

Sexual Harassment Prevention in Agriculture: A Formative Evaluation of a Workplace Training
Intervention

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Abstract

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Sexual harassment is an occupational hazard that endangers the health, safety, and livelihood of farmworkers. It is estimated between 50-80% of farmworker women experience workplace sexual harassment (WSH) at some point in their lives. Although numerous WSH training programs are available, limited studies have evaluated the effectiveness of these programs, especially among Spanish-speaking agricultural workers. This study evaluates the effectiveness of a tailored WSH program developed in collaboration with the agricultural community in Oregon and Washington. The evaluation study used a cross-sectional pre-post test design to assess the effectiveness of the training on agricultural workers' knowledge, attitudes, and self-efficacy in relation to WSH, reporting, and bystander intervention. The training intervention was co-designed with farmworkers in Eastern WA and was facilitated by agricultural trainers during

four training sessions at the Ag Safety Days events in Washington State. Knowledge test scores for all participants significantly improved between pre and post-tests (p -value < 0.05 | 95% CI: 6.95, 2.64). Participants' test scores were not significantly different based on job, gender, or language. After the training, 14% more participants reported self-efficacy to intervene if they observed harassment. The majority of participants ($n=102$, 83%) reported that they perceived WSH in agriculture to be common. Only men reported they believed WSH was not common in agriculture consisting of supervisors ($n=9$, 5%) and workers ($n=7$, 6%). Findings provide evidence to suggest this training program is effective, but there is a need for additional studies to evaluate the impact of the WSH prevention programs over time.

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INTRODUCTION

Sexual harassment is an occupational hazard that endangers the health, safety, and livelihood of farmworkers. It is estimated between 50-80% for farmworker women experience workplace sexual harassment (WSH) at some point in their lives (Human Rights Watch 2012, Kim et al. 2016; Murphy et al. 2015; Oxfam, 2015; Waughn 2010). The risk for this population is amplified by systemic disparities which can result in gaps in safety regulations, barriers for accessing services, and economic inequalities (Human Rights Watch 2012; Oxfam 2015). In addition, factors such as culture, language, national origin, ethnicity and immigration status puts them at additional risk for abuse and exploitation (Murphy et al. 2015; Ontiveros 2003; Waughn 2010).

WSH can have a long-lasting and profound impact on physical and mental health but historically it has not been recognized as a workplace hazard. WSH can have serious consequences for health and can result in anxiety, depression, chronic pain, mood disorders and post-traumatic stress disorder (Avina et al. 2002; Martin et al. 2016; Mellor et al. 2013). Harassment can also increase the risk of occupational injury, decrease productivity, and create a hostile work environment (Oertelt-Priogione 2020; Roelofs et al. 2011). Researchers have called for WSH to be formally recognized as an occupational hazard in agriculture, as well as other industries such as medicine and academic settings (Kim et al. 2016; Oertelt-Priogione 2020).

Workplace policies and training are the primary methods employers use to prevent WSH but recent studies have suggested not all training programs are effective. A systematic review of WSH training programs found many training programs have not been updated in many decades and the majority of the content focuses on liability for the employer (Tippet 2018). To date, only

a limited number of studies have sought to evaluate the effectiveness of WSH training. In the few studies conducted, there was large variability in the methods and evaluation tools used (Caffaro et al. 2018; Tippet 2018). None of these studies were conducted in the agricultural workplaces nor did they involve Spanish-speaking farmworkers.

Determining whether training programs are effective can provide tremendous value for helping employers decide which training programs to use. This is particularly important in agriculture; an industry where WSH prevention guidance and resources are limited. Effective training programs increase knowledge and lead to changes in attitudes, behaviors, and workplace culture to prevent harassment and enhance reporting practices. For example, Buckner 2014, found that training for managers increased their sensitivity to recognize signs of WSH (Buckner et al. 2014). However, many of the training programs that are used are not tailored to the agricultural workforce, which can include immigrant and seasonal workers who may face language and cultural barriers (Waughn 2010). Evaluating training programs using tools such as pre-post-tests or longitudinal studies can ensure the training meets the intended goals.

In 2019, the ¡Basta! Prevent Sexual Harassment in Agriculture Worksite Training and Toolkit (¡Basta! Worksite Training and Toolkit, n.d.) was released to deliver tailored training tools for the agricultural industry. The ¡Basta! Toolkit was developed in collaboration with agricultural employers, workers, agencies and community organizations in Oregon and Washington. The ¡Basta! Toolkit provides a multi-level approach to prevention by providing policies, training tools, and guidance for employers, supervisors, and workers.

Evaluating the ¡Basta! Toolkit would be useful for measuring its effectiveness, gaining insight on using these training tools, and developing collaborative approaches for evaluating training tools in collaboration with partners in the agricultural community. Most importantly, if

this training is found to be effective, it could help promote adoption of these tools among agricultural employers, so more farmworkers receive training.

BACKGROUND

The United States agricultural industry employs approximately 2.1 million workers (U.S. Bureau of Labor Statistics, 2023). Washington State is one of the biggest agricultural producers with a large, hired workforce estimated to be about 100,000 workers (Washington State Employment Security Department, 2022). The farmworker population is predominantly male (66%), foreign-born (63%), and Spanish-speaking (62%) (National Agricultural Worker Survey, 2020). In recent years, the agricultural industry has seen the population of farmworker women increase to 28.1% (U.S. Department of Agriculture, 2021).

WSH remains an ongoing problem and one of the most challenging occupational health and safety issues to remedy. Title VII in the Civil Rights Act was established to protect workers from sexual harassment and discrimination in the workplace (Civil Rights Act, 1964). However, most employers are not required to have a WSH prevention program or provide training. Each year, the U.S. Equal Employment Opportunity Commission (EEOC) receives thousands of charges alleging sex-based harassment in the workplace resulting in millions of dollars in settlements (U.S. EEOC, 2021). Legislators began to take action to address this issue after #MeToo movement drew national attention to sexual harassment and abuse of power. Since 2020, over 70 bills have been introduced across 22 states to establish new protections (National Women's Law Center, 2022). Yet, to date, there are only 13 states who require private and public

sector employers to have WSH prevention policies and provide training for certain employees. Legal analysts believe these changes are insufficient to protect marginalized workers because the majority have not included protection against retaliation which is a major concern for workers of color in low wage jobs, such as farmworkers (National Women's Law Center, 2022).

In the agricultural sector, WSH training requirements are limited, with only a few states currently mandating training that includes agricultural employers. California is the only state that explicitly names agricultural employers, requiring farm labor contractors and employers with 5 employees or more to provide training annually for supervisors and every two years for workers (California Senate Bill 295, 2018, Farm labor contractors: sexual harassment prevention). Illinois and New York require all employers, regardless of size, to provide sexual harassment training annually (Illinois Human Rights Act, 775 ILCS5, New York State, Combating Sexual Harassment in the Workplace, 2022). In Connecticut, a two-hour training is required upon hire for all employers with more than three employees (Connecticut State, Commission on Human Rights and Opportunities, Time's Up Act, 2021).

In 2022, Washington State passed legislation to protect vulnerable workers from WSH by developing a model workplace policy for employers (RCW 28A.400.009) and limiting the use of non-disclosure agreements (RCW 49.44.211). In 2021, the Washington State legislature also allocated funding to the BASTA Coalition of Washington to establish a farmworker leadership network, create a peer-to-peer training program, and advance advocacy efforts to develop policy solutions (BASTA Coalition of Washington – Preventing Farmworker Sexual Harassment, n.d.).

WSH can have a detrimental impact on physical and psychological health yet it does not have the same state or federal protections as other occupational hazards (Dionisi et al. 2012; Kim et al. 2016; Shannon et al. 2007). The U.S. Occupational Health and Safety Administration

(OSHA) does not currently have any federal workplace safety and health standards directly addressing WSH prevention (OSHA,1993). Although OSHA does require employers to protect workers from “recognized hazards,” the lack of specific safety standards leaves employers without clear guidance on their responsibilities such as developing a workplace policy, providing training, or establishing a reporting process (OSH Act 1970).

Workers are protected from WSH as a form of discrimination on the basis of sex under Title VII of the Civil Rights Act of 1964 (Civil Rights Act, 1964). Under this law, employers with 15 or more employees are required to prevent WSH or take corrective action promptly to stop harassment once they become aware it has occurred. The EEOC is the federal agency tasked with investigating complaints and enforcing discrimination laws. Investigations typically begin once a worker files a complaint with the EEOC. This typically leads to investigations or in some cases the EEOC can file a discrimination lawsuit against an employer (Title 29, Subtitle B). However, lawsuits have varying degrees of success, and some have argued it is not an effective deterrent, particularly for industries where workers are vulnerable such as agriculture (Feldblum et al. 2016). Critics have argued that the EEOC’s enforcement power is limited, and they would be more effective if they have the ability to issue citations or penalties like OSHA. Some experts believe this authority would strengthen the EEOC’s ability to hold employers accountable and prevent violations (McDonald 2012).

WSH in agriculture is widespread with studies estimating anywhere between 50-85% of women experience it at some point in their lives (Feldblum et al. 2016; McDonald 2012; Kim et al. 2016; Waugh 2010). However, some studies suggest that as little as 10% ever will report it (Cortina et al. 2008; Feldblum et al. 2016). Research studies suggest this number is believed to be even lower for farmworkers who often do not report for fear of deportation and retaliation,

and concerns for their safety and livelihood (Kim et al. 2016; Murphy et al. 2015; Ontiveros 2012; Waughn 2010).

WSH can also lead to adverse health outcomes including chronic pain, post-traumatic stress disorder (PTSD), depression, and anxiety (Curtis et al. 2020; Kim et al. 2016; Willness et al. 2007). For example, WSH is one of the psychosocial exposures associated with stress and injury for women in construction (Curtis et al. 2020). Additionally, harassed workers have a lower job satisfaction and productivity, as well as higher turnover than non-harassed workers (Hobbs et al. 2021; McDonald 2012; Pina et al. 2012).

Studies have also found the negative consequences of WSH extend beyond the victims. Bystanders who witness WSH have reported experiencing anxiety, fear, distrust, and job dissatisfaction (Prado et al. 2021). Consequently, WSH can create a negative or hostile work environment where workers feel unsafe, unsupported, and unsatisfied. Over time this can result in increased turnover, decreased productivity, and damage to the employers' reputation (Hobbs et al. 2021; Kim et al. 2016).

Research shows WSH in agriculture is widespread and farmworkers experience significant systemic barriers for prevention (Kim et al. 2016; Murphy et al. 2015; Ontiveros 2012; Waughn 2010). The risk of WSH is elevated in the agricultural industry as a result of power imbalances, low-wages, gender composition, and isolated work environments (Kim et al. 2016; Murphy et al. 2015; Waughn 2010; Weaver 2017). Individual factors such as culture, language, national origin, and immigration status can isolate them and put them at additional risk for exploitation (Murphy et al. 2015; Ontiveros 2003). Women farmworkers face even greater risk because their racial, gender, and class identities are interconnected, magnifying their vulnerability (Murphy et al. 2015; Waughn 2010; Weaver 2017).

The agricultural industry is a largely male-dominated and male-led industry contributing to imbalances of gender and power (Buchanan et al. 2014; Hobbs et al. 2017; Waugh 2010; Weaver 2017). Studies have shown that WSH and other forms of sexual violence are common in workplaces where these power and gender dynamics are unbalanced, such as in the military or construction (Cortina et al. 2008; Curtis et al. 2020; Feldblum et al. 2016; Fitzgerald et al. 1999). Studies, reports, and farmworker testimonies highlight this abuse of power is prevalent in the agricultural industry with male foremen and supervisors being the primary perpetrators (Feldblum et al. 2016; Kim et al. 2016; Murphy et al. 2015; Prado et al. 2021; Waugh 2010). The leadership structure on farms can be hierarchical, placing all the decision-making on a few individuals who can abuse their positions of power to exploit farmworkers (Kim et al. 2016; Murphy et al. 2015; Weaver 2017). Male agricultural workers have also indicated they experience WSH, but little is known about frequency or the nature of the harassment (Kim et al. 2016; Prado et al. 2021). Numerous reports have shared farmworkers' accounts detailing sexual violence, abuse of power, and threats of deportation to keep workers silent against injustices (Human Rights Watch 2012; Oxfam 2015).

Safety culture and climate are important aspects of workplace environments impacting worker well-being and behavior. Safety culture can be described as the organization's shared beliefs, values, and norms about safety. Safety climate refers to workers' perceptions of how the organization prioritizes safety (Clarke 2006; Zohar 1980). In the agricultural industry, systemic issues, such as hierarchical power structures and imbalances of gender representation in leadership can foster environments where WSH and abuse can flourish (Kim et al. 2016; Murphy et al. 2015). Research studies have found that workplaces with poor safety climates often have environments where workers are treated poorly and where productivity may be

prioritized over worker safety (Cortina et al. 2008; Murphy et al. 2015). Addressing WSH requires cultivating a positive safety culture that places importance on respect, worker safety, and leadership accountability. Accountable leadership, strong WSH prevention policies, and simple mechanisms for reporting can significantly enhance the workplace safety climate (Feldblum et al. 2016; Prado et al. 2021). A few studies in construction and forestry have found leadership training interventions can play a role in improving the safety climate among workers (Schwatka et al. 2019).

Agricultural employers also face unique challenges for preventing WSH. Many farms lack the organizational capacity to develop WSH prevention programs and lack the training resources and tools to meet the unique needs in the industry (Hobbs et al. 2021). Larger agricultural operations have the resources to hire industry groups and risk managers to get support with compliance and safety programs. In smaller farms, a few individuals will oftentimes be responsible for numerous operational aspects such as hiring, supervising, and managing safety programs and training. Changes in industry practices, such as increasing the number of contracted workers and changing crew sizes, can also make prevention challenging (Hobbs et al. 2021).

Training has been the primary method of prevention but research suggests not all WSH training programs are effective. A systematic review of WSH training across work sectors, found most training is largely ineffective because the content has not changed in decades, and the primary focus is placed on legal and liability aspects rather than discussing the impact on worker health and safety and the how it contributes to workplace culture (Mellor et al. 2013; Tippet 2018).

In a 2016 report, the EEOC determined that effective training programs should be tailored to the workplace, involve employee participation at all levels, and incorporate civility training to prevent inappropriate workplace behaviors before they rise to the legally actionable forms of sexual harassment (Feldblum et al. 2016). Lack of enforcement of workplace policies has also been identified as a systemic issue (Feldblum et al. 2016, National Women's Law Center 2022).

The most commonly used metrics to evaluate the efficacy of WSH training are knowledge, attitudes, behaviors, and experiences (Perry et al. 2012). Overall, studies demonstrate training can significantly improve knowledge and attitudes. Behavior change has been one of the most challenging aspects to measure and many studies have opted for measuring intention instead. Reporting practices after the training have also been examined but the studies lacked the rigor to determine if it was a result of the training (Hulin et al. 1996; McDonald 2012; McFayden et al. 2017).

Only a few studies have evaluated the effectiveness of WSH prevention programs (McFayden et al. 2017; Tippet 2017). The few studies which have evaluated WSH training have primarily focused on reducing the legal liability of employers and lack practical application for employers and policymakers (Buckner et al. 2014; Perry et al. 2012; Roehling et al. 2015). In the few studies conducted, there was large variability in the methods and evaluation tools used. Some studies have shown that improved transfer of safety knowledge was greater when workers received training that was culturally and linguistically appropriate (Juarez et al. 2017; Manger et al. 2016; Meyerhoff 2016).

Evaluation of WSH prevention training in the agricultural industry is also largely absent from the literature. As a result, little is known which training programs are used, how they are

being delivered, or whether they are accessible, relevant, and effective for an agricultural audience (Caffaro et al. 2018; Campbell et al. 2013). Training evaluation is particularly important for the agricultural industry because WSH is widespread, and workers face compounding vulnerabilities as a result of gender, language, and systemic racism (Arcury et al. 2022; Hobbs 2021; Kim et al, 2016; Murphy et al. 2015; Prado et al. 2021; Waughn 2010). Language and cultural differences between employers and workers can create communication barriers and reduce the likelihood training is understood and WSH is reported (Benoit et al. 2021; Mishra et al. 2020; Weaver et al. 2017). Evaluating training content, delivery methods, and its impact on workers is critical for ensuring that prevention efforts are effective and worthwhile for the industry to invest in.

The ¡Basta! Prevent Sexual Harassment in Agriculture worksite training and toolkit (¡Basta! Worksite Training & Toolkit, n.d.) is a tailored workplace prevention program and training developed with and specifically for the agricultural community. In contrast to traditional programs, this was developed specifically for the unique settings and situations in agriculture using a community-based participatory research approach with Latina farmworkers, UW researchers, and the BASTA Coalition of Washington comprised of farmworkers, supervisors, growers, human rights advocates, labor attorneys, and state lawmakers (BASTA Coalition of Washington – Preventing Farmworker Sexual Harassment, n.d.). The curriculum takes a novel approach to WSH prevention by delivering education and training through the use of stories, scenarios, and engaging activities drawn from the perspectives and experiences shared by Latino farmworkers both in English and Spanish. By working directly with Latina farmworkers, the training materials integrate the shared values, customs, and interpretation of the local agricultural community.

The ¡Basta! Toolkit uses a multi-level approach by providing training and resources for supervisors and employers. The kit includes templates and recommendations from growers to growers including a model workplace policy, reporting form, and other guidance to support prevention at the organizational level. Following the recommendations from the EEOC, the ¡Basta! Toolkit also includes bystander training, incorporates civility and respect, and provides tools employers can use to measure workplace climate to identify where prevention efforts may be needed (Feldblum et al. 2016).

SPECIFIC AIMS

Previous research studies and public reports have highlighted WSH prevention as a key priority for protecting the health and safety of farmworkers. Researchers, industry representatives, and advocates alike have expressed the need for agricultural workplaces to adopt WSH prevention policies and provide training for workers and supervisors. However, there are limited WSH prevention programs publicly available for the agricultural industry. This pilot study was a formative evaluation of the ¡Basta! Toolkit. The purpose was to evaluate the impact of the ¡Basta! training video and curriculum on participants' WSH knowledge, attitudes, and self-efficacy to intervene or report.

The study aims are listed below:

Aim 1. Develop a pre/post-test to assess the changes in knowledge, attitudes, and self-efficacy among English and Spanish agricultural workers. The pre/post-test will draw from

previously developed validated scales as well as learning objectives in the ¡Basta! curriculum.

Aim 2. Assess whether there is a significant change in participants' pre-test and post-test scores (measuring knowledge and self-efficacy) after the training.

Aim 3. Determine whether there are significant differences in mean post-test scores when grouped by participant characteristics (job type, gender, language, or supervisor role).

Hypotheses

Hypothesis 1: The training will have a positive effect on participants' WSH knowledge. (Paired T-test)

Rationale: A paired t-test will be used because it allows for us to compare participants' pre- and post-test scores for the same individuals before and after the training.

Ho1: Participants' test scores will show no significant difference after the training.

Ha1: Participants' test scores will show a significant difference after the training.

Hypothesis 2: Participants' score differences will be significantly different based on whether they are workers, supervisors, or other organizational staff. (One-Way ANOVA)

Rationale: A One-Way ANOVA will be used because it allows us to compare the mean score differences across the job categories which are three independent groups.

Ho2: There will not be a significant change in participants' score difference when grouped by job role type (worker, supervisor, and organizational staff).

Ha2: There will be a significant change in participants' score difference when grouped by job category (worker, supervisor, and organizational staff).

Hypothesis 3: Participants' score differences will be significantly different based on whether they are men or women. (One-Way ANOVA)

Rationale: A One-Way ANOVA will be used because it allows us to compare the mean score differences across genders which are two independent groups.

Ho3: There will not be a significant change in participants' score difference when grouped by gender (male and female).

Ha3: There will be a significant change in participants' score difference when grouped by gender (male and female).

Hypothesis 4: Participants' score differences will be significantly different based on whether participants prefer to speak English or Spanish. (One-Way ANOVA)

Rationale: A One-Way ANOVA will be used because it allows us to compare the mean score differences across the participants' preferred language, either English or Spanish, which are two independent groups.

Ho4: There will not be a significant change in participants' score difference when grouped by language (English and Spanish).

Ha4: There will be a significant change in participants' score difference when grouped by language (English and Spanish).

Hypothesis 5: Participants' self-efficacy score will be significantly different after the training. (McNemar's Chi-Squared Test)

Rationale: A McNemar's Chi-Squared Test will be used because it allows us to assess whether there was a statistically significant change in participants' self-reported confidence to help someone experiencing workplace sexual harassment (WSH) before and after the training using paired binary Yes or No response options.

Ho5: There will not be a significant change in participants' self-reported confidence to help someone experiencing WSH before and after the training.

Ha5: There will be a significant change in participants' self-reported confidence to help someone experiencing WSH before and after the training.

Secondary Analysis

Hypothesis 6: Participants' score differences will be significantly different based on whether the participant has a supervisory role or a non-supervisory role. (One-Way ANOVA)

Rationale: A One-Way ANOVA will be used because it allows us to compare the mean score differences based on whether the participants is a supervisor or non-supervisor, which are two independent groups.

Ho6: There will not be a significant change in participants' score difference when grouped by supervisory role (supervisor and non-supervisor).

Ha6: There will be a significant change in participants' score difference when grouped by supervisory role (supervisor and non-supervisor).

Evaluating these training materials can help to determine if it is a useful prevention tool for the agricultural industry. Findings could help promote adoption with the agricultural industry which could improve the safety of a population at risk for harassment and abuse. Additionally, it can inform the development of a larger study to evaluate the longitudinal impact of implementing all the ¡Basta! Toolkit resources and workplace policies in an agricultural workplace.

METHODS

Setting and Population

The study participants were recruited using purposive sampling from individuals attending the ¡Basta! Prevent Sexual Harassment in Agriculture session at the Washington Ag Safety Days in February 2020. The event is hosted by the WA Department of Labor and Industries and is the largest annual agricultural training event in Washington State with an average of 500 participants across two locations. The event took place in Kennewick and Wenatchee with sessions in English and Spanish. Participants included workers, supervisors, growers, trainers, human resources personnel, community organizations, and state agencies.

Pre-/Post-test Survey Development

Few validated instruments assess WSH among Latino populations, and none are specific to the agricultural sector. Therefore, it was necessary to develop a pre/post survey tailored to this population that also evaluated the learning objectives of the Basta curriculum. The pre/post-test

survey was developed by modifying existing WSH survey tools and getting feedback from agricultural trainers with extensive expertise. The purpose was to develop a short and accessible tool that drew from the training material and was tailored to the audience. It consisted of 7 pre- and post-questions with yes or no response options and a 7-item survey with yes or no response options, and checkboxes with the option to select other and fill in the blank. The questions assessed knowledge and attitudes on WSH, knowledge on workplace policies and procedures, self-efficacy to intervene, a rating of the training, and demographics. The Sexual Harassment Experiences Questionnaire for Latinos (SEQ-L) was used to inform the development of attitude questions. Two attitude questions were selected and modified from the SEQ-L (Cortina et al. 2001). Four knowledge questions were developed from the learning objectives of the ¡Basta! Toolkit. The question on self-efficacy to intervene was developed from (Bandura et al. 2013).

The questions were created in collaboration with two agricultural trainers. Both are Spanish-speaking and are from an agricultural community to help ensure the questions are relevant and accessible to agricultural workers. The trainers and a student worked together to develop questions which were short, easy to read, and inclusive of language widely used in the agricultural communities they are from. The intention was to develop questions that could be answered quickly and would be easy for workers to answer even if they had limited experience completing questionnaires or have limited literacy.

The questions were developed by drawing from learning objectives in the curriculum and also from common questions that are used on other WSH training evaluations. These included topics related to what constitutes harassment, gender harassment, rights for undocumented workers. The researchers and trainers had weekly meetings to develop and refine the messages. The messages were piloted with other partners in community organizations to get feedback on

word choice, accessibility, and to consider which questions would be comfortable and easy to answer in a public environment.

The response options for the questions were also designed to make it easy and quick for participants to respond. The knowledge, attitudes, and self-efficacy questions used a yes or no format. The demographic questions provided check boxes for participants to select and also included fill in the blank formats.

Knowledge

The first portion of the pre-post test surveys measured knowledge about WSH. The development of the knowledge questions was an iterative process in collaboration with the agricultural trainers. Our goal was to develop questions which were easy to answer but could also measure whether the participants understood the key takeaways from the training program. The questions asked about what was considered harassment, need for sharing immigration status when reporting, if a worker could be fired for reporting, and what the first step should be when reporting.

Attitudes

To keep the pre- and post-test short, only one question was used to measure WSH attitudes. The question participants were asked was: “In your opinion, do you think sexual harassment is common in agriculture?”

Self-efficacy

Self-efficacy is an individual's belief that they can perform a task. It is used in health behavior theory to assess an individual's ability to take action (Bandura 1979). In this study, self-efficacy is defined as an individual's belief or confidence in their ability to take action to prevent or stop WSH. Self-efficacy was measured using two questions: one assessing confidence to report and the other assessing confidence to help. The first question asked, "If you see someone being harassed, would you know how to help them?" The second question asked, "Do you know who to report sexual harassment to in your workplace?"

Figure 1. Pre-and Post-Test Questions and the domain measured

| Pre- and Post-Test Questions | Domain |
|---|---------------|
| Would you consider it sexual harassment if someone makes comments about another person's body? | Knowledge |
| If someone makes a joke about a person's gender, would you consider that discrimination? | Knowledge |
| Is it necessary to share your immigration status to report sexual harassment? | Knowledge |
| Can a worker be fired for reporting sexual harassment? | Knowledge |
| If someone is harassing you, is telling them to stop one of the first steps you should take? | Knowledge |
| If you see someone being harassed, would you know how to help them? | Self-efficacy |
| Once an employer becomes aware that sexual harassment is taking place, are they required to take action to investigate or remedy the situation? | Knowledge |
| Additional Questions | Domain |
| Are you aware of the sexual harassment policies and procedures in your workplace? | Knowledge |
| Do you know who to report sexual harassment to in your workplace? | Knowledge |
| In your opinion, do you think sexual harassment is common in agriculture? | Attitude |

Participant Demographics

The demographic questions asked participants to report gender, job type, and crop. The response options for knowledge, self-efficacy, and attitude were answered yes or no, and the demographic questions were multiple choice with some allowing participants the option to fill in the blank.

- Gender (male, female, or self-identified with an option to write in)
- Job title (worker, supervisor, human resources, trainer, grower, or other with an option to write in)
- Crop (tree fruit, berries, wine or grapes, potatoes, dairy, hops, wheat, or other with an option to write in)
- Language was collected by researchers by noting the language of the training session the participants chose to participate in.
- Location was also collected by researchers by noting which training location the participants attended.

Data Collection: Training & Survey Administration

Prior to the study, the University of Washington Human Subjects Division (HSD) reviewed the study procedures and determined this study was exempt from Human Subjects review. Two members of the research team facilitated the sessions. One person facilitated the 2 English sessions (Drury, UW) and one person facilitated the 2 Spanish sessions (Gonzalez, Community Partner). The team worked together to develop the training materials to ensure it was accessible for the audience and to ensure each facilitator was delivering the messages consistently across the sessions. PowerPoint slides were developed to display training content

and video. Pre- and post-questions were also featured on the slides and were read to the participants. The pre/post-test was administered before and after a one-hour training.

Each training session had one trainer and one helper. The trainer facilitated the training and read the pre- and post-test questions. The questions were read to participants and displayed on a screen with PowerPoint slides to support folks with different literacy levels. The helper would answer questions about the instructions, the purpose of the study and also provided the materials for the participants. At the beginning of each training session, participants were informed about the study, given a flier with additional resources and a paper copy of the pre/post-test, and asked to verbally consent to participate. The helper collected all the pre- and post-tests of those who did not wish to participate. The pre-test was printed on one side of the paper and marked with a red sticker and the post-test was printed on the other side and marked with a blue sticker.

As an incentive, participants were offered a raffle ticket for the opportunity to win a \$25 gift card, ¡Basta! toolkits, or ¡Basta! DVDs. No identifying or personal information was collected from participants.

Statistical Analysis

The data used in this study came from the pre-and post-tests assessments and from information gathered by the trainers administering the questionnaire. Participants self-reported demographic information after the training in the post-test including gender, job type, and crop. The researchers collected data on training language and location on behalf of the participant.

- Pre-test score – outcome (score of 0 to 100)
- Post-test score – outcome (score of 0 to 100)

- Gender
- Job role
- Language
- Crop
- Language - (collected by researchers)
- Location - (collected by researchers)

Population Restriction (Data Cleaning)

In total, 160 participants participated in the training and 129 completed the pre/post-test. Of the 129 participants, six were excluded for the following reasons: two were excluded because they were missing either all pre or all post-test questions, one was excluded because it was missing two pre/post questions, two were excluded because they were missing one pre/post question, and one was excluded because they did not answer which gender. In total 123 participants (99 Spanish and 24 English) were included in the final analysis (Tables 1-4).

Calculating Test Scores

To analyze pre-test and post-test results, individual question scores were summed and divided by the total number of questions to calculate the average score for each test. The average score was then multiplied by 100 to obtain the percentage score. Score differences were determined by subtracting the pre-test score from the post-test score. The score difference was converted to a percentage to quantify the relative change.

Participant Characteristics

The descriptive statistics of categorical variables for pre-test, post-test, and score difference were stratified by job type, gender, and language. Participants who reported they held jobs as growers, human resources, safety coordinators, trainers, and those who selected the “other” category were placed into a group called organizational staff (n=29). This group includes individuals involved in administration work across various levels of the organization. For a secondary analysis, participants were also categorized into either supervisor or non-supervisor groups. Participants who indicated they were supervisors were left in the “supervisor” (n = 65) category. Those that indicated they were workers or identified as organizational staff were grouped into the non-supervisory category (n = 58).

Paired Sample T-Test

Changes in participants’ pre-and post-test scores were analyzed using a paired sample T-test with a confidence interval of 95%. To calculate the paired differences, pre-test scores were subtracted from post-test scores. Although there were some departures from normality, the large sample size allowed for use of normal distribution procedures for this data.

Analysis of Variance (ANOVA)

A one-way ANOVA test was conducted to determine if there were significant differences in pre-post test scores when grouped by independent variables (e.g. job type gender). The assumptions of the test are 1) normality, 2) homogeneity of variance, and 3) independence.

McNemar's Chi-Squared Test

A chi-squared test for paired binary responses was conducted to examine if there was a statistically significant change in participants' self-reported confidence to help someone experiencing WSH before and after the training. This test was performed with a 95% confidence interval and included a continual correction for discordant pairs and a small sample size. The analysis was conducted using Microsoft Excel and GraphPad by Dotmatics online calculator.

Analysis

All data analyses were performed in R Software version 4.2.2 using the following packages pacman, readxl, readr, table1, knitr, tableone, ggplot2, gridExtra, tidyr, lattice, dplyr, magrittr, DescTools, lsr, reshape2, plyr, and kableExtra.

RESULTS

Demographic Information

The majority of the training participants were Spanish-speaking (n=98, 80%) and men (n=91, 75%). Among those participants 53% were supervisors (n=65) and 23% were workers (n=29). In comparison, the number of women participants was lower (n=32, 26%) and primarily supervisors (n=8, 25%) and organizational staff (n=17, 53%). The training participants were primarily from the tree fruit industry (n=71, 57%). Table 1 provides the frequencies of demographic characteristics from the analyzed data stratified by job type.

Table 1. Demographic Characteristics of Participants by Job Type (n=123)

| | Org. Staff (N=29) | Supervisor (N=65) | Worker (N=29) | Overall (N=123) |
|-----------------|------------------------------|------------------------------|--------------------------|----------------------------|
| Gender | | | | |
| Male | 12 (41.4%) | 57 (87.7%) | 22 (75.9%) | 91 (74.0%) |
| Female | 17 (58.6%) | 8 (12.3%) | 7 (24.1%) | 32 (26.0%) |
| Job | | | | |
| Worker | 0 (0%) | 0 (0%) | 29 (100%) | 29 (23.6%) |
| Supervisor | 0 (0%) | 65 (100%) | 0 (0%) | 65 (52.8%) |
| Org. staff | 29 (100%) | 0 (0%) | 0 (0%) | 29 (23.6%) |
| Language | | | | |
| English | 15 (51.7%) | 9 (13.8%) | 1 (3.4%) | 26 (20.3%) |
| Spanish | 14 (48.3%) | 56 (86.2%) | 28 (96.6%) | 99 (79.7%) |
| Crop | | | | |
| Dairy | 2 (6.9%) | 1 (1.5%) | 2 (6.9%) | 5 (4.1%) |
| Grapes | 4 (13.8%) | 2 (3.1%) | 0 (0%) | 6 (4.9%) |
| Hops | 1 (3.4%) | 1 (1.5%) | 0 (0%) | 2 (1.6%) |
| Onions | 1 (3.4%) | 0 (0%) | 0 (0%) | 1 (0.8%) |
| Other | 8 (27.6%) | 9 (13.8%) | 10 (34.5%) | 27 (22.0%) |
| Tree Fruit | 12 (41.4%) | 47 (72.3%) | 11 (37.9%) | 70 (56.8%) |
| Berries | 0 (0%) | 1 (1.5%) | 0 (0%) | 1 (0.8%) |
| Potatoes | 0 (0%) | 4 (6.2%) | 6 (20.7%) | 10 (8.1%) |
| City | | | | |
| Kennewick | 13 (44.8%) | 41 (63.1%) | 16 (55.2%) | 71 (56.9%) |
| Wenatchee | 16 (55.2%) | 24 (36.9%) | 13 (44.8%) | 54 (43.1%) |

Pre-Post Test Scores and Score Differences

Table 2 provides the pre-test, post-test, and score differences across job category, gender, and language. Overall, participants showed an average score improvement of 4.8 percentage points. Among job categories, organizational staff exhibited the greatest improvement, with an 8.37 percentage point increase. In the gender categories, scores were similar. In terms of language, Spanish-speaking participants demonstrated a slightly higher score increase (4.81 percentage points) compared to English-speaking participants (2.86 percentage points). However, this change was not statistically significant.

Table 2. Pre-test, Post-test, and test score percent differences by job type, gender, and language (n=123)

| | Pre-test | Post-test | Score difference |
|-----------------|--------------------------------|--------------------------------|--------------------------------|
| | Mean (SD) | Mean (SD) | Mean (SD) |
| | Median [Min, Max] | Median [Min, Max] | Median [Min, Max] |
| All | 91.3 (13) 100 [28, 100] | 96.1 (9) 100 [57, 100] | 4.80 (12) 0 [-28, 71] |
| Job | | | |
| Worker | 90.6 (12) 100 [57, 100] | 93.6 (12) 100 [57, 100] | 2.96 (9) 0 [-14, 28] |
| Supervisor | 93.0 (12) 100 [42, 100] | 96.3 (8) 100 [57, 100] | 3.30 (10) 0 [-28, 42] |
| Org. Staff | 89.7 (16) 100 [28, 100] | 98.0 (5) 100 [85, 100] | 8.37 (16) 0 [-14, 71] |
| Gender | | | |
| Male | 91.1 (12.7) 100 [42.9, 100] | 95.4 (9.49) 100 [57.1, 100] | 4.4 (10.6) 0 [-28.6, 42.9] |
| Female | 93.3 (14.5) 100 [28.6, 100] | 97.8 (6.4) 100 [71.4, 100] | 4.46 (14.7) 0 [-14.3, 71.4] |
| Language | | | |
| English | 94.9 (10.0) 100 [57.1, 100] | 97.7 (6.75) 100 [71.4, 100] | 2.86 (10.9) 0 [-28.6, 28.6] |
| Spanish | 90.8 (13.8) 100 [28.6, 100] | 95.6 (9.27) 100 [57.1, 100] | 4.81 (12.0) 0 [-14.3, 71.4] |

Results of Paired t-Test Comparing Pre- and Post-Test Scores

A paired t-test was conducted to analyze the change in pre- and post-test scores for all participants, using the following hypothesis:

Ho1: Participants’ test scores will not significantly improve after the training.

Ha1: Participants’ test scores will significantly improve after the training.

The results indicated a statistically significant increase in mean scores, with a significant difference in the scores from the pre-test (M = 91.64, SD = 13.18) to the post-test (M = 96.05, SD = 8.83), $t(122) = 4.17, p < 0.001$. The effect size, Cohen’s $d = 0.51$, reflects a moderate effect of the training on participants' knowledge improvement. Therefore, the null hypothesis was rejected in favor of the alternative hypothesis. Overall, these findings indicate a meaningful and statistically significant improvement on knowledge from the pre-test to the post-test. Table 2 provides the results of a paired t-test examining post-pre mean scores.

Table 3. Results of a paired sample T-test comparing pre-post differences

| Avg. Diff. between post-pre (X_d) | Pre-Test Mean (SD) | Post-Test Mean (SD) | 95% CI | | t-value | df | p-value | Cohen's d |
|---------------------------------------|--------------------|---------------------|--------|------|---------|-----|---------|-----------|
| | | | LL | UL | | | | |
| 4.41 | 91.64 (13.18) | 96.05 (8.83) | 2.32 | 6.51 | 4.17 | 122 | < 0.001 | 0.38 |

$n = 123; \alpha = .05; test\ priori\ power = .99$

Score Differences by Job Category

A one-way ANOVA was conducted to examine whether there was significant score differences (post-pre) based on participants' job category. The three job categories included in the analysis were Worker, Supervisor, and Organizational staff, using the following hypothesis:

Ho2: There will not be a significant improvement in participants' score difference when grouped by job category.

Ha2: There will be a significant improvement in participants' score difference when grouped by job category.

Although there was some departure from normality, the ANOVA is considered relatively robust for this assumption in this sample. The results do not show any significant score differences across the three job categories, $F(2, 120) = 2.22, p = .114$. Since the p-value was greater than the standard significance level of .05, the null hypothesis was not rejected. This suggests that the improvement in score differences among the three job categories was not substantial enough to conclude that the job category had a significant impact on participants' scores. These results indicate that the ¡Basta! training led to similar knowledge gains across job categories.

Table 4. Results of one-way ANOVA for mean score differences across job categories

| Variable | Df | Sum Sq | Mean Sq | Mean | SD | F-value | P= |
|-------------------|-----|--------|---------|------|-------|---------|-------|
| Job Category | 2 | 598 | 298.8 | 4.41 | 11.73 | 2.215 | 0.114 |
| Residuals (Error) | 120 | 16,190 | 134.9 | | | | |

$\alpha = 0.05$

Score Differences by Gender

A one-way ANOVA was conducted to examine whether there were significant score differences (post-pre) based on participants' gender. The two job categories included in the analysis were men and women, using the following hypothesis:

Ho3: There will not be a significant improvement in participants' score difference when grouped by gender.

Ha3: There will be a significant improvement in participants' score difference when grouped by gender.

The results did not show any significant score differences based on gender, $F(1, 121) = 0.001$, $p = 0.977$. Since the p-value was greater than the standard significance level of .05, the null hypothesis was not rejected. These findings suggest that the 'Basta! training showed no significant difference in knowledge gain between men and women. The observed differences are likely due to random variation rather than any true effect of gender on participants' score differences.

Table 5. Results of one-way ANOVA for mean score differences across gender

| Variable | Df | Sum Sq | Mean Sq | Mean | SD | F-value | P=value |
|-------------------|-----|--------|---------|------|-------|---------|---------|
| Gender | 1 | 598 | 0.11 | 4.41 | 11.73 | 0.0001 | 0.977 |
| Residuals (Error) | 121 | 16,788 | 138.74 | | | | |

alpha = 0.05

Score Differences by Language

A one-way ANOVA was used to examine mean score differences (post-pre) across the participants' preferred language, either English or Spanish.

Ho4: There will not be a significant change in participants' score difference when grouped by language (English and Spanish).

Ha4: There will be a significant change in participants' score difference when grouped by language (English and Spanish).

There results did not show any significant score differences based on the participants' preferred language ($F(1, 121) = 0.55, p = 0.46$). The low F-statistic (0.55) shows that the difference in knowledge across the two language groups was very small compared to the natural variation within each group. This suggests that both language groups benefited similarly from the training.

Participant's Self-Efficacy to Report Before and After the Training

A McNemar's Chi-Squared Test was used allows us to assess whether there was a statistically significant change in participants' self-reported confidence to help someone experiencing workplace sexual harassment (WSH) before and after the training (Table 6).

Ho5: There will not be a significant change in participants' self-reported confidence to help someone experiencing WSH before and after the training.

Ha5: There will be a significant change in participants' self-reported confidence to help someone experiencing WSH before and after the training.

After the training, 18 participants changed their responses. Among those participants, 17 of them changed their response from NO to YES - indicating their self-efficacy to help grew after the training. Only one participant reported the opposite change. The chi-squared test yielded a value

of 12.5 with one degree of freedom and a two-tailed p-value <0.001. The odds of participants' reporting self-confidence to help after the training was 17 times higher than before the training with a confidence interval ranging from 2.66-710.46. These results indicate the training was associated with an increase in participants' confidence to help someone experiencing WSH.

Table 6. McNemar's Chi-Squared Test for Confidence.

| Responses to Confidence in Your Ability to Help Pre- and Post-test | | |
|--|-----------|-------|
| Pre-test | Post-test | Total |
| No | No | 1 |
| No | Yes | 17 |
| Yes | No | 1 |
| Yes | Yes | 102 |

Table 7. Frequency of Post-Survey Responses on Knowledge, Attitudes, and Self-Efficacy to Report and to Help Others Experiencing WSH (n=123)

| Category | | Q#6: Confidence to Help (Self-Efficacy) | | Q#8: Know the Policy (Knowledge) | | Q#9: Confidence to Report (Self-Efficacy) | | Q#10: Think WSH is Common (Attitude) | |
|----------|------------|---|-----|----------------------------------|-----|---|-----|--------------------------------------|-----|
| | | Yes% | No% | Yes% | No% | Yes% | No% | Yes% | No% |
| Gender | Male | 97 | 3 | 97 | 3 | 100 | 0 | 83 | 17 |
| | Female | 100 | 0 | 98 | 2 | 99 | 1 | 97 | 3 |
| Job | Worker | 93 | 7 | 97 | 3 | 100 | 0 | 75 | 25 |
| | Supervisor | 98 | 2 | 100 | 0 | 100 | 0 | 86 | 14 |
| | Org. Staff | 100 | 0 | 96 | 4 | 96 | 4 | 100 | 0 |
| Language | English | 100 | 0 | 100 | 0 | 96 | 4 | 100 | 0 |
| | Spanish | 97 | 3 | 97 | 3 | 100 | 0 | 83 | 17 |

The post-test included four questions to assess participants' WSH knowledge, attitudes, and self-efficacy (Table 7). Below are the results of the descriptive observations from these results. The small number of participants who changed their responses limited the statistical power to detect meaningful differences between groups.

Overall, after the training, the majority of the participants reported confidence in their ability to help someone experiencing harassment, demonstrated awareness of their workplace policy, confidence in their ability to report, and expressed they perceived sexual harassment to be common in agriculture (attitude). However, there were notable differences in participants' responses based on gender. When asked about whether they thought WSH was common in agriculture, 17% of male participants responded "No" while only 3% of female participants did.

Confidence to Help. After the training, between 83–88% of participants reported feeling confident they could help if they witnessed someone experiencing WSH. Although no statistically significant differences were found across gender, job role, or language groups, the highest confidence was observed among English-speaking participants (88%), and the lowest among organizational staff and women (both at 83%).

Knowledge of workplace policy - After the training, between 96-100% of participants reported they were aware of the WSH policies and procedures in their workplace. There were no differences in responses observed across participant characteristics. Confidence rates were reported highest among participants who were supervisors (100%) and English-speaking (100%).

Confidence to report - After the training, between 96-100% of participants reported confidence to report WSH. While there were no meaningful differences across gender, job, or language, organizational staff (96%) and English-speaking participants (96%) self-reported confidence was lower than the rest.

Think WSH is common - The majority of participants (n=102, 83%) reported that they perceived WSH in agriculture to be common. However, notable differences in attitudes were observed across job role, gender, and language. Only 3% of women reported that they believed WSH was common in agriculture, compared to 17.4% of men. Differences were also evident by

job role, with 25% of workers and 14.5% of supervisors indicating that they perceived WSH as common, while no participants in the "Organizational staff" job category reported the same. Language also played a role, as 17% of Spanish-speaking participants reported that WSH was common, whereas none of the English-speaking participants did (Table 7).

Score Differences by Supervisory Role

A one-way ANOVA was conducted to examine whether there were significant score differences (post-pre) based on participants’ supervisory role. The two job categories included in the analysis were supervisors and non-supervisors, using the following hypothesis:

Ho6: There will not be a significant improvement in participants’ score difference when grouped by supervisory role.

Ha6: There will be a significant improvement in participants’ score difference when grouped by supervisory role.

The results revealed no significant difference in score differences between supervisors and non-supervisors, $F(1, 121) = 1.25, p = 0.265$. These results suggest participants in the ¡Basta! training did not experience significant differences in scores based on supervisory role.

Table 8. Results of one-way ANOVA for mean score differences across supervisory role

| Variable | Df | Sum Sq | Mean Sq | Mean | SD | F-value | P=value |
|-------------------|-----|----------|---------|------|-------|---------|---------|
| Supervisory role | 1 | 171.92 | 171.92 | 4.41 | 11.73 | 1.25 | 0.265 |
| Residuals (Error) | 121 | 16615.87 | 137.87 | | | | |

alpha = 0.05

In summary, the ¡Basta! training had a significant impact on participants' knowledge, with scores significantly improving from pre- to post-test. The results did not show any significant differences in knowledge gains based on job category, gender, or supervisory role. After the training, the number of participants who reported feeling confident in their ability to help others increased significantly. The majority of participants expressed awareness of their workplace policy and ability to report. Additionally, many participants perceived WSH to be common in agriculture.

DISCUSSION

This is the first known pilot study to evaluate a tailored WSH training in the agricultural industry. The primary goal of this study was to determine if this training was effective and lay the groundwork for future longitudinal studies on WSH. This pilot used a participatory approach to develop the assessment in collaboration with two Spanish-speaking agricultural safety trainers. It also explored the feasibility of using single-item measures to assess attitudes, self-efficacy, and knowledge. Our findings suggest that these approaches are both practical and useful to explore in future studies, especially in the agricultural sector.

Overall, the findings demonstrate the ¡Basta! training video and facilitator's guide were effective in improving WSH knowledge. Knowledge test scores significantly increased among all participants after the training ($p < 0.0005$; 95% CI: 6.95, 2.64). This illustrates that after the training participants ability to recognize WSH increased, along with their knowledge of worker's rights and employer's responsibilities.

The majority of the participants (n=110) were able to obtain perfect scores in the knowledge portion of the posts-test after the training. This helped demonstrate that the questions were understandable for the participants and that the content was covered during the training. Our primary goal was to develop a pre- and post-test that was easy for participants to answer, therefore, this was a positive outcome of the evaluation.

Job categories. Our findings indicate that after the training there was no statistically significant differences in mean knowledge scores across job categories. However, when assessing changes in scores, workers and supervisors demonstrated similar knowledge improvements, with workers showing a mean improvement of 2.96 percentage points and supervisors a mean improvement of 3.30 percentage points. In contrast participants in the “organizational staff” category demonstrated a larger mean increase of 8.37 percentage points.

The larger mean increase observed in the “organizational staff” category is a result of the variability present in the group. This suggests people in this group started the training with very different levels of knowledge. However, we did not see any statistical difference in job category even though they had different levels of power in the workplace. One reason may be attributed to the diversity of job categories within this group, which included growers, human resources personnel, trainers, safety folks, some owners, and others such as truck drivers. Given the variety of roles, their baseline knowledge and experience may have been very different. Grouping them all together may have made it harder to see patterns or differences in the data. In the future, it may be more useful to separate these roles into smaller categories that are more specific and could allow us to better understand the impact of the training on different job categories.

The similarity in knowledge gains between workers and supervisors was unexpected. Given their responsibilities and experience, supervisors are expected to have a higher baseline

knowledge because of the expectation they understand workplace requirements and hold additional responsibilities. Supervisors' knowledge and ability to communicate effectively are particularly important in diverse workplaces with Latino workforces such as agriculture and construction (Arcury et al. 2012; Hardison et al. 2014; Harrington et al. 2009). Determining supervisors WSH knowledge was similar to workers suggests a potential gap in training and should be explored further.

A participant's job category can also be indicative of an individual's personal experience, knowledge, or access to safety training and professional experience. An individual's role within the ag industry may influence not only what they know but also how they perceive and prioritize healthy work environments (Caffaro et al. 2018). Although studies comparing knowledge differences across job categories are limited, there are some patterns. One safety training evaluation in dairies found that workers at the lowest scores and owners had the highest scores. In that study, the discrepancy in scores was also found to reflect disparities in education, language, and/or access to prior training (Benoit et al. 2021). Similarly, another study found that individuals who had the highest scores on safety evaluations were also found to have a desire to improve safety culture, which could suggest a link between safety knowledge and safety climate (Sorenstein et al. 2019).

In the agricultural industry, job-roles tend to be very gender specific with men being primarily in positions of power, such as supervisor positions (Hobbs et al. 2016; Prado et al. 2021a; Weaver et al. 2017). In this study, job categories were found to be very gender specific. Participants in the worker and supervisor category were predominantly male and participants in the "organizational staff" category were predominantly female. Stratification of the "organizational staff" category revealed that nearly 50% of participants in this category were

women as opposed to 24% in the worker category. Conclusions about the organizational staff job category are limited because it is confounded by gender roles in the workplace of and the wide variability in the scope of their jobs which included human resources, office staff, truck drivers, and trainers. Future research studies should better define “organizational staff” job categories.

Gender. Contrary to our initial hypothesis, we did not observe statistically significant differences in test scores based on gender ($p = 0.13$; 95% CI: -0.67, 5.31). Although women had slightly higher test scores on average, these differences were not statistically significant. One possible reason for this is that the small sample sizes (29 women) did not allow for meaningful comparisons across these groups. These findings are unexpected, as prior studies have shown that women, especially those from marginalized communities, may be more receptive to training on WSH, possibly due to personal experiences, particularly among women and minorities, such as Indigenous or Latino foreign-born individuals (Kim et al. 2015; Murphy, 2015, Ontiveros 2010; Prado et al. 2021; Waughn 2010).

However, other research suggests that long-term exposure to systemic harassment may lead some Latina communities to downplay or accept WSH (Cortina et al. 2001; Prado et al. 2021). This could result in women believing harmful stereotypes or blaming victims for WSH (Cortina et al. 2008, Prado et al. 2021). This could explain the variability in outcomes across studies and highlights the complexity of gender and cultural influences on WSH training effectiveness.

While our findings didn't reveal significant gender-based differences, other studies have reported mixed results. Some found no meaningful variation across gender or race (Campbell et al. 2013; Cronin et al. 2024), while others found that women were more likely to value the importance of WSH prevention, engage more with training, and show greater improvements in

knowledge. In contrast, men were sometimes found to be more resistant to attitude change (Benya et al. 2018; Moyer et al. 1998; Oertelt-Prigione 2020).

In our study, most supervisors identified as male demonstrated a significant increase in post-test scores. This suggests that knowledge gains may be influenced not only by gender but also by job role and access to information. Furthermore, while we included a single item to assess attitudes, more comprehensive measures may be needed in future studies to fully capture gender-based differences in beliefs, engagement, and training outcomes.

Research has shown that men and women may experience and interpret WSH differently, which can shape their baseline knowledge, perceived relevance of the material, and motivation to learn (Cortina et al. 2008; Perry et al. 2009; Prado et al. 2021). While our study found no statistically significant gender differences, the patterns we observed align with broader literature suggesting women often demonstrate greater awareness and motivation regarding WSH prevention.

Language. Among the Spanish-speaking participants we observed larger increases (4.81 percentage points) in their post-test scores in comparison to the English-speaking participants (2.86 percentage points). The English-speaking participants also seemed to demonstrate a higher baseline of knowledge (95% mean pre-test) than Spanish-speaking participants (90% mean pre-test). This pattern aligns with findings from other studies showing that language can be a major barrier for safety training, especially for Spanish-speaking workers in industries like construction and dairy industries (Benoit et al. 2022; Roelofs et al. 2022). Research has shown that factors such as limited English proficiency, literacy challenges and limited number of Spanish-language training resources play a major role in information access for these communities and can also influence safety disparities (Brown et al. 2021).

Self-efficacy. Participants' self-efficacy significantly increased after the training ($p < 0.001$), indicating a stronger sense of confidence to intervene when witnessing workplace sexual harassment (WSH). Notably, 17 participants changed their response from “No” to “Yes” when asked if they felt capable of helping someone experiencing WSH. Among those, 78% were men ($n = 14$) and 56% were supervisors ($n = 10$), suggesting that the training was particularly effective in enhancing self-efficacy among male participants and those in leadership roles. These findings highlight the potential of this training approach to engage men and supervisors as allies in preventing WSH, two groups who are often in positions of influence within agricultural workplaces.

The results indicated the training also had a strong positive impact on participants' confidence to help someone experiencing WSH. After the training, participants were 17 times more likely to report feeling confident to help compared to before the training (odds ratio = 17.32, 95% CI: 2.66–710.46, $p < 0.001$). This significant increase in reported self-confidence highlights the effectiveness of the ¡Basta! training in not only increasing knowledge but also building the confidence needed to take action, both of which are essential components of a healthy and proactive workplace culture.

These results are consistent with prior studies that show WSH training can increase self-efficacy (Cronin et al., 2024). For example, one study found that field researchers experienced improvements in their confidence to foster inclusive environments and support colleagues who experience harassment. However, they also noted a common limitation in the literature: increased self-efficacy does not always lead to sustained behavior change (Cronin et al., 2024). Despite immediate post-training gains, longer-term studies have struggled to show lasting impacts on actual intervention behaviors.

While this study did not include a follow-up to assess sustained changes, our findings suggest that building self-efficacy may be a critical first step. Prior research has identified self-efficacy as a key predictor of behavior intention and performance, particularly among supervisors and leaders (Rabin et al.1998). Enhancing self-efficacy may therefore be an important lever for changing not only individual behavior but also broader organizational norms.

Attitudes. In our study, the majority of participants (83%) perceived WSH to be common in agriculture. However, there were notable differences among participants based on job, gender, and language. One quarter of workers (25%, n=7) reported that they believed WSH to be common, compared to supervisors (14.5%, n=10). Research has shown people in positions of power are often perpetrators, leaving workers and those who report to them to be more likely to be exposed to dynamics where they observe or experience WSH (Kim et al. 2016). On the other hand, supervisors, who may also be perpetrators, could be less likely to perceive WSH as common, potentially due to their role in perpetuating it or their social distance from workers.

Gender differences in attitude were the most evident. Only 3% of women (n=1) reported they perceived WSH was uncommon, compared to 17.4% of men (n=15). This disparity may suggest gender-based differences in WSH awareness or experiences. The contrast observed between male and female attitudes are similar to other studies conducted with Latino farmworkers. Research on WSH in agriculture has found that the male dominated environments created power differentials, the perpetrators to be primarily male supervisors, and women expressed fear of retaliation (Kim et al. 2016). Similar studies also reported men in positions of power in agriculture used their positions to demand sexual favors (Human Rights Watch 2012, Oxfam 2015). Given the power dynamics in these settings, women are more likely to experience and therefore perceive WSH.

Differences in language also emerged in our study, with 17% (n=17) of Spanish-speaking participants reporting WSH was not common, compared to none of the English-speaking participants. This finding may highlight potential cultural or communication barriers that influence how WSH is perceived or reported across different communities. Spanish-speaking workers have been found to be less likely to be more to report WSH of their vulnerability for abuse resulting from power imbalances, low-wages, and isolated work environments (Kim et al. 2016; Murphy et al. 2015; Waugh 2010; Weaver 2017). A meta-analysis of WSH among Latinas across various industries found they were more accepting of harassment because it was so widespread and normalized that they began to see it as typical (Cortina et al. 2008). However, it is important to note that within each language category, participants were not equally represented across job categories. Most English-speaking participants were organizational staff (52%, n=15). As organizational staff typically have more access to training, information, and safer work environments, could explain why English-speaking participants would have more support systems in the workplace and may perceive WSH differently than Spanish-speaking participants.

Bystanders. Bystander education is a factor that has been shown to enhance the effectiveness of WSH prevention programs and appears to be the most promising for creating changes in behavior (Banyard et al. 2008; Banyard 2011). Research suggests that successful WSH prevention programs should include training along with concrete strategies for intervening or reporting incidents to support victims (Banyard et al. 2008; Banyard 2011; Prado et al. 2021). For example, a study conducted with college students found bystander training was associated with behavior changes such as likelihood to engage in actions to prevent harassment and intervene (Banyard 2011).

Our findings suggest that men could be powerful allies in preventing WSH, underscoring the potential to further engage and recruit men into taking an active role in prevention. Training programs aimed at fostering a sense of responsibility in men has the potential to significantly impact workplace dynamics and culture. Research shows training can enhance men's ability to recognize WSH and demonstrates men play a key role in preventing gender-based harassment (Buckner et al. 2014). Their involvement can inspire others to change and challenge harmful norms within institutions and society (Nazareno et al. 2022). This is particularly important for industries such as agriculture where men currently comprise the majority of positions of power and are also a majority of the workforce (Feldblum et al. 2016).

Reporting. In a recent study of federal field staff, workplace safety and harassment (WSH) training was shown to improve participants' knowledge, confidence in preventing harassment, and intentions to intervene. These effects were also found to persist for several months (Cronin et al. 2024). However, notable disparities emerged; women and individuals from underrepresented racial groups consistently rated their capabilities lower than their peers. Although participants reported a greater willingness to report incidents following the training, institutional reporting rates remained low, highlighting ongoing barriers within reporting systems. Based on these findings, we anticipated observing similar patterns within our study population. To address these challenges, particularly among vulnerable communities such as farmworkers, additional efforts are needed to build trust and remove systemic barriers. Strategies such as offering anonymous reporting options, partnering with trusted community-based organizations, and engaging peer allies can help create safer, more supportive environments that encourage reporting and accountability.

Supervisors. Knowledge alone is not enough to prevent WSH; the attitudes and organizational culture are equally critical. Supervisors play a crucial role in setting the tone for the attitudes and behaviors workers adopt. One study in the construction industry found when workers know about safety, they are more likely to act safe and have positive attitudes about safety, and this effect was stronger when their supervisors also valued safety (Kao et al. 2019). Similarly, effective WSH prevention requires a workplace culture where respect and accountability are modeled by the supervisors.

Supervisor Training. Although training has helped managers better recognize harassment, it doesn't always change minds about what should be done in response to the harassment (Buckner et al. 2014). Giving managers more or different kinds of harassment training doesn't necessarily help and might even hurt their ability to recognize it. (Buckner et al. 2014). More training can decrease one's ability to identify harassment, which could be misinterpreted as ineffective training. Research has shown that training should not be abandoned entirely; we just need to rethink how it's done to avoid these negative effects (Buckner et al. 2014).

Literacy. The participant characteristics can play a role in the effectiveness of a training as a result of knowledge, experience, or interest or motivation to learn. To address literacy barriers in this study, the questions were read to participants, and the assistant trainer was available to help answer any questions. These factors can shape how participants engage with training, based on their background knowledge, experience, or motivation to learn. Future studies should examine these variables to better understand the impact of the training.

Education. People with less formal education or those who do not speak English as their first language often report lower confidence in their ability to perform key tasks or self-efficacy.

This has important implications for workplace safety training, where language has been found to be a particularly strong predictor of perceived confidence (Parker et al. 2007). For many agricultural workers, access to formal education is limited (Liebman et al. 2010), and language differences can further restrict access to training, resources, and support systems which ultimately reinforce disparities in power and privilege. These structural inequities are not just about language or education in isolation but rather they reflect deeper systems of marginalization. Kimberlé Crenshaw's framework of intersectionality helps us understand how overlapping identities, such as race, language, immigration status, and class can amplify vulnerability, especially for those working in high-risk, low-power environments like agriculture (Crenshaw 1991). While understanding an individual's education level can serve as useful indicators of individual needs, reporting these results without discussing the broader systems in which they occur can be outdated and exclusionary. To truly support marginalized workers, research studies must challenge themselves to seek other actionable measures that can help illuminate more specific details of where specifically system gaps exist so they can be addressed.

Previous research identified being a non-English speaker as a risk factor for WSH and other safety hazards (Waugh 2010). In response to these challenges, our study intentionally simplified evaluation tools and collaborated with members of the community to develop culturally relevant questions. This co-development approach may have helped Spanish-speaking participants better engage with the material and contributed to the knowledge gains we observed.

Overall, the ¡Basta! training guide and video were found to be effective, and this is in large part due to the approach of developing the training and evaluation materials in collaboration with agricultural stakeholders. Research shows training programs that are linguistically and culturally tailored to the audience are more effective (Barrera et al. 2013). The

training followed the story of a worker named Juana and her experience navigating WSH on a farm which was written in collaboration with Latina farmworker women in Washington State. Development with farmworkers ensures the story reflects the setting, situations, and barriers many experience on the job and also allows for tailored recommendations which consider these factors (Kim et al. 2016; Prado et al. 2021a; Tippet 2016). This is in alignment with recommendations from researchers which recommend content that reflects the values, experiences, and perspectives of the target audience (Caffaro et al. 2018; Perry et al. 2009).

Lessons Learned. This pilot study underscores the value of culturally tailored, community-informed approaches to WSH training in agricultural settings. The training messages were co-developed with agricultural workers, employers, and community stakeholders, ensuring that scenarios addressed real-world situations and common misconceptions shared by those in the field. By incorporating localized knowledge and language, the training was more relatable and relevant, which likely contributed to its impact. This aligns with findings from other studies showing that tailored educational materials are more effective than generic approaches in agricultural communities (Caffaro et al. 2018; Perry et al. 2009; Spector et al. 2021).

The high participation and response rates in our study further highlight the feasibility of using streamlined, scenario-based training. Like prior work in other sectors (Campbell et al. 2013), our study suggests that short, interactive training with limited evaluation questions can effectively engage participants and still produce measurable knowledge gains. Encouragement or support from employers likely contributed to these high completion rates, emphasizing the importance of organizational buy-in when implementing WSH interventions.

Importantly, the strong performance on post-training tests indicates that our goal of creating a simple, accessible evaluation tool was met. With 129 responses, the high response rate

contrasts favorably with other agricultural surveys, such as the 2020 National Agricultural Worker Survey, which had a 45% response rate (NAWS 2020). This suggests that short, easy-to-understand pre- and post-tests may be a promising strategy for improving data collection in agricultural training programs.

One of the most important takeaways from this study is the power of developing culturally and contextually grounded tools. Working with agricultural trainers from the Yakima Valley helped ensure the language used in the tests was accessible and reflective of the local community's everyday vocabulary. The training materials, including a video set in a Washington orchard, were co-developed with workers and employers and incorporated lived experiences of harassment. These design choices made the training feel authentic, further enhancing engagement and potential impact. Research supports this worker-centered approach, emphasizing that integrating workers' knowledge and connecting to existing community programs can lead to meaningful improvements in safety behaviors and attitudes (Caffaro et al. 2018).

Overall, this study demonstrates the value of designing and evaluating culturally relevant, accessible training programs in collaboration with the communities they aim to serve. A participatory approach not only reduces barriers to participation but also helps ensure that training resonates with the audience. Since WSH continues to reduce job satisfaction and productivity in agriculture, it is critical to address the underlying cultural and organizational factors, such as sexist attitudes and tolerance for harassment, rather than relying solely on structural changes (Hobbs et al. 2021). As women play an increasingly vital role in the agricultural workforce, protecting their safety is both a moral imperative and a labor necessity (Hobbs et al. 2017). One other important key finding was that there were no significant

differences in knowledge gains comparing supervisors to non-supervisors which underscores the need for everyone in the workplace to receive the training.

Future studies could explore how literacy, language, and cultural factors influence learning and behavior change outcomes in WSH training. There is a need to develop alternative, accessible assessment tools, especially for Spanish-speaking agricultural workers, that reflect diverse communication styles and literacy levels. These insights can support the development of even more effective interventions to create safer, more inclusive workplaces in agriculture and beyond.

LIMITATIONS

While this study provides valuable insights for evaluating WSH training, there are several limitations that should be considered when interpreting the results. One of the primary limitations of the study was related to sample size and meeting the general thresholds required for certain statistical tests. The overall sample size was greater than 30, therefore normal distribution procedures were applied. However, despite this the t-test data exhibited skewness so it is important to note that the data violated certain assumptions of normality. In our analysis of variance, one assumption that may be questioned is the assumption of normality, as two of the groups had fewer than 30 participants: 29 in the worker group and 29 in the organizational staff group. However, it is important to note that the data violated certain assumptions of normality. However, a one-way ANOVA is robust enough to account for this being borderline in terms of subgroup size.

Another limitation was the use of single-item measures to assess self-efficacy, attitudes, and knowledge of workplace policies, rather than utilizing scales from validated instruments. While this approach provided useful insights into participants' perspectives, it limited the information collected and ability to assess internal consistency. Similarly, the lack of multiple questions did not allow us to gain insight on specific gaps in knowledge, self-efficacy and attitudes across participant groups. Moreover, post-test scores were overwhelmingly high, with the majority of participants (n=110) receiving nearly perfect scores, limiting our ability to identify areas where major gaps in the training material might be present.

The absence of a control group also limited our ability to determine whether the observed differences were due to the training or occurred by chance. Additionally, information on education level, literacy, previous training, work experience, years in the industry and other external factors was not collected and these factors may have influenced the participant's scores.

Another limitation to evaluating bilingual training programs is the impact of having two different facilitators for the English and Spanish sessions. This was not something that was measured before the training, but it is a factor that should be measured in future studies. The Spanish training session was delivered by an experienced and well-known agricultural safety and health trainer, and the English session was delivered by a bilingual bicultural student with limited experience training. Although the trainers did their best to standardize training delivery by developing materials and messages together for consistency. There is the possibility that this could have had an impact on training delivery and test score results. Studies have shown training is better received when it comes from someone who is local, trusted, and relatable to the audience (Arcury 2021; Cafarro et al. 2022). This could play a role in participants' perception on the trustworthiness or credibility of the audience. This study showed how workers in the

agricultural industry did not perceive folks who work outside of agriculture to be knowledgeable or experienced in the industry which may influence the effectiveness of the training. Our questionnaire did not measure aspects such as internal validity. This is because we did not use any scales and only a few questions and, in some cases, only one question (attitude) to measure a concept. As a result, internal consistency in different aspects of the assessment were not able to be measured.

There were a limited number of questions asked in the evaluation which had strengths and weaknesses for the study. The limited number of questions allowed us to enhance the response rate but it did reduce the amount of information and data we were able to collect. Given the high response rate, there is evidence to support that limiting the number of pre- and post-test questions is an approach that works for increasing participation. However, it does limit the amount of information and data we were able to collect. In future studies, researchers should weigh the costs and benefits between asking less questions in an attempt to increase response rate and collecting more data but potentially reducing the number of participants that respond. In addition, following up with participants over time (in 3-6 months) would help us understand how they have applied their learning.

CONCLUSION

This study highlights the importance of involving the target audience in both the development and evaluation of workplace safety and health (WSH) training. By working closely with agricultural workers, employers, and community educators, we were able to create training that was accessible, culturally relevant, and grounded in the lived experiences of the workforce.

The greatest gains in knowledge were observed among Spanish-speaking participants, the training's intended audience, demonstrating that the messages resonated and were effectively delivered.

As a pilot study, this work offers valuable lessons for both practice and research. On a practical level, the results suggest that addressing language barriers and using relatable stories and scenarios can significantly improve training comprehension and engagement. Teaching workers to recognize harassment, understand prevention strategies, and know their rights is a critical first step in reducing WSH in the workplace.

To our knowledge, this is the first evaluation of a WSH prevention program that was co-developed with members of the agricultural community. While the study has some limitations in design and data collection, it lays important groundwork for future research. Longitudinal studies are needed to assess how knowledge, attitudes, and behaviors change over time. Additionally, future studies should explore how training is implemented in real agricultural settings to better understand what works in practice and how to support employers.

Research on workplace climate is also key to addressing the deeper organizational and cultural factors that influence WSH, such as power dynamics, attitudes toward harassment, and psychological safety. Still, training alone is not enough. Preventing WSH requires broader systemic changes. This includes expanding legal protections for agricultural workers, requiring employers to adopt clear workplace policies, offering effective and trusted reporting mechanisms, and protecting workers from retaliation.

Finally, this study underscored the value of designing training that is not only culturally relevant but also practically feasible. Collaborating with local trainers helped ensure the language was clear and respectful, and that the examples reflected real situations, such as music

with inappropriate lyrics, that workers encounter. These details helped spark meaningful discussions and brought abstract concepts to life in a way that felt true to their experience. Overall, the success of this pilot demonstrates that with the right approach, grounded in collaboration, cultural relevance, and worker input, WSH training can be both impactful and effective.

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