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"We Force Ourselves": Productivity, Workplace Culture, and HRI Prevention in Florida's Citrus Groves

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Abstract: Efforts to disseminate heat-related illness (HRI) prevention practices among Latino farmworkers represent a critical occupational safety strategy in Florida. Targeted initiatives, however, require understanding the workplace dynamics that guide agricultural safety behaviors. This article reports focus group data collected in 2018 from citrus harvesters in central Florida and provides an in-depth perspective on the workplace culture that shapes their implementation of heat safety measures. Results indicate that citrus harvesters regularly suffered HRI symptoms yet rarely reported or sought treatment for their injuries. In some cases, the risks of developing HRI were accepted as a facet of agricultural work and harvesters blamed themselves for their illnesses. Implementation of safety practices hinged less on knowledge than on the availability of water and rest breaks and the quality of employer-employee relations and exchanges. Thus, trust was a determinant of workers' attitudes toward management that contributed to a harvesting operation's safety climate. Results highlight the difficulties of putting into practice measures that are not rewarded by the workplace culture and suggest that the extent to which intervention strategies promote not only individual safety behaviors but organizational accountability may predict their effectiveness.

Keywords: agricultural safety; farmworker; heat-related illness (HRI); injury prevention; Latino; workplace culture

1. Introduction

Although heat-related illnesses (HRI) and deaths are preventable [1], Latino farmworkers in the U.S. face situational, economic, and social constraints that compromise their access to safety information and implementation of prevention practices [2–5]. Improvements over the past decade in the quality and availability of educational materials and intervention strategies to prevent HRI have had limited success in addressing the contextual factors that inhibit protective behaviors [3,6–11]. Florida farmworkers, the majority of whom are originally from Mexico, consistently experience some of the highest rates of occupational heat-related deaths in the country [4,12]. There is evidence that they continue to lack the security and ability needed to adopt HRI safety measures [7,11,13]. This article examines the decisions Florida citrus harvesters make about their safety and the work context that drives them. It reports focus group research aimed at identifying risk perceptions of HRI, benefits and barriers to prevention, and opportunities for broader implementation of heat safety precautions. The qualitative data captures workplace norms, safety attitudes, and personal experiences

related to occupational heat exposure. The findings provide insight into the mechanisms underlying implementation of injury prevention behaviors among Latino farmworkers and point to strategies for enhanced promotion of workplace safety.

2. Conceptual Framework

This study draws on a structural vulnerability framework and work organization model to highlight the pathways and relationships that encompass farmworkers' choices. The concept of structural vulnerability posits that vulnerable populations do not have unfettered agency [14]. In agriculture, patterns of workplace culture, the organization of farm work, and the structure of public policies present opportunities and constraints that farmworkers must navigate and negotiate. Their decision-making power and access to resources is limited by their positionality within these overlapping social and political structures [3]. The work organization model, like the structural vulnerability framework, is a multilevel concept that links workplace characteristics, including climate and culture, to broader factors such as organizational management structures and national economic forces. The model was developed in response to changing organizational practices, such as increased reliance on contract labor, brought on by intensified price and product competition at the international level [15]. It provides a systemic viewpoint of the occupational health and safety challenges workers face. The concepts have been used to analyze injury risk factors in agricultural settings and draw attention to linkages between group behaviors and complex power relations [3,14,16–18].

Adherence to HRI prevention guidelines involves the cooperation of both employers and employees. U.S. Department of Labor Occupational Safety and Health Administration (OSHA) regulations require that employers provide workplaces free of known safety hazards, including extreme heat [19]. Agricultural employers must also provide employees who perform hand-labor operations in the field for a period of 3 h or more with access to toilets, potable drinking water, and hand-washing facilities [20]. Heat safety procedures for outdoor workers, developed by the California Division of Occupational Safety and Health and disseminated nationally, include drinking water every 15 min, resting in the shade, wearing hats and light-colored clothes, and monitoring each other [21]. To date, however, only three states have worker regulations regarding heat: California, Washington, and Minnesota [22]. In most states, providing access to shade and practicing high heat and emergency response procedures are not required by law. Florida law does not require provision of either paid or unpaid rest breaks. Thus, farm management and safety procedures can be contradictory, resulting in situational barriers that inhibit workers from adequately protecting themselves from HRI.

Economic factors, including payment regimens, also affect the adoption of heat safety practices. Piece-rate payment, a system of compensation in which workers are paid per output rather than per hour, has been associated with increased risk of agricultural injury [18,23]. Workers paid a fixed rate per bin of fruits or vegetables picked have a financial incentive to boost their productivity with faster, less careful work and to avoid interrupting it with water and restroom breaks [23–26]. The resulting pace of agricultural field work is particularly relevant to heat safety because not only environmental factors, such as ambient temperature, relative humidity, air movement, clothing insulation, and sun exposure, but also exertional heat generation, significantly influence heat stress [4,27,28]. The performance of physically demanding tasks in hot work environments increases the potential for developing HRI [4,29].

Sociodemographic variables, such as ethnicity, language, literacy, wages, access to healthcare, and regulatory protections influence the ability of farmworkers to navigate hazardous labor conditions [30–32]. In their analysis of occupational HRI fatalities in the U.S. from 2000 to 2010 using the Census of Fatal Occupational Injuries (CFOI) database, Gubernot et al. [12] found that Hispanics were more likely to die of work-related heat exposure than non-Hispanics, even after stratifying ethnicity for the agriculture industry. Focus group and survey research have shown that language and literacy barriers limit both delivery and acquisition of safety information [33–37]. Justen et al. [34] found that Spanish-speaking employees in Iowa's horticultural industry were unable to express what they needed and depended on Latino supervisors for training. An earlier investigation [33]

revealed that few of their managers provided posters, videos, or technical literature in Spanish to Latino employees. Several studies on HRI have shown that research participants had never received formal training on heat hazards [7,9,11].

The situational, economic, and social opportunities and constraints that shape farmworkers' implementation of HRI prevention practices are articulated through workplace relations. Two earlier studies of occupational risk among agricultural workers demonstrated the relationship between safety practices and issues of control and power. Salazar et al. [26] illustrated that poor employer-employee relations contributed to workplace injuries among Washington orchard workers because they had to choose between expressing concerns about dangerous work conditions such as lack of water, faulty equipment, a hurried work pace, and extreme heat or cold and potentially losing their jobs. Austin et al. [38] found that regardless of knowledge, the ability of farmworkers in North Carolina to engage in self-protective behaviors depended in part on their capability to communicate with their employer without fear of retaliation. More recently, Duke [31] similarly determined that the vulnerability of shade tobacco workers in Connecticut who depended on being invited back after the completion of their H-2A contracts decreased their likelihood of advocating for safer working conditions. H-2A workers are nonimmigrant agricultural laborers hired under the H-2A Program, which allows U.S. employers who anticipate a shortage of domestic workers to bring foreign nationals to the United States to fill temporary agricultural jobs under certain circumstances (8 U.S.C. §1188). Horton [3] has demonstrated that the prevailing structure of agricultural labor management, in which growers increasingly delegate hiring to third party labor contractors, affords a level of insulation that limits accountability for health and safety standards. Labor contractors are charged with recruiting and managing workers, often for specific tasks such as harvesting [39]. As the employers of the workers, labor contractors determine workers' wage rates, are responsible for payroll distribution, and make day-to-day decisions regarding their output. If the workers are hired under the H-2A Program, the contractors are also responsible for transportation and housing. Thus, they act as intermediaries between growers and laborers. The precarious occupational status of farmworkers together with production pressures and power imbalances inherent in the farm labor hierarchy disincentivize a workplace culture of compliance and safety.

The organizational context that encompasses workplace relations and the cues that encourage or dissuade individual injury prevention behaviors—values, attitudes, perceptions, and competencies—are also known as safety culture [40,41]. A related term, safety climate, was defined by Zohar [42] as perceptions that employees share about their work environment regarding factors such as the importance of safety training, effects of required work pace on safety, effects of conduct on promotion, level of risk at work, and management attitudes toward safety. A number of studies across an array of industries, including construction and manufacturing, have addressed these perceptions, mostly through questionnaires [43–46]. Few, however, have included qualitative investigation of safety climate factors in agriculture as they pertain to HRI [18,47].

Given Florida's high rate of heat-related crop worker deaths [48], understanding the perceptions that guide agricultural workplace safety behaviors is critical for developing effective HRI prevention strategies. This study sought to contextualize citrus harvesters' heat safety behaviors by providing an in-depth perspective on facets of their workplace culture that affect the prioritization of occupational safety.

3. Materials and Methods

3.1. Research Setting

The Florida citrus industry is the largest producer of juice oranges in the country [49]. During the 2016–2017 marketing season, it engaged more than 50,000 full-time and part-time employees [50]. With 95% of the harvest conducted by hand, citrus operations in Florida rely on a seasonal and migrant workforce to pick their fruit [51]. A large proportion of this workforce is hired under the H-2A

temporary agricultural program, either directly by farm operators or indirectly through farm labor contractors [3,52]. Workers are organized into crews of approximately 10 to 40 people and managed by farm labor supervisors, commonly referred to as crew leaders. Yet a farm labor supervisor may be the farm owner or labor contractor, or a hired crew leader, field foreman, or farm manager [39]. The assembled crews are transported from grove to grove. Workers are usually paid by piece-rate and it is estimated that 50 h of manual labor are required to harvest 1 acre [53].

3.2. Study Design

Focus group research with Florida citrus harvesters was conducted as part of a larger outreach effort by a National Institute for Occupational Safety and Health (NIOSH) Agricultural Center to address the occupational safety and health needs of people working in the agriculture, forestry, fishing and hunting sector of Alabama, Florida, Georgia, Mississippi, the Carolinas, the U.S. Virgin Islands, and Puerto Rico. The goal of the research was to identify the opportunities and constraints harvesters face in implementing HRI prevention practices while working in Florida's citrus groves. Agricultural education and communication faculty and research staff at a land-grant university, in partnership with a farmworker association, conducted the focus groups in Apopka, Fort Myers, and Immokalee, Florida between February and May, 2018. The study was conducted in accordance with the Declaration of Helsinki and the protocol was approved by the university's Institutional Review Board (IRB201702033).

3.3. Research Instrument

Drawing on the Health Belief Model (HBM) [54] and existing literature on factors affecting adoption of agricultural safety measures [3,5,27,55,56], an 11-question focus group guide was constructed to explore citrus harvesters' perceptions regarding HRI and its prevention. The HBM has been used as an explanatory framework to investigate injury prevention practices among farmworkers [57]. The model postulates that health-related behavior depends on the desire to avoid illness and the belief that a specific health action will prevent it [58]. It consists of four main constructs: perceived susceptibility (subjective risk assessment of contracting a condition), perceived severity (subjective evaluation of the seriousness of contracting, or not treating, an illness), perceived benefits (subjective beliefs regarding the effectiveness and feasibility of a health action), and perceived barriers (subjective beliefs regarding the negative aspects of a health action). Self-efficacy (belief in one's power to successfully perform a health action), a fifth construct added to increase the explanatory power of more recent versions of the model [59], has been cited as a key factor underlying agricultural self-protective behaviors [25,38,57]. The current study drew on HBM constructs and agricultural safety literature to develop focus group questions that elicited risk perceptions of HRI, benefits and barriers to prevention, and opportunities for broader implementation of safety measures. The focus group guide is illustrated in Table 1.

Using techniques outlined by Krueger [60], the focus group questions were designed for a flexible conversation to allow deeper examination of topics respondents expressed particular interest in and further exploration of new issues they introduced. The instrument, originally developed in English, was translated to Spanish by a bilingual native Spanish speaker with experience working with farmworkers throughout Florida (J.A.T.-A.). The translation was reviewed by two biliterate members of the research team (M.C.M. and P.F.M.).

3.4. Sampling and Recruitment

Focus group participants were recruited by the farmworker association and by university faculty and research staff during agricultural safety trainings held at Florida Cooperative Extension offices and seasonal farm labor camps in Apopka, Fort Myers, and Immokalee, Florida. Convenience sampling was used to select the participants. The inclusion criteria were (a) 18 years of age or older, (b) self-identification as Latino, and (c) employed as a citrus harvester within the past year. There were no exclusion criteria. Six focus groups, comprised of one to two bilingual Latino moderators and

5–15 participants, were conducted in Spanish during the study period. All participants gave their informed consent for inclusion before participating in the study. A total of 51 agricultural workers participated in the study. Prior to each focus group discussion, participants were given the opportunity to complete a registration form that elicited demographic information including age, birthplace, and employment. Focus group discussions lasted approximately 30 min and were audio-recorded. The recordings were transcribed by a professional transcription company.

Table 1. Focus group guide used in discussions with Florida citrus harvesters.

Influential Factor	Focus Group Question
Subjective norms	What are some characteristics of a successful agricultural worker?
Safety attitudes	Are the most successful workers the ones who take greater or fewer risks? Can you give us an example?
Risk conditions	Have you ever sustained a heat-related illness (HRI) (or experienced nausea, vomiting, muscle cramps, dizziness, etc.) while working? What factors do you think contributed to your symptoms?
Perceived severity	Would you say heat injuries among workers are increasing or decreasing? Please explain.
Perceived and/or situational barriers	Is there anything that makes it difficult for you to implement HRI prevention measures?
Cues to action	What would make it easier for you to adopt heat safety practices?
Perceived benefits	What are some benefits of taking rest breaks?
Vulnerability and/or precariousness	How do you feel about expressing yourself at work, such as asking questions about safety?
Work safety climate	Do crew leaders and growers care about worker safety?
Baseline beliefs	Who is primarily responsible for worker safety?
Facilitators	What can companies do to improve safety in the fields?

3.5. Data Analysis

Focus group transcripts were coded using NVivo software for qualitative data analysis (version 12; QSR International, Melbourne, Australia). Two researchers (C.G. and M.C.M.) used a constant comparative method of analysis [61,62]. First, they read through the transcripts, identifying analytic categories that emerged from the text. These analytic categories were coded as themes. Next, they reviewed the data within each theme and looked for additional sub-categories or collapsed categories together. The researchers employed this approach to develop and refine a thematic codebook. They met regularly to compare coded segments and discuss linkages between the categories, keeping similar themes and negotiating any differences in coding. The process was repeated until no additional themes were identified and the researchers reached consensus on the codebook. Lastly, they selected representative quotes to illustrate each theme. NVivo software was used to track the codebook, compile the coded segments, and manage the exemplar quotes.

4. Results

Focus group participants were all Latino farmworkers. Six (12%) were female. Registration forms, completed by 38 of the 51 participants, indicated all (75%) were H-2A workers originally from Mexico. Their ages ranged from 20 to 57. All 38 had completed some form of heat safety training. The remaining 13 (25%) focus group participants were local workers from Lee and Collier counties.

The themes that emerged from the focus group discussions fell into four key domains: (1) perceptions regarding HRI; (2) familiarity with HRI prevention measures; (3) situational, economic, and social constraints to implementation of protective behaviors; and (4) opportunities for improved heat safety.

4.1. Perceptions Regarding HRI

4.1.1. Regular Experience of HRI Symptoms

When asked whether they had ever sustained a heat-related illness, most focus group participants initially answered, “No.” Further probing concerning specific symptoms, however, yielded positive

responses across all discussions. Follow-up replies, such as, "Headaches and dizziness, yes, a bit," and "Yes, muscle cramps" drew longer explanations from other participants in some cases. For example, one female respondent elaborated:

(FG3P3) Yes, one time I felt that I couldn't breathe. I felt tired and was sweating and sweating. So, I went where I could get some air in the shade. I stayed there for an hour . . .

Another female respondent added,

(FG3P8) It happened to me as well . . . I was hit with a very bad headache and nausea. But I went to the bathroom to take a small break and a woman gave me an Alka-Seltzer with a few drops of lemon and I stayed there—I told my boss I felt bad—and I stayed there a while so that I could rest and then later when I felt a bit better I continued working.

A male respondent noted,

(FG1P2) Sometimes it happens to us, but we have no idea—well, we know it's provoked by the heat, but we don't know the consequences.

Responses regarding the experience of HRI symptoms were followed up with the question, "What factors do you think contributed to these symptoms?" One participant answered, "When you force yourself to overwork in the heat." Another replied, "A lot of exertion when you have to work very quickly." During a separate discussion, one man explained, "People who are not used to working in the heat."

Focus group participants were also asked whether they believed heat injuries among workers were increasing, decreasing, or about the same as usual. The majority of respondents reported they were increasing. One commented, "I believe every year it's worse—seems like it's the climate." Interestingly, another added, "What also happens is that now we are older."

4.1.2. Tolerance of HRI Symptoms as Part of the Job

Following their accounts of HRI symptoms, focus group participants were asked whether they reported, or were treated for, their injuries. In response, one participant answered, "No, because the heat is normal." Another replied, "It's part of the job." A third participant added, "We treat it as normal, but it can cause us harm."

4.1.3. Self-Blame for HRI and Other Occupational Injuries

In one focus group discussion, a participant explained that she did not report her HRI symptoms because she felt responsible for developing them:

(FG3P3) No, because one forces oneself to work . . . we don't take rest breaks but sometimes one forces oneself; if one sees that it is hot, we need to stop. If the boss comes, then tell him, 'You know, it's very hot, we can't continue.' Because sometimes we ourselves force our body.

A fellow participant added, "One sometimes works for hours—it's one's decision . . . yet sometimes one doesn't implement the measures one should implement."

Another participant noted that injuries are often the result of a rapid work pace. "It depends where the accident occurs, but I'll tell you something, sometimes it's because one rushes . . . If I rush because I want to show off at work, that's wrong."

4.2. Familiarity with HRI Prevention Measures

4.2.1. Hydration and Rest for Safety and Productivity

In describing the characteristics of a successful agricultural worker, several focus group participants cited, "responsibility." Others cited, "commitment," "endurance," "capability," "having proper

equipment", and "easy access to facilities." Only one participant mentioned, "taking precautions." Nonetheless, no one associated success with risk-taking. When further asked what precautions heat safety entails, participants across all discussions cited hydration and rest. One participant simply replied, "Drinking a lot of water." Another said, "You have to be drinking water so that you don't become dehydrated and don't get dizzy and fall [from the ladder]." During an earlier session, a participant specified, "Electrolytes, to avoid dehydration." Consumption of electrolyte beverages, including Gatorade and electrolyte-replacement powders mixed with water, was frequently cited as a heat safety measure. For one man, however, it was an ameliorative, not preventative measure: "I have my electrolyte-replacement powder, and when I'm feeling not at all well, very weak, I put it in my thermos."

During one discussion, several participants detailed the benefits of rest breaks:

(FG3P7) To sustain productivity, the body requires a certain amount of rest.
(FG3P4) It's normal for the body to require a rest.
(FG3P1) We're not talking about hours . . . perhaps simply 15 min every three hours.
(FG3P4) Because then you regain strength, you recover . . .
(FG3P7) Especially when it's hot.

Participants in another focus group similarly noted the following:

(FG2P3) You get tired, rest, and regain your rhythm . . .
(FG2P4) Without rest I believe it won't be the same production as someone who takes a break at the right moment.
(FG2P3) I'm telling you if one rests, one can concentrate more, release stress and, climbing up and down [the ladder] if you rested then you can control yourself, and since the heat is strong, the blood is also at a high temperature but with a rest it levels out . . .

4.2.2. Local Preventive Practices

As focus group participants reflected on the precautions they take to avoid becoming overheated while working, several discussions emerged that revealed local practices for the prevention and amelioration of HRI symptoms. The practices, also observed in other Latino farmworker communities, reflect humoral concepts regarding the significance of balancing hot/cold and wet/dry qualities [63]. For example, as one participant was elaborating on the importance of not waiting too long to drink water, she noted, "but it can't be too cold or else it will give you cramps." Another participant agreed, "No, not too cold." Earlier, a man had pointed out that "when we get cramps, it's good to eat a small banana, but it can't be too ripe nor too green."

4.3. Constraints to Implementation of Protective Behaviors

4.3.1. Lack of Opportunities

When asked whether there is anything that makes it difficult to implement HRI prevention measures, focus group participants cited "lack of rest breaks" and "lack of shade." In one exchange, a man elaborated,

(FG5P1) It depends on the type of work because there are many jobs in which the supervisors don't want to find anyone standing around. The moment one stops, one is reprimanded, so often times people don't rest, don't stop.

Another man emphasized, "They're not going to give us those opportunities . . . why don't they provide shade at least during meals?"

4.3.2. Employer-Employee Relations

The topic of employer-employee relations in the context of workplace safety generated a variety of responses from focus group participants. When asked how secure they felt about expressing themselves at work, such as asking questions about safety, one participant replied, "It's a risk for oneself." A fellow participant explained, "Sometimes, supervisors get annoyed if one goes around asking questions." When further asked who is primarily responsible for worker safety, one of the two respondents noted, "Oneself because one doesn't complain, for fear or something, one doesn't want to say anything and so one is to blame." Other participants in the session, however, cited labor supervisors at multiple levels of an agricultural operation's management, such as "the foreman," "the crew leader," and "the manager."

During a focus group discussion with mostly H-2A workers, participants said crew leaders and companies were responsible for worker safety. One participant observed that worker safety was principally the crew leader's responsibility because "he brought us so our safety rests with him." When asked whether he felt secure pointing out a safety hazard to his crew leader, he replied, "Others won't say it . . . but here we always have, that is how it is with our crew leader . . . " He explained that a good crew leader "holds us in high esteem, appreciates us."

During a separate session, focus group participants explained how supervisors affected other aspects of their work indirectly related to safety, such as productivity and performance. One participant noted, "It depends on the supervisor because there are ways of saying things . . . there are many who don't have a way of saying things, of explaining things. Another respondent clarified, "The attitude, the attitude in how they tell you how to do things counts a lot."

4.4. Opportunities for Improved Heat Safety

4.4.1. Building Trust

In the same vein, when asked what would make it easier for them to adopt heat safety practices, several participants cited components of workplace relations. For example, one participant said, "Raising awareness among our bosses and supervisors." Another added, "Because often supervisors don't even let us breathe . . . it's as if they're always after you."

Similarly, when asked what companies can do to improve safety in the fields, participants in one focus group brought up the quality and structure of labor management. One woman suggested "Put into practice what they have been informed of." Another said, "Trust us so that we can trust them." The discussion deepened as follows:

(FG3P2) Have trust.

(FG3P4) Trust that one can talk, to follow up on what one believes is wrong. Because they almost never listen to you, tell you that you were right, that this is wrong, that yes it could be fixed or something like that . . .

(FG3P7) Just because they have a position above you, they believe they are more.

(FG3P1) Meanwhile, they never think we are the same, that we are all workers . . . workers nonetheless—simply because they have their management post.

(FG3P6) And sometimes it also happens a lot, sometimes when you have an opinion that you can improve the work but he has his idea, then he doesn't let you apply it because as he says, he has a position above—

(FG3P8) He's the boss.

(FG3P6) –and you cannot contradict him.

Later, the group was asked whether they felt that supervisors and companies cared about worker safety. Most participants replied "No." Two respondents explained, "We were given a meeting about needing to use gloves and safety glasses—that was said in the meeting but in the field, nothing."

Interestingly, character traits, such as caring about worker wellbeing, were reasons participants in several focus groups cited when asked what led them to remain working for a particular crew leader.

During one discussion, an H-2A worker said, "He cares a lot about us … he treats me well … he encourages us to work hard … but he's never disrespectful … we work well with him … we never let him down." During another, a domestic worker replied, "He was a good person. As boss, he behaved well with us." When asked what defined a good crew leader, one participant answered, "How he treats us; whether he's a good person."

4.4.2. Better Access to Water and Facilities

In response to questions regarding what more could be done to facilitate adoption of heat safety practices, discussions in several focus groups turned to the topic of access to water and facilities. During one session, a participant noted that hydration is easier for citrus harvesters because they carry bags and have quick access to water. During another session, a participant suggested HRI could be better prevented if workers could "each bring a backpack—in citrus [groves], you know, it's a bit easier because in strawberry [fields], in tomato [fields] … people cannot even wear a backpack." Shorter distances to bathrooms were also cited in a separate discussion. One man emphasized that in the field where he works, "we need bathrooms … there are no bathrooms where we work, there are no bathrooms for those of us who work year-round there … I have to come to the shop." In a focus group that included H-2A workers, a participant explained, "In the same manner that a company demands production from us … we can't lack the materials needed for production."

5. Discussion

This study sought an in-depth understanding of the perceptions Florida citrus harvesters share about their work environment, particularly those that contribute to an operation's safety climate, and how they affect the implementation of HRI prevention practices. Focus group sessions explored norms and attitudes regarding proper work conduct, safety risks, work pace, employer-employee relations, and heat injuries and severity to gauge the opportunities and constraints that shape farmworkers' safety behaviors. Discussions addressed their levels of awareness and concern regarding HRI and their power to prevent it.

The lived experiences described by focus group participants point to three main findings. First and foremost, citrus harvesters regularly suffered HRI symptoms while working yet rarely reported or sought treatment for their injuries. Second, their implementation of safety practices hinged less on knowledge than on the availability of water and rest breaks and the quality of employer-employee relations and exchanges. Third, trust was a determinant of workers' attitudes toward management that contributed to a harvesting operation's safety climate.

Results indicate that focus group participants experienced headaches, muscle cramps, dizziness, and nausea frequently enough to have developed routines and remedies for their alleviation. For example, participants commented on the effective use of foods and beverages (e.g., bananas, Gatorade, etc.) to restore fluids and electrolytes lost through sweat and relieve muscle cramping (i.e., exertional heat cramps [64,65]). The prevalence of symptoms and general reluctance to report or seek treatment for them suggest participants normalized HRI, as evidenced by comments such as, "It's part of the job." The acceptance of occupational risk and endurance of pain have been reported in a number of male-dominated occupations, such as mining, fishing, and railway work [66–68]. Normalization of HRI would explain why several participants blamed themselves for their injuries and felt undeserving of medical care. Treating HRI "as normal" also diminishes accountability for farm management and safety procedures. Stergiou-Kita et al. [69] note that institutionalized practices further normalize occupational risks by reinforcing the expectation that safety is a personal responsibility.

Despite familiarity with HRI prevention measures, such as drinking water, resting, and seeking shade, participants expressed difficulties adhering to them. The barriers they identified—a shortage of facilities and amenities on the one hand and a lack of opportunities on the other—were all workplace factors that are conducive to modification and thus to reduction of risks. The themes that emerged from the discussions, however, confirm the difficulties of promoting safety practices

through strictly educational approaches [70–72]. For example, long distances between fields and bathroom facilities limit even well-trained workers' capacity to stay hydrated and avoid overexertion. Earlier studies have demonstrated that safety training and knowledge are necessary but not sufficient conditions to ensure the use of safety practices because workplace environments determine their feasibility [3,26,73–75]. Workplace relations, particularly employer-employee interactions, also condition the extent to which workers act on their knowledge. Focus group participants expressed reluctance to engage in self-protective actions, like taking rest breaks, that could result in other types of harm, such as being reprimanded by their supervisors. The finding is in line with the results of earlier studies indicating safety is neglected when workers must choose between expressing concerns about dangerous work conditions and potentially losing their jobs or work visas [25,31,38].

Results suggest trust is a foundational component of participants' attitudes toward management. Mutual trust was cited as a facilitator companies could build upon to improve safety in the fields. Participants also cited mutual trust when describing work environments in which crew leaders were open to feedback regarding safety and workers felt secure addressing it. Thus, perceptions of trust condition the quality of workplace relations and represent cues that encourage or dissuade individual injury prevention behaviors. Focus group discussions showed that, aggregated, these perceptions contribute to a harvest operation's overall safety climate. From an organizational perspective, results underscore previous research showing trust is a core value of safety management and contributes to a collective prioritization of occupational safety performance [76–78].

6. Limitations

While this research provides needed insight into mechanisms underlying implementation of HRI prevention practices, it has several limitations. First, as a focus group study of citrus harvesters in central Florida, it used a small sample size and concentrated on a single industry in a narrow region of the state. Thus, results may not be generalizable to other regions or agricultural operations as environmental conditions and physical exertion requirements vary from crop to crop. Second, because the focus groups were conducted during safety trainings in labor camps and cooperative extension offices, participants knew one another and may have curbed their contribution to particular lines of discussion. Third, differences between male and female perspectives could not be analyzed with confidence since focus groups were not configured based on gender. Lastly, all participants were Latino. Although the majority of farmworkers in the U.S. are foreign-born from Mexico, a sizeable proportion of Florida's farmworkers are Haitian and African–American and may face different socioeconomic constraints and workplace relations.

7. Conclusions

The findings of this study reveal a more nuanced view of the workability of adhering to heat safety guidelines in agriculture. Though HRI is preventable, farmworkers have limited control over the situational, economic, and social factors that increase their risk of developing it. Results highlight the difficulties of putting into practice measures that are not rewarded by the workplace culture. The extent to which intervention strategies promote not only individual safety behaviors but organizational accountability may predict their effectiveness. One recommendation is to expand the content of current farm labor supervisor trainings offered through the state's cooperative extension service to include a module on safety management. The module should include components on leadership, safety climate, and the role of interpersonal trust between managers and workers on an organization's safety performance. Another recommendation is to improve dissemination of tools among growers and farm labor supervisors that help them assess the impacts of occupational injuries and illnesses on the profitability of their operations. Such tools can also help them estimate the costs and benefits of investing in equipment and supplies that support heat safety, such as mobile shade canopies, water tanks and toilets. Finally, additional research is needed to identify organizational incentives to workplace safety expansion.

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