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ORIGINAL RESEARCH

Safety and Injury Characteristics of Youth Farmworkers
in North Carolina: A Pilot Study

Thomas A. Arcury, PhD
Guadalupe Rodriguez, MS
Gregory D. Kearney, DrPH
Justin T. Arcury, MS
Sara A. Quandt, PhD

ABSTRACT. Agriculture is a unique US industry in how youth are involved. Youth employed in agriculture experience high rates of injury, and youth migrant and seasonal farmworkers may be extremely vulnerable. The primary aim for this analysis is to describe the personal characteristics, work characteristics, occupational safety behaviors, and occupational injuries of North Carolina youth farmworkers. This pilot study uses data from interviewer-administered questionnaires with 87 youth farmworkers. Participants included males (62.1%) and females (37.9%), with 26.4% aged 10–13 years, 39.1% 14–15 years, and 34.5% 16–17 years. The majority (78.2%) were born in the United States. Most worked in tobacco (46.0%), sweet potatoes (28.7%), and berries (28.7%). They were paid by the hour (54.0%) and piece rate (55.2%); 21.8% reported a problem getting paid the amount earned. Three quarters wore a hat, and 63.2% wore gloves while working. Five (5.7%) had received pesticide use training in the past year. Over half reported a musculoskeletal injury (54.0%), a traumatic injury (60.9%), or a dermatological injury (72.4%) in the last year. Six of the injuries led to medical treatment, and 10 resulted in missed school or work. Farmworker youth in North Carolina are at times not treated fairly when they work, occupational safety behaviors are limited (increasing exposure to pesticides and other environmental hazards), and they commonly experience injuries. Research on the occupational

Thomas A. Arcury and Guadalupe Rodriguez are affiliated with the Department of Family and Community Medicine and the Center for Worker Health, Wake Forest School of Medicine, Winston-Salem, North Carolina, USA.

Gregory D. Kearney is affiliated with the Department of Public Health, Brody School of Medicine, East Carolina University, Greenville, North Carolina, USA.

Justin T. Arcury is a statistical consultant in Winston-Salem, North Carolina, USA.

Sara A. Quandt is affiliated with the Department of Epidemiology and Prevention, Division of Public Health Sciences, and the Center for Worker Health, Wake Forest School of Medicine, Winston-Salem, North Carolina, USA.

Address correspondence to: Thomas A. Arcury, PhD, Department of Family and Community Medicine and the Center for Worker Health, Wake Forest School of Medicine, Medical Center Boulevard, Winston-Salem, NC 27157, USA (E-mail: tarcury@wakehealth.edu).

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exposures and health experienced by youth farmworkers is needed to inform policy. Changes in policy are warranted to improve the safety of youth farmworkers.

KEYWORDS. Agricultural safety, immigrants, occupational safety, youth workers

INTRODUCTION

Agriculture is a unique industry in the United States in how youth can be involved. Because of the history of agriculture in the United States, and the cultural icon of the "family farm," youth as young as 12 can be employed to do farm work without parental consent; and youth as young as 10 can be employed to do farm work with parental consent.¹⁻³ Youth employed in agriculture can work with sharp tools, machinery, and pesticides, as well as do the often strenuous tasks of planting, cultivating, and harvesting crops, and working with large animals. The rates of injuries and illness among youth doing agricultural work, whether on a farm operated by family or as hired labor on a commercial farm, are extremely high. The National Children's Center for Rural and Agricultural Health and Safety⁴ reports that a working or nonworking child dies in an agriculture-related incident every 3 days. Goldcamp and colleagues⁵ found that among working youth the annual agricultural fatality rate is 9.3 fatalities per 100,000 youth. Zaloshnja and colleagues⁶ report that 26,655 agricultural youth (aged 0-19) are injured and 84 suffer fatal injuries each year; only about 14% of these injuries and fatalities are work related. The major hazards for injury and fatality among agricultural youth are falls, machinery, transportation, drowning, assaults and self-harm, and fire.

The safety and health of youth migrant and seasonal farmworkers are seldom considered in analyses of childhood agricultural injuries. Youth migrant and seasonal farmworkers are part of the larger vulnerable immigrant farmworker community.^{7,8} These youth farmworkers can be divided into three general groups. The first includes children in seasonal farmworker families. Like any youth in the United States, they have a permanent home and are employed on farms in the area around their home. The second includes children

in migrant farmworker families. These children move with their parents to a temporary residence and are employed in farm work on a seasonal or contingent basis. The final group is composed of unaccompanied youth.^{9,10} These are youth who migrate for agricultural employment, but who are not accompanied by a parent. They may be accompanied by another older relative, such as an older sibling, uncle, or cousin. Migrant youth, whether accompanied by parents or not, often live in migrant farmworker camps.

Several studies use existing data sources to document the level of injury and mortality of youth agricultural workers.^{5,6,11} Intervention studies have tested processes to improve the safety of nonimmigrant and immigrant youth agricultural workers.¹²⁻¹⁶ Studies have also considered farm parents' beliefs about the safety of their children working on the farm.^{17,18} However, little primary research has addressed the safety and health of youth employed in agriculture. Westaby and Lee¹⁹ completed a national survey of Future Farmers of America (FAA) members and found that dangerous risk taking was the strongest predictor of injury. McCurdy and colleagues^{20,21} conducted an analysis of California high school students. More than half of the high school students reported doing some farm work in the previous year. Of those working in agriculture, 10.3% reported one farm work-related injury in the previous year (8.2% in a 1-year follow-up). Risk factors included working with large animals, mixing chemicals, not using seatbelts, and riding in the back of uncovered pickup trucks.²²

Less research has documented the safety and health of youth hired Latino farmworkers, who face substantial occupational hazards.²³ McCurdy and Kwan²⁴ examined differences between Latino and non-Latino high school students working on California farms in the previous year and found that Latino students worked fewer hours and were less likely to perform hazardous tasks that involved tractors, machinery,

and chemicals than were non-Latino white students. Hennessy-Burt and colleagues²⁵ provide descriptive information from the Mexican Immigration to California: Agricultural Safety and Acculturation (MICASA) Study about adolescent immigrant farmworkers in Mendota, California. They report that the 36 adolescent farmworkers worked an average of about 4 weeks in the previous year doing a variety of agricultural tasks; those with low versus moderate acculturation were more likely to be employed in farm work. Several studies focused on students attending high school in Texas provide information on the occupational safety and health of youth farmworkers. These studies report that few (19%) adolescent farmworkers received pesticide safety training,²⁶ they experienced high rates (27.0–73.6/100 full-time equivalents) of nonfatal injury,²⁷ and they had substantial prevalence of severe back pain (15.7%–19.1%).²⁸ Adolescent farmworkers reported high levels of neurotoxicity symptoms, which had positive associations with injury.²⁹ Peoples and colleagues¹⁰ have presented the only analysis of occupational health of unaccompanied youth working in US agriculture. Using qualitative data, they report the overwhelming importance of work for the unaccompanied youth, their fear of injury, and their willingness to work if sick or injured.

Data on the safety and health of youth immigrant farmworkers is needed to evaluate current occupational safety and health policy for these workers. In 2010, proposed federal guidelines to improve the safety of all youth agricultural workers were withdrawn from consideration before the end of the public comment period. These guidelines would have offered some protections to immigrant youth as well as other youth employed in agriculture. Although the reason these proposed guidelines were withdrawn is a matter of speculation, one factor that must be considered is the lack of valid data. For example, states in the southeastern United States, including Florida, Georgia, and North Carolina, have large agricultural economies that depend on the hand labor of farmworkers. Yet no research on the safety and health of youth immigrant farmworkers in these states has been published. The goal of this pilot study was to

begin this process of documenting the safety and health of youth immigrant farmworkers in the Southeast. The primary aim for this analysis is to describe the personal characteristics, work characteristics, occupational safety behaviors, and occupational injuries of youth farmworkers in North Carolina. A secondary aim of this analysis is to determine any gender differences in the youth farmworker characteristics.

METHODS

This pilot study was conducted in North Carolina from April to November 2013. The project was a collaboration of Wake Forest School of Medicine, East Carolina University, and the Farmworker Advocacy Network. The study protocol was reviewed and approved by the Wake Forest School of Medicine Institutional Review Board. All participants gave signed informed assent; when available, participants' parents gave signed consent for their children to participate.

Participants

The goal of this pilot project was to recruit at least 60 male and female youth aged 11–17 years. No list of youth farmworkers exists. The investigators and interviewers worked with organizations that provide health, social, and educational services to farmworkers to identify potential participants. These organizations included NC FIELD Coalition; Student Action with Farmworkers; NC Justice Center; Columbus County Community Health, Inc.; Greene County Health Care, Inc.; North Carolina Farmworkers Project; and Migrant Education Program, North Carolina Department of Public Instruction. These organizations introduced the interviewers to individual farmworker families that included youth workers, or to farmworker camps in which youth farmworkers were thought to live. Participants were recruited from April through November 2013. This period allowed recruitment of participants working in the diversity of crops for which youth farmworkers are employed. The recruitment process did not provide information on the total number of youth farmworkers who were asked

to participate, but who declined. Without this denominator, a participation rate cannot be calculated.

Data Collection

Data were collected using an interviewer-administered questionnaire. The questionnaire included items taken from an existing questionnaire²⁰ and scales, with additional items developed by the investigators. The questionnaire included items eliciting information on participant personal characteristics, work characteristics, perceived safety and risk, safety and risk behaviors, and occupational injuries. The draft questionnaire was translated to Spanish by native Spanish speakers familiar with the vernacular Spanish used by immigrant farmworkers in North Carolina. The draft questionnaire was reviewed by the investigators and pretested with young adults (aged 18 and 21) who had worked as youth farmworkers.

Interviewers were bilingual native Spanish speakers familiar with agricultural workers. On meeting a potential participant, they ascertained if the individual was unaccompanied; if so, they explained the project to the participant, answered any questions, obtained signed assent, and conducted the interview. If the potential participant was living with a parent, the interviewer explained the project to the parent and obtained signed consent, and then explained the project to the participant, answered any questions, obtained signed assent, and conducted the interview. Interviews took approximately 45 minutes to complete. Participants were given a \$20 incentive for completing the interview.

Measures

Personal characteristics included gender, age (in the categories 10–13, 14–15, and 16–17 years), country of birth, Hispanic ethnicity, and languages spoken. Other personal characteristics included whether the participant was currently attending school, years of school completed (in the categories 3–5, 6–8, and 9–12 years), and state of residence. Finally, participants indicated if they lived with both parents, mother only, father only, other older relatives, or alone.

Work characteristics included reason for working, work schedule during the school year and during the summer, type of remuneration (by the day, the hour, or the piece), and if, at any time during the past 12 months, they had any problem being paid all the money earned. Participants also reported the crops in which they worked and their tasks for the previous week.

Occupational safety behaviors included the types of personal protective equipment used in the last week, including a hat, work gloves, rain suit (worn to keep nicotine from being absorbed when working in tobacco), plastic trash bag (worn to keep nicotine from being absorbed when working in tobacco), bandana, and protective suit. Pesticide risks included whether pesticide training was received in the past 12 months or ever received, working in wet shoes, wet clothes, or short-sleeved or sleeveless shirt, not wearing a shirt, wearing shorts, wearing sandals or being barefoot, and reusing work clothes without washing. Wearing wet shoes or wet clothes is a risk for pesticide exposure, even if they are wet from water rather than pesticides. When shoes or clothing are wet, they can absorb pesticides and bring them in contact with the skin; dry shoes and clothing protect the skin from being in contact with pesticides. Wet shoes and clothing are a risk factor for any chemical exposure (e.g., nicotine). As other measures of pesticide safety, participants indicated the number of times they washed their hands with soap per day (in the categories 0, 1–2, 3 or more), whether they had worked in view of a field where fertilizer or pesticides were being applied in the previous week, or whether they worked in an area where pesticides had been applied in the previous week.

Occupational injuries are defined as injuries that participants reported having occurred while "doing farm work." Items asked about specific musculoskeletal injury in the shoulder, wrist, knee, or ankle in the past 12 months; about the specific traumas of a cut, burn, or eye injury in the past 12 months; and about the specific dermatological injuries of sunburn or rash in the past 12 months. For each injury, additional information included whether the participant received medical care for the injury, and whether

the participant missed at least a half-day of work or school due to the injury. The general measure of any musculoskeletal pain reflects having any one or more of the specific musculoskeletal pain; the general measure of any trauma reflects having any one or more of the specific traumas; and the general measure of any dermatological injury reflects having had either of the two specific dermatological injuries.

Analysis

Frequency counts and percentages were computed for personal characteristics (Table 1), work characteristics (Tables 2 and 3), occupational and safety behaviors (Table 4), and occupational injuries (Table 5). Frequency percentages were computed by gender for variables associated with reasons for working, work schedule, remuneration, crops worked, tasks performed, occupational safety behavior, and occupational injuries. Bivariate analyses were performed between gender and each of these variables using chi-square or Fisher's exact test where appropriate. All analyses were conducted using SAS 9.3 (SAS Institute, Cary, NC, USA).

RESULTS

Personal Characteristics

Eighty-seven youth participated in the study (Table 1). Participants included males (62.1%) and females (37.9%), with over one quarter aged 10–13 years, about 40% aged 14 or 15 years, and almost 35% aged 16 or 17 years (Table 1). The majority (78.2%) were born in the United States; about 20% were born in Mexico or in another Central American county. Most (89.7%) considered themselves to be of Hispanic ethnicity. Most (82.8%) participants indicated that their race was mixed, with a few indicating that they were white, black, or American Indian. Most (80.2%) spoke English and Spanish (86.1%).

Most (74.7%) of the youth participants were still attending school. About 10% had completed 3–5 years of school, 42.5% had completed 6–8 years of school, and 47.1% had completed 9–12 years of school. Most (88.5%)

TABLE 1. Personal Characteristics, Youth Farmworkers, North Carolina, 2013 ($N = 87$)

Personal characteristics	<i>n</i>	%
Gender		
Male	54	62.1
Female	33	37.9
Age in years		
10–13	23	26.4
14–15	34	39.1
16–17	30	34.5
Country of birth		
United States	68	78.2
Mexico	16	18.4
Guatemala	1	1.2
Honduras	2	2.3
Hispanic ethnicity	78	89.7
Race		
White	6	6.9
Black, African American, or Negro	5	5.7
American Indian or Alaska Native	4	4.6
Mixed/Mestizo	72	82.8
Languages spoken		
English	68	80.2
Spanish	73	86.1
Indigenous	3	3.4
Currently attending school	65	74.7
Years of school completed		
3–5	9	10.3
6–8	37	42.5
9–12	41	47.1
State of residence		
North Carolina	77	88.5
Florida	6	6.9
Texas	2	2.3
Virginia	1	1.2
None	1	1.2
Living situation		
Mother and father	39	44.8
Mother only	33	37.9
Father only	4	4.6
Other older relative	9	10.3
Alone	2	2.3

considered North Carolina to be their state of residence, with 6.9% selecting Florida. The plurality (44.8%) lived with both parents, whereas 37.9% lived with their mother only and 4.6% lived with their father only; 12.6% lived with another older relative or alone and would be considered unaccompanied minors.

Work Characteristics

The most common reasons the youth have for working is to pay for their everyday needs,

TABLE 2. Reasons for Working, Work Schedule and Remuneration, Youth Farmworkers, North Carolina, 2013 (N = 87)

Work characteristic	n	%
Reason for working		
Buy clothes	81	93.1
Buy school supplies	62	71.3
Provide money for coresident family	55	63.2
Provide money for family not coresiding	10	11.5
Save for future needs	37	42.5
Make a big purchase (car, electronics, house, etc.)	25	28.7
Pay for your education	20	23.0
Other	4	4.6
Work schedule		
During school year		
Before the school day	6	6.9
After the school day	31	35.6
During the weekends	48	55.2
During the summer		
Weekdays in the morning	78	89.7
Weekdays in the afternoon	79	90.8
Weekdays in the evening	31	35.6
Weekends in the morning	73	83.9
Weekends in the afternoon	69	79.3
Weekends in the evening	33	37.9
Type of remuneration		
By the day	2	2.3
By the hour	47	54.0
By the piece	48	55.2
During the last 12 months, have you ever had any problem with not being paid all of the money you have earned?	19	21.8

including clothes (93.1%) and school supplies (71.3%). In addition, most provide money to help to support their coresident (63.2%) and non-coresident family (11.5%). Finally, many are working to save for the future, including a future need (42.5%), a large purchase (28.7%), or to pay for education (23.0%). During the school year, the youth generally work after school (35.6%) or during weekends (55.2%) (Table 2). During the summer, work is largely in the morning and afternoon, and less often in the evening. Few youth are paid by the day (2.3%); most are paid by the hour (54.0%) or by the piece (55.2%). Over one fifth (21.8%) reported a problem of not getting paid the amount earned in the past 12 months.

The most common crop in which the youth worked in the week before the interview was tobacco (46.0%), followed by berries and sweet

TABLE 3. Crops Worked and Tasks in the Last Week of Farm Work, Youth Farmworkers, North Carolina, 2013 (N = 87)

Crop/Task	n	%
Crops		
Tobacco	40	46.0
Berries	25	28.7
Sweet potatoes	25	28.7
Cucumbers	7	8.1
Tomatoes	5	5.8
Green peppers	3	3.4
Peas	3	3.4
Chili peppers	2	2.3
Peanuts	2	2.3
Green beans	2	2.3
Melons	1	1.2
Apples	1	1.2
Tasks		
Harvesting	44	50.6
Topping	32	36.8
Loading	32	36.8
Weeding	21	24.1
Planting	13	14.9
Cultivating	12	13.8
Irrigating	10	11.5
Barring	2	2.3
Worked with pesticides	0	0

potatoes (28.7% for each) (Table 3). A few of the youth worked with a variety of other crops. Harvesting was the most common task (50.6%), with topping tobacco (36.8%), loading (36.8%), and weeding (24.1%) also being common.

Occupational Safety Behaviors

Three quarters of the youth wore a hat, and 63.2% wore gloves while working (Table 4). Over a quarter wore a rain suit, and 5.8% wore a plastic trash bag. Pesticide exposure risks were common. Five (5.7%) of the participants had received pesticide training in the past 12 months; seven (8.1%) had ever received this training. Over half the youth worked in wet shoes (54.0%) and wet clothes (51.7%). Two in five (41.4%) wore short-sleeve shirts, 6.9% wore no shirt, 18.4% wore shorts, and 11.5% wore sandals or were barefoot while working. Almost 15% rewore work clothes without washing them. Over two in five (42.9%) did not wash their hands while working, and many (22.1%)

TABLE 4. Occupational Safety Behavior, Youth Farmworkers, North Carolina, 2013 (N = 87)

Safety behavior	n	%
Personal protective equipment used in the last week of farm work		
Hat	66	75.9
Work gloves	55	63.2
Rain suit	25	28.7
Plastic trash bag	5	5.8
Bandana	8	9.2
Protective suit	3	3.5
Pesticide Training		
Received in past 12 months	5	5.7
Ever received	7	8.1
Pesticide exposure risks in the last week of farm work		
Wet shoes	47	54.0
Wet clothes	45	51.7
Short-sleeved/sleeveless	36	41.4
Not wearing a shirt	6	6.9
Shorts	16	18.4
Sandals/barefoot	10	11.5
Rewearing clothes without washing	13	14.9
Washed hands with soap per day (times)		
0	36	42.9
1 or 2	27	32.1
3 or more	21	25.0
Worked within view of field where fertilizer or pesticide was being applied in the previous week	19	22.1
Worked in an area where pesticides applied in previous week	10	12.2

worked in view of fields where chemicals were being applied or in which pesticides had been applied in the previous week (12.2%).

TABLE 5. Injuries in the Last 12 Months, Youth Farmworkers, North Carolina, 2013 (N = 87)

In the last 12 months, did you experience any of the following doing farm work?	Experienced injury		Received medical care for injury	Missed school or work for at least half day due to injury
	n	%	n	n
Any musculoskeletal injury	47	54.0		
Shoulder pain	29	33.3	0	1
Wrist pain	20	23.0	2	2
Knee pain	6	6.9	1	0
Ankle pain	5	5.8	0	0
Any trauma	53	60.9		
Cut	49	56.3	0	2
Burn	8	9.2	0	0
Eye	1	1.2	1	1
Any dermatological injury	63	72.4		
Sunburn	60	69.0	0	2
Rash	12	13.8	2	2

Occupational Injuries

Over half (54%) of the youth reported some type of musculoskeletal injury in the last 12 months, with shoulder pain (33.3%) and wrist pain (23.0%) being the most frequently reported (Table 5). Almost two in three (60.9%) reported some type of trauma, with a cut being the most frequent trauma (56.3%); eight (9.2%) reported a burn. Most (72.4%) reported a dermatological injury, with sunburn being reported by 69.0% and rash being reported by 13.8%. Six of the specific injuries led to medical treatment, and 10 resulted in missed school or work.

Gender Differences

More girls (84.9%) than boys (63.0%) were working to buy school supplies ($P = .029$), and more girls (36.4%) than boys (14.8%) were working to pay for education ($P = .021$). More boys (38.9%) than girls (12.1%) were working to save for a big purchase ($P = .007$). More boys (87.0%) than girls (66.7%) worked on weekend afternoons ($P = .023$). More girls (72.7%) than boys (44.4%) were paid by the piece ($P = .010$); more boys (61.1%) than girls (42.4%) were paid by the hour ($P = .090$). More girls (45.5%) than boys (18.5%) worked picking berries ($P = .007$). More boys (51.9%) than girls (24.2%) wore a short-sleeved or sleeveless shirt ($P = .011$). Whereas 11.1% of the boys worked shirtless, none of the girls did so.

DISCUSSION

This pilot study provides an overview of the personal and work characteristics of youth hired farmworkers in North Carolina. Similar to the analysis reported by Hennessy-Burt and colleagues,²⁵ this pilot study captures a broad set of youth employed in farm work. Participants in this study were recruited from the communities in which they lived and the places in which they worked; most studies of youth employed in agriculture have recruited participants currently enrolled in high school.^{20–21,24,26–28} The youth farmworkers participating in this study include individuals who are as young as 10 years, as well as individuals not enrolled in school.

The results of this study indicate that youth farmworkers in North Carolina are a vulnerable population who experience high rates of injury. Similar to other studies, participants include girls as well as boys. Also similar to other studies,²¹ boys less often take appropriate safety measures than girls; more boys work in shirts that do not protect from the sun or pesticides. Characteristics of the youth who participated in this study indicate several vulnerabilities. Many of the youth are very young; a quarter are aged 13 years and younger, 40% are aged 14 or 15. Nineteen (21.8%) do not speak English. Eleven participants (12.6%) are unaccompanied or emancipated young who do not have parental support available to them.^{8,9} Ten participants (11.5%) are migrants who do not consider North Carolina to be their state of residence. These vulnerabilities are similar to those reported by Hennessy-Burt and colleagues²⁵ for their community-based sample of youth farmworkers in California in which 1 participant (2.8%) is aged 11 or 12, and 13 participants (36.1%) are aged 13 to 15, and 20 participants (55.6%) are foreign born. Twenty-one (58.3%) of the Hennessy-Burt et al.²⁵ participants were “low acculturation” (based on language, media, ethnic social relationship).

Similar to other analyses of farmworker youth, many of the participants in the current study work during the school year as well as during the summer. Many of those working during the school year do so on school days as well as weekends. The manner in which the youth are

paid raises concerns. Over half report being paid by the piece; this compares with 7.7% among North Carolina adult farmworkers and 17.0% of adult farmworkers without H-2A visas.³⁰ Piece rate increases the likelihood of ignoring safety and the likelihood of experiencing injury.^{31,32} This may reflect the types of crops in which the youth are working; more girls are paid piece rate and more girls work in berries, which are largely a piece rate-based crop. Nineteen (21.8%) of the youth also report experiencing difficulty in getting their proper pay; this is far more than the number of adult farmworkers reporting this experience: Robinson and colleagues³⁰ report 1.7% of all adult farmworkers have difficulty in getting their proper pay.

Many of the youth report working in tobacco in the week prior to their interview; others may have worked in tobacco during other times in the growing season. Tobacco work exposes the youth to pesticide and nicotine poisoning. Arcury and colleagues^{33,34} report high exposure levels for several pesticides among adult farmworkers working in tobacco. Additional research documents that adult farmworkers working in tobacco experience high levels of nicotine poisoning and high rates of green tobacco sickness.^{35,36} Given the smaller body size for many youth, particularly girls and those under age 16, the concentrations of pesticides and nicotine they would experience would be even greater.

The participants report high rates of injury, with 54% reporting a musculoskeletal injury, 60.9% reporting trauma, and 70.4% reporting a dermatological injury. Among all agricultural workers who were enrolled in high school, McCurdy and colleagues²⁰ report that 10.3% had at least one farm work-related injury in the preceding year. Shipp and colleagues²⁶ report that injuries are common among the Latino high school student agricultural workers, with rates of 27.0–73.6/100 full-time equivalents.

Limitations

This research should be evaluated in light of its limitations. This is a pilot study with a small, nonrandom sample of youth farmworkers. All participants were recruited in North Carolina.

The data are cross-sectional, and measures of occupational injury are based on self-reports. At the same time, the 87 participants in this study represent the largest community-based rather than school-based sample of youth farmworkers examined. The participants ranged in age from 10 to 17 years, they include individuals who are not currently enrolled in school, and they include unaccompanied individuals.

Conclusions

Farmworker youth in North Carolina are at times not treated fairly when they work (one in five report not being paid what they earned), occupational safety behaviors are limited (increasing exposure to pesticides and other environmental hazards), and they commonly experience injuries. Even though they are adolescents, they have few protections. These are not children living on family farms learning the farming profession from their parents. They are farm laborers hired to work in one of the nation's most dangerous industries. At the same time, these youth farmworkers are largely American citizens; most are residents of North Carolina. These young are working to provide for their basic needs. They report using their salaries to purchase clothes and for school expenses, and to support their families. Only about one quarter are saving money for a large purchase, such as a car or electronics.

Greater research on the occupational exposures experienced by youth working as hired farmworkers and on the health outcomes that result from these exposures is needed to inform policy. However, changes in policy are warranted to improve the safety of youth doing farm work.^{1,37} These changes include restricting the ages at which youth can work on farms and the types of crops in which they can work. No one under age 18 should be allowed to work with agricultural pesticides (current regulations, the US Environmental Protection Agency Worker Protection Standard, allow those over age 16 years to work with agricultural pesticides).³⁸ The supervision provided to youth workers must be improved. The continuation of "exceptions" to labor laws that provides no protections for youth as young as 10 years old

working in one of the most hazardous of industries cannot remain acceptable.² Many of the children currently doing farm work would not be allowed to work in fast food restaurants, manufacturing plants, or coal mines, because these work would be considered unsafe. However, current regulations continue to allow them to work near pesticides and machinery, harvest tobacco, and work while exposed to the elements without consideration of these inherently unsafe conditions.

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