USING CULTURAL CONSENSUS ANALYSIS TO IMPROVE A SAFETY CAMPAIGN FOR FARMWORKERS

By Paul Monaghan

Introduction

For the past four years, researchers at the Florida Prevention Research Center, along with community partners that include the Farmworker Association of Florida, and the Collier County Health Department and several large citrus companies, have been evaluating an eye safety program targeted at citrus harvesters. We have used a variety of field methods to inform the development of a social marketing campaign that will attempt to convince workers to wear safety glasses when they pick. It is difficult to convince workers to wear safety glasses because many believe it slows down the rate of picking, which has an impact on earnings. We have achieved the most success so far by using trained community health workers called "*promotores*" who are citrus pickers themselves and who work alongside their peers, dispensing safety glasses, advice and first aid. In our research, we found that harvesting crews that have one of these "*promotores*" have increased their use of safety glasses from zero to over 30%.

While our research has discovered many reasons why pickers do not wear the glasses, it has been more difficult to identify exactly why the 30% who have adopted wearing the safety glasses have done so. This paper will review some of our findings on the ethnography of citrus work and propose using the data to create domains to model cultural consensus on issues such as self-efficacy, risk, and comfort. We hope that by discovering what motivates some citrus workers to begin using eye protection in the groves, we can develop an effective social marketing campaign to increase the percentage of workers who opt to wear safety glasses.

Background

The Partnership for Citrus Worker Health (PCWH) in southwest Florida is a community-university collaboration involving the University of South Florida's College of Public Health, the Farm Worker Association of Florida (FWAF-a statewide advocacy group) and a community advisory board which is composed of employers, health professionals, and citrus workers. As part of the intervention conducted by the project, there is also a network of more than 30 trained community health workers (CHWs) promoting injury prevention and providing first aid in the citrus groves for hundreds of harvesters in the region. The research team of community partners (university researchers, board members, employers and FWAF organizers) has collected data on the CHW intervention and conducted repeated surveys with more than 500 workers.

The overall strategy of the PCWH is to combine the methods of social marketing with the skills and knowledge of the community members. Working alongside our community partners and citrus harvesters, we have used a variety of research methods to collect ethnographic data on "picking," including worker perceptions of risk and safety. Citrus workers have detailed knowledge of at least two dozen ways to receive an eye injury in the groves. They understand changing conditions from one day to the next and from one grove to another. From our research with workers, we understand the reasons for not wearing safety eyewear while picking in the hot, humid, dusty environment. Safety glasses can be uncomfortable due to fogging lenses and the increased heat around the face and as a result, none of citrus companies we work with have been successful at changing worker behavior. We are reasonably certain that we have been successful in influencing behavior change, but we are not sure how workers overcome the barriers and make that decision to change their behavior. Cultural consensus analysis provides one possible model for understanding how citrus workers calculate risk, measure the discomfort of wearing the glasses compared with the discomfort of injuries , and determine their sense of self-efficacy in avoiding injuries. These data could then be incorporated into making our social marketing campaign more effective by appealing to a worker's decision-making process.

The Dangers of Citrus Harvesting

Citrus harvesting is one of the most physically demanding jobs for agricultural laborers in Florida. Pickers stand on an 18-foot aluminum ladder that is leaning on the branches deep inside the canopy of an orange tree. Starting at the top of the ladder, with a large canvas bag across one shoulder, they descend, snapping off oranges using both hands and filling the bag. A full bag can weigh 90 pounds. Once on the ground, the picker drags the full bag over to a large bin, lifts it to the edge, and empties it. Each bin holds up to 600 pounds of fruit and, when full, can be worth $9.00 to $15.00, depending on the set price that day. An experienced worker can fill 8-10 bins (more than two tons of oranges) in a day and sometimes more if the fruit is plentiful and easy to harvest. By way of comparison, citrus pickers make a higher average wage than vegetable harvesters in the same area.

The relatively high wages for pickers come at a cost: injuries are frequent and can be quite serious when they involve a fall from the ladder. In focus groups and surveys, workers have reported falling from the top of the ladder with the bag around their neck, twisting their ankles by missing the bottom step

of the ladder, muscle cramps in their hands, pain in their feet and knees from standing and leaning on the steps of the ladder all day, eardrum punctures from branches, and headaches and respiratory symptoms from the smell of chemical residues.

The most common injuries to citrus pickers, however, are not always considered the most serious, and these include bruises, abrasions, foreign objects in and general irritation (redness, burning and tearing) to the eyes. Our research shows at least a quarter of all citrus pickers experience these injuries, a finding similar to other studies of agricultural workers. Yet for the most part, these more common injuries are not reported as on-the-job accidents to supervisors or employers, or if they are reported, there is often a delay and it is unlikely the worker is examined or treated at a clinic. Citrus pickers are expected to bear the burden of the pain and possible long-term suffering of most eye injuries as just a part of the job. In focus groups, the question, "How does one avoid eye injuries while picking?" was often answered with laughter and the advice, "Don't work in citrus."

The general attitude towards eye injuries as less serious than other injuries or an accepted part of the business of picking oranges, is influenced by the way pickers are paid. Pickers are paid by the piece rate system, not by the hour. The faster they work, the more they make. Yet if they are slow and do not pick enough to equal the minimum hourly wage, they will eventually be let go. The crew leaders are also paid by the rate at which pickers work, receiving a percentage for how much the crew picks each day. The crew leader on a citrus crew often makes 2 to 3 times the average daily wages of a harvester. If a worker is slowed down or stops work for an injury, both he and his crew leader will invariably lose money.

Research with Citrus Workers

Research began in late 2002 with a team composed of an anthropologist, several graduate students bi-lingual in Spanish, and community members. Surveys, focus groups, and participant observation were conducted in workers' homes and in the orange groves. The questions focused on the risks to health from citrus work, experiences with eye injuries, and perceptions of the usefulness of wearing safety glasses. A limitation of this approach was that workers had rarely tried wearing safety glasses but had already formed an opinion about not wanting to wear them because of the potential for increased heat and fogging.

Our community partner (FWAF) recruited participants for focus groups that were conducted in the yards and homes of workers in the evenings and on weekends. According to most of the 56 focus group participants, eye injuries, including scratches and foreign objects, are accepted as part of the job of citrus work and are usually treated by workers themselves. Most participants did not report their eye injuries to supervisors. For those who sought clinical treatment, some did so on their own. When questioned about the use of safety glasses, most had a negative opinion about them although they had never actually tried picking while wearing them. A frequent response was that picking by the piece rate was incompatible with safety glasses, as it slowed down the rate of picking. Safety glasses, they said, would fog up and get dirty in the orange groves. If they had to stop and clean them, it would cause them to slow down and earn less money. Many workers thought that safety glasses could be worn if workers received an hourly wage.

Focus groups, along with key informant interviews in the citrus industry and participant observation in the orange groves, provided a good ethnographic description of citrus work and the hazards for eye injuries. The two main risks for eye injuries can be divided into the foreign objects that fall in the eyes and cause scratches or irritation, and the numerous ways the branches and leaves can lacerate or bruise the eyes and cause trauma.

While the trauma injuries are less common, workers recognize the many risks that contribute to them. A strike or poke to the eyes (*golpe*, *piquete,* or *ramalazo*) can be caused by many conditions: branches that snap back from behind the ladder, blunt tipped branches from trees that have been trimmed, older trees with brittle branches that are less flexible, and trees that are spaced closely together or have dense undergrowth, making it difficult to walk around while carrying the heavy bag. In addition, trauma can also result from slips and falls from the ladder and ladder instability when it is not securely placed in the soft ground or in older groves with taller trees that require the picker to extend his body beyond his balance.

The more commonly experienced injuries of foreign objects lodging in the eye are caused by a variety of factors that are much more difficult to avoid. There is *polvo* (dust) kicked up by the trucks driving through the groves and coating everything until it is released by the snap of an orange off a branch, *basura* (trash) a generic term for mold, mildew and dirt from the leaves and branches, *espray* (residue) from the chemicals, pesticides and solvents sprayed on the trees, the granular Florida sand that sticks to gloves and shoes and the steps of the ladder, citrus flowers and pollen that dry out and crumble into dust, and a variety of insects—gnats, citrus flies and mosquitoes—which can cause pain and burning. Workers can do certain things that make it more likely that foreign objects would fall in the eyes, such as picking on the ground using a hooked stick (*gancha*) to pull the fruit down while looking up into the canopy, or wiping the sweat off their face with a dirty shirt sleeve or a with a glove that has sand on it. Conjunctivitis, sties, and various infections are also common due to the unsanitary conditions of the groves and some homes.

At the end of the first stage of research, we concluded that workers had detailed knowledge of eye injuries and sought to avoid them. The reason they often ignored the risk was because they

did not see any alternative. They did not perceive safety glasses as a viable solution, because they thought the glasses would slow picking rates and thereby lower wages. At this time, we began working with members of a research project at the University of Illinois, Chicago, who had recently developed their own eye safety intervention for farmworkers in the Midwest. The UIC team had created a curriculum for eye safety education with the help of Migrant Health Promotion, a non-profit with expertise in community health worker programs.

The PCWH research team adapted the eye safety program for the conditions of citrus harvesters in Florida and hired health promoters that were currently working with harvesting crews. During the first season, we field tested more than two dozen styles of commercially available safety glasses and, using worker feedback, determined the characteristics which would minimize discomfort and fogging. We finally chose one style of glasses which were lightweight, adjustable, and had a lens that with low distortion and a tint compatible with work in the shady tree canopy. The design reduced fogging through a ventilating gap in the top of the frames. A short strap was added to keep the glasses from being knocked off by the tree branches.

For the past four citrus harvesting seasons, we have fine-tuned the *promotores* program, which consists of training one person on each participating crew to be the eye safety specialist. That person attends all training sessions and is required to wear safety glasses himself and conduct educational outreach to everyone on the crew. He receives a first aid kit and enough glasses for the whole crew. In addition, he collects data during the week on his activities, meets with the field supervisor, and receives follow-up training. We have collected process evaluation data, measured outcomes in the field and surveyed participants in order to make the curriculum and the educational program relevant. The program is difficult to implement because of the close supervision required of the *promotores* and the logistics of working in the orange groves and labor camps. In addition, crew leaders and company policies do not always support eye safety.

By all measures, the PCWH *promotores* program is a success. A comparison of nine crews receiving the intervention and four control crews resulted in our highest measured success in four seasons. Of the nine crews that participated in the program, there was a range of 8% to 66% of crew members that adopted safety glasses with a median of 32% using them across all intervention groups. Workers on the control crews remained at zero percent usage over the course of the season, except for one crew, which increased to 9% without program intervention. In this case, the employers had influenced adoption of the use of safety glasses. The *promotores* are successful because they model behavior for the rest of the crew, demonstrating that it is possible to pick successfully while wearing safety glasses. They also provide encouragement and education about the dangers of eye injuries. They also provide first aid, mostly by washing out foreign objects lodged in workers' eyes. The relationship they establish with their crew helps them to increase the number that use safety glasses and they also get support from the company which encourages safety glasses' use and provides incentives to those crews that reduce eye injuries.

Gaps in Our Knowledge, Can Cultural Consensus Help?

Our survey of workers in the field was conducted once before the intervention began and then repeated eight weeks after the *promotores* had begun their activities. The survey took only a few minutes, collecting demographic data, work history, experience with eye injuries and an open-ended question on the worker's opinion about using safety glasses. The interviewer also noted whether the worker was wearing safety glasses at the time of the survey. Of those surveyed after the intervention began, about 80 citrus workers were using safety glasses and this contributed to our profile of the target audience.

The survey data shows that older workers, (most of whom are married with children and families back home in Mexico and Central America) do have higher use rates as a group. There is possibly something motivating them to protect themselves in greater numbers, something we hypothesize to be related to life cycle and greater responsibility to protect their health and remain good providers for their families while they are working in the United States. Younger workers might be expected to be a little more reckless or to evaluate their risk differently, but even among the youngest workers, there are 30% who use safety glasses. There was little difference in use according to years of experience picking, although second-year pickers had higher use rates, but many had been exposed to the program the previous year. We were encouraged by the fact that repeating the program does result in higher use rates in the second season; it helps change behavior when workers see use of safety glasses as normative.

The participant's answer to the survey question, "Why do you wear safety glasses?" was not entirely conclusive and it is one reason that cultural consensus modeling may provide better answers. Most workers gave general answers about "protecting eyesight" although a significant number specified whether it was the annoyance of foreign objects (*basura* or *polvo*) or the risk of branches (*ramazos)* hitting them. We hypothesize that the main reason is due to avoiding pain from fewer foreign objects irritating the eyes, with a secondary benefit that of reduced strikes by branches. If this hypothesis proves to be correct, the minor injuries caused by foreign objects (irritation, burning and redness) would actually be the motivating factor to adopt safety glasses and this would reduce the more severe eye injuries too. The most minor annoyance of citrus picking could be the major factor to change behavior and reduce all

eye injuries. As earlier research showed, a traumatic injury was less common and fear of losing one's eyesight was not enough of a motivating factor for adopting safety glasses use. Greater comfort during the day from less dirt, dust and insects, would be a better benefit to offer workers because their perception initially is that safety glasses are less comfortable due to the increase in heat, fogging and dirt on the lenses.

The PCWH intervention with citrus crews focuses on three main points; eye injuries are serious; they need to be both reported and treated; and they are preventable. The idea that they are serious builds on the knowledge of workers who understand the many different ways to experience an eye injury but makes sure they understand the potential consequences for eye injuries in terms of pain, earning potential and long-term damage to vision. The idea that eye injuries need to be reported and treated is based on their rights as workers and the process that covers their treatment under workers compensation rules. Treatment refers to both the first aid steps taken in the field and the possible follow up treatment in a clinic or pharmacy. The third point, that most eye injuries are preventable, is made through our promotion of tested safety eyewear that is effective in the humid and dirty conditions of the Florida orange groves. Our presentation of each of the three points could benefit from the knowledge gained from cultural consensus modeling.

For example, we know that we can motivate workers to at least try picking citrus while wearing the safety glasses. They will put them on for a period of 15 minutes to an hour and usually report back that they did not experience distorted vision or uncomfortable fogging or increased heat around the face. Beyond that initial experiment, how long does it take for workers to really adjust to the new way of picking? This adjustment period, which the early adopters call *acostumbrar* (getting used to something), is still unknown to us and we can't determine how long it has to last (days or weeks) and what is experienced during this time that changes their behavior.

We are proposing that a cultural consensus approach will help us to understand if workers construct a cognitive domain that classifies eye injury risks, their sense of control over each of these risks, and how they might calculate the financial costs of wearing or not wearing safety glasses or calculate different perceptions of comfort or discomfort. In the social marketing framework, a target audience is asked to "exchange" one behavior for another while calculating the costs and benefits of each behavior. Among citrus workers, we would like to know if they measure the discomfort of wearing the glasses (fogging, annoyance with dirty lenses, increased heat and sweating) and compare it with the discomfort of foreign objects (dust, dirt, chemicals and insects) and the potential risks of more serious injuries from branches.

Our strategy for the 2007-2008 harvest season is to create a pile sort exercise and administer it to citrus workers that have not been exposed to the PCWH *promotores* intervention. Our previous ethnographic research has produced the equivalent of a "free list" of all the risks that lead to eye injury to approximately two dozen. The cards will feature hand drawn pictures of each of the eye injury hazards and will be tested for reliability to make sure workers understand what is depicted on each one. Participants will sort the deck into different piles of their own choosing. We will ask them to provide a name or a description of each pile and explain why some cards (types of injuries) belong in each pile. Then we will ask them to repeat the pile sort and provide direction by asking them to group the injury cards by those that are most serious to them (risk) and then finally by categorizing those that are easiest to avoid (self-efficacy). In addition, demographic variables will also be collected such as age, years of experience picking, and personal experience with an eye injury. Through analysis of how citrus harvesters categorize these risks for injury we hope to create a cultural consensus model of what injuries are most serious, and which are most likely to happen, or easily avoided.

The second stage of research will be conducted once the PCWH *promotores* program is implemented and workers who have been observed wearing the safety glasses will be asked to participate in the pile sort exercise. By focusing on just the population of workers who choose to wear safety glasses, we hope to discover whether this group exhibits higher cultural consensus with their peers or if they have a different outlook altogether about risk, personal comfort, and productivity.

Conclusion

The PCWH has conducted extensive ethnographic research on citrus harvesting and the factors that lead to eye injuries. Through a successful intervention that uses community health workers, we have improved safety conditions in the orange groves and motivated a significant percentage of workers to try a new safety technology. Through the use of cultural consensus modeling, we hope to uncover the cognitive reasoning by which workers make choices about adopting safety eyewear and use these factors to improve our social marketing program.

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