias-Rios, L., Valentín-Cortés, M., Fleming, P. J., O'Neill, M. S., & Handal, A. J. (2023). The Michigan Farmworker Project: A community-based participatory approach to research on precarious employment and labor exploitation of farmworkers. *Labor Studies Journal*, *48*(4), 336–362. https://doi.org/10.1177/0160449X231196227.

Kelley, M. A., Flocks, J. D., Economos, J., & McCauley, L. A. (2013). Female farmworkers' health during pregnancy: Health care providers' perspectives. *Workplace Health & Safety*, *61*(7), 308–313. https://doi.org/10.1177/216507991306100706.

Kelley, R. I., Ivey, S. L., Silver, K., & Holmes, S. M. (2020). "If we don't produce, bring another:" Work organization and tomato worker health. *Journal of Agromedicine*, *25*(3), 286–301. https://doi.org/10.1080/1059924X.2020.1725698.

Kim, N. J.-E., Vásquez, V. B., Torres, E., Nicola, R. M. B., & Karr, C. (2016). Breaking the silence: Sexual harassment of Mexican women farmworkers. *Journal of Agromedicine*, *21*(2), 154–162. https://doi.org/10.1080/1059924X.2016.1143903.

Larson, A. C. (2013). Migrant and seasonal farmworker enumeration profiles study. *Lansing, MI: State of Michigan Interagency Migrant Services Committee* 1–50. https://farmworkerlaw.org/sites/default/files/2018-10/numbers2013.pdf

Lawrence, S., & Hylton, K. (2022). Critical race theory, methodology, and semiotics: The analytical utility of a "race" conscious approach for visual qualitative research. *Cultural Studies ↔ Critical Methodologies*, *22*(3), 255–265. https://doi.org/10.1177/15327086221081829.

Líderes Campesinas. (n.d.). *Lideres Campesinas*. https://liderescampesinas.org/.

Meng, G. (2012). Cultivating fear. *Human Rights Watch*. https://www.hrw.org/report/2012/05/15/cultivating-fear/vulnerability-immigrant-farmworkers-us-sexual-violence-and.

Michigan Department of Agriculture and Rural Development. (2019). *Michigan Agriculture Facts & Figures*. Michigan Department of Agriculture and Rural Development. https://www.michigan.gov/agdevelopment.

Michigan Department of Civil Rights. (2010). *A Report on the Conditions of Migrant and Seasonal Farmworkers in Michigan*. Michigan Department of Civil Rights. https://farmworkerlaw.org/sites/default/files/2018-10/civilrights2010.pdf.

Morrison, A., Raju, D., & Sinha, N. (2007). Gender equality, poverty and economic growth. *Policy Research Working Paper* No. 4349.

Murphy, J., Samples, J., Morales, M., & Shadbeh, N. (2015). "They talk like that, but we keep working": Sexual harassment and sexual assault experiences among Mexican indigenous farmworker women in Oregon. *Journal of Immigrant and Minority Health*, *17*(6), 1834–1839. https://doi.org/10.1007/s10903-014-9992-z.

Poverty and Employment Precarity in Southern Ontario. (n.d.). Retrieved September 20, 2022, from https://pepso.ca/tools/.

Prado, K., Rivera-Heredia, M. E., Martínez-Servín, L. G., Guzmán-Carillo, K.-Y., & McCurdy, S. (2021). "It's wrong because it could be my sister, wife, or mother": Workplace sexual harassment among men and women farmworkers in USA and Mexico. *Journal of Agromedicine*, *26*(2), 220–230. https://doi.org/10.1080/1059924X.2020.1825245.

Quandt, S. A., Kinzer, H. T., Trejo, G., Mora, D. C., & Sandberg, J. C. (2020). The health of women farmworkers and women in farmworker families in the Eastern United States. In T. A. Arcury, & S. A. Quandt Eds, *Latinx Farmworkers in the Eastern United States: Health, Safety, and Justice* (pp. 133–161). Springer International Publishing. https://doi.org/10.1007/978-3-03036643-8_6.

Quandt, S. A., Mora, D. C., Seering, T. L., Chen, H., Arcury, T. A., & Laurienti, P. J. (2020). Using life history calendars to estimate in utero and early life pesticide exposure of Latinx children in farmworker families. *International Journal of Environmental Research and Public Health*, *17*(10), 3478. https://doi.org/10.3390/ijerph17103478.

Rodriguez, G., Trejo, G., Schiemann, E., Quandt, S. A., Daniel, S. S., Sandberg, J. C., & Arcury, T. A. (2016). Latina workers in North Carolina: Work organization, domestic responsibilities, health, and family life. *Journal of Immigrant and Minority Health*, *18*(3), 687–696. https://doi.org/10.1007/s10903-015-0314-x.

Runkle, J., Flocks, J., Economos, J., Tovar-Aguilar, J., & McCauley, L. (2014). Occupational risks and pregnancy and infant health outcomes in Florida farmworkers. *International Journal of Environmental Research and Public Health*, *11*(8), 7820–7840. https://doi.org/10.3390/ijerph110807820.

Runkle, J. D., Tovar-Aguilar, J. A., Economos, E., Flocks, J., Williams, B., Muniz, J. F., Semple, M., & McCauley, L. (2013). Pesticide risk perception and biomarkers of exposure in Florida female farmworkers. *Journal of Occupational & Environmental Medicine*, *55*(11), 1286–1292. https://doi.org/10.1097/JOM.0b013e3182973396.

Sbicca, J., Minkoff-Zern, L.-A., & Coopwood, S. (2020). "Because they are connected": Linking structural inequalities in farmworker organizing. *Human Geography*, *13*(3), 263–276.

Schmidt, C., Goetz, S. J., & Tian, Z. (2021). Female farmers in the United States: Research needs and policy questions. *Food Policy*, *101*, 102039. https://doi.org/10.1016/j.foodpol.2021.102039.

Smith, J., & Firth, J. (2011). Qualitative data analysis: The framework approach. *Nurse Researcher*, *18*(2), 52–62. https://doi.org/10.7748/nr2011.01.18.2.52.c8284.

Special Action Programme to Combat Forced Labour (SAP-FL). (2012). *ILO indicators of Forced Labour* [Brochure]. Special Action Programme to Combat Forced Labour (SAP-FL). http://www.ilo.org/global/topics/forcedlabour/publications/WCMS_203832/lang--en/index.html.

Strauss, A. L. (1987). *Qualitative analysis for social scientists*. Cambridge University Press.

US Department of Labor. (2020). *H-2A: Temporary Agricultural Employment of Foreign Workers*. US Department of Labor. https://www.dol.gov/agencies/whd/agriculture/h2a.

US Equal Employment Opportunity Commission (n.d.) *What you should know about the Pregnant Workers Fairness Act*. US EEOC. https://www.eeoc.gov/wysk/what-you-should-know-about-pregnant-workers-fairness-act.

USDA ERS - Farm Labor. (2022). https://www.ers.usda.gov/topics/farm-economy/farm-labor/#size.

Vives, A., Amable, M., Ferrer, M., Moncada, S., Llorens, C., Muntaner, C., Benavides, F. G., & Benach, J. (2010). The employment precariousness scale (EPRES): Psychometric properties of a new tool for epidemiological studies among waged and salaried workers. *Occupational and Environmental Medicine*, *67*(8), 548–555. https://doi.org/10.1136/oem.2009.048967.

Wallerstein, N., Duran, B., Oetzel, J. G., & Minkler, M. (2017). *Community-based participatory research for health: Advancing social and health equity*. John Wiley & Sons.

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