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Vision Problems, Eye Care History, and Ocular Protection Among Migrant Farmworkers

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Abstract

In this article, the authors describe the self-reported eye conditions, eyecare history, and eye safety practices of migrant farmworkers in eastern North Carolina. The authors administered interviews to 79 farmworkers recruited at migrant clinics. Data collected included eye-related complaints and diagnoses, self-assessed visual acuity, eye symptoms, use of protective gear during work, and attitudes toward eye protection gear. Fair or poor eyesight was reported by 21.3%. Only 4 (5.1%) reported wearing glasses or contact lenses. More than 11% reported difficulty in recognizing a friend across the street, and 19.5% reported difficulty in reading. About 20% reported each of several eye symptoms. Fewer than 1 in 10 wore eye protection at work. Of all, 38% reported never having visited any eyecare professional. Farmworkers have a high level of unmet need for both routine preventive eye care and treatment or correction of vision problems.

Keywords

agricultural worker; Latino; occupational health; underserved

Workplace injuries to the eye occur at an annual rate of 3.8/10,000 US workers because of unintentional injuries; exposure to chemicals, dust, and infectious agents; and exposure to

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ultraviolet (UV) and other radiation.[1] Agricultural workers are at even greater risk of eye injury and illness: 8.7/10,000 workers report injuries each year.[1]

Agricultural workers involved with fieldwork risk traumatic eye injuries from plants, tools, and equipment. They also experience significant exposure to agricultural chemicals, wind, dust, allergens, and UV light.[2] These workers work outdoors during daylight hours when UV rays are strongest. Such exposure to UV-A and UV-B rays results, in the short term, in photokeratitis, eye sensitivity, and eye irritation; long-term effects include pterygia, pingueculae, cataracts, and retinal damage.[3–5]

Despite farmworkers' elevated risk of eye injury and illness, research on eye problems in farmworkers has been limited. Most research and surveillance has focused on acute traumatic injuries and has relied on reports from farm operators and household members or been based on hospital admission reports.[6–8] Reports based on information directly from workers have not been comprehensive: some are focused on vision care, others symptoms, and others safety practices. A 1996 survey of providers in migrant farmworker clinics found that refractive errors were the most common eye problems seen in migrant patients, followed by eye infections, diabetes-related eye problems, and pterygia.[8] In a survey of workers in California, Villarejo et al[9] showed that two-thirds had never had an eye examination. Quandt et al[3] assessed self-reported eye symptoms among farmworkers in North Carolina. Forst et al[10,11] have tested a safety eyewear intervention and reported on the barriers and benefits to wearing eyewear.

There are no reliable estimates of the US agricultural worker population. North Carolina is estimated to have 130,963 migrant and seasonal farmworkers, most of them Mexican.[12,13] Because of their working conditions, this group is at high risk for eye injuries and illnesses but has limited access to health care.[14]

In this article, we describe the self-reported eye conditions and eye safety practices of a series of farmworkers who presented for medical care not related to vision at migrant farmworker clinics in eastern North Carolina. The findings demonstrate the need for vision care and eye safety education that can be addressed by those providing health care to farmworkers.

METHODS

Sample

Data came from participants enrolled in a study of skin disease among farmworkers in eastern North Carolina. The sample included 79 farmworkers recruited from 4 community or migrant clinics in eastern North Carolina. The clinics were Harvest Family Clinic from Carolina Family Health Centers, Inc; South Robeson Clinic and Julian T. Pierce Clinic from Robeson Health Care Corporation; and Walstonburg Clinic from Greene County Health Care, Inc. Participants met the following inclusion criteria: (1) currently employed as a hired laborer in farmwork (this season), (2) aged 18 years or older, (3) a patient at the clinic, and (4) identified by a clinician as having any skin condition at the clinic visit. The

skin condition could be traumatic (eg, cuts, calluses), infectious (eg, warts, onychomycosis), irritant (eg, acne), or pigmentary (eg, melasma).

Data Collection

We collected data via a questionnaire completed by an interviewer at the time of the farmworker's clinic visit. Interviewers were clinic interpreters, medical assistants, medical records personnel, and outreach workers. Project staff trained all interviewers in the research protocol.

A professional translator who was a native Spanish speaker and was familiar with Mexican Spanish translated the questionnaire (which had been developed in English) into Spanish. We conducted further pretesting in the target population to ensure accurate translation. The questionnaire included items addressing complaints and diagnoses, demographic and background information, current work and living conditions, and eye health. Questions on eye health included a self-assessment of visual acuity, eye symptoms, use of protective gear during work, and attitudes toward eye protection gear.

All participants gave signed informed consent before data collection began. The Wake Forest University Health Sciences Institutional Review Board reviewed and approved protocol and consent forms.

RESULTS

The clinic sample consisted of 53 male and 26 female farmworkers (see Table 1). About 40% were between 18 and 30 years of age; the remainder were aged older than 30 years ($M = 35.0$, $SD = 10.8$). About half had attained no more than 6 years of education. All were Latino, and 93.7% had been born in Mexico. A quarter were in the US on the H-2A temporary worker visa program. Most workers (99%) spoke Spanish; a few spoke an indigenous language or English. Most of the skin diagnoses were for conditions unlikely to affect the eyes (eg, 9 cases of melasma, 5 cases of foot fungus).

In all, 62.2% of the sample reported excellent or good eyesight (see Table 2); 21.7% reported fair or poor eyesight. When stratified by H-2A status, H-2A workers consistently reported their eyesight as excellent or good. Only 4 (5.1%) participants reported wearing glasses or contact lenses. Up to 20% reported difficulty seeing in specific situations, such as recognizing a friend across the street (11.8%) and reading (19.5%). More than 20% of workers reported eye symptoms in the 7 days prior to the clinic visit. In all, 21.5% reported pain or burning, 26.6% reported redness, and 25.5% reported itching.

More than 38% reported having never visited any eye care professional. For 17.9%, 2 or more years had passed since they had received eye care; 27% had received care in the preceding year. Those who had not seen an eyecare professional in the preceding year were asked for the reason. Only 13 (22.8%) reported that access was a problem (17.5%, cost or no insurance; 5.3%, no way to get to clinic). More than half reported that they had had no eye problem and so they had no reason to get eye care (42.1%) or had not thought of getting eye care (28.1%).

Of workers, 57% reported normally wearing a hat at work to protect the eyes (see Table 3). Only 7 (8.9%) reported wearing safety goggles or safety glasses at work; the same number reported wearing sunglasses. Only 3 (3.8%) reported wearing face shields for eye protection. The primary reasons that farmworkers gave for not wearing eye protection at work were that the device fogged up (35.4%) and that it was uncomfortable (25.3%).

COMMENT

Visual impairment can present significant risks for farmworkers. Workers in orchards need to be able to see and avoid branches and to position ladders. All workers need to be able to see coworkers and machinery to avoid injury. Some workers drive farm vehicles or passenger vehicles on the job.

This sample of workers who visited a clinic for other health problems had a high level of unmet needs for both routine preventive eye care and treatment or correction of vision problems. The proportion reporting ever having an eye examination appears to be higher than that reported by Villarejo et al,[9] despite similar wording of questions in the 2 studies. This may indicate either an improvement in access to eye care over time or better access in North Carolina than in California. The proportion of participants reporting eye symptoms in the preceding 7 days is comparable to (a) those in a nonclinic sample in North Carolina who, after working in the fields, reported pain, redness, and itching to Quandt et al[3] and (b) those reporting itchy/irritated eyes to Villarejo et al.[9]

The rate of eye protection use (8.9%) is considerably higher than that obtained by self-report by Quandt et al[3] (1.6%) and Forst et al[10] by observation (0.6%) as a base-line measure for eye protection intervention. These differences may either reflect differences in data collection or represent a somewhat greater use of eye protection. Nevertheless, in the present study, the proportion of participants reporting using protective eyewear was low. Reasons for not using eye protection were similar to those obtained previously.[3,11]

These results on self-reported eyesight among farmworkers indicate that more than 1 in 5 workers rate their vision as fair or poor. A substantial number of farmworkers report difficulty with specific tasks requiring both near and distance vision. These numbers are considerably higher than are results of visual acuity tests from participants in the National Health and Nutrition Examination Survey 1999–2002. In that national study, 6.4% (95% confidence interval [CI] = 6.0–6.8) of persons 12 years and older had visual acuity 20/50 or worse in their better-seeing eye.[15] However, certain subgroups had markedly poorer vision. Among Hispanics, 10.7% (95% CI = 8.5–13.0) were visually impaired. Among those with an income below the poverty level, 12.0% (95% CI = 9.5–14.6) were visually impaired. Relating self-reports of visual functioning to actual measurements is difficult because vision impairment consists of multiple domains (eg, contrast sensitivity, visual acuity, stereoacuity). Nevertheless, our data suggest that a high percentage of farmworkers have uncorrected vision problems. There is no known explanation for the association between H-2A status and self-rated vision. H-2A workers did not differ in any other significant ways in their responses. H-2A recruiters may perform some screening for vision problems.

Most vision problems in the general population are due to uncorrected refractive error.[15] For farmworkers, greater provision of access to eye care (and, where necessary, to corrective lenses) is necessary. Although specialist care may be needed, primary care providers can make major contributions to preventing and managing vision problems by performing basic vision screening and by referring patients with special needs (eg, diabetes) to specialists.[16] Provision of vision screening in the primary care setting provides an opportunity to improve workers' knowledge of the importance of eye care.

These results should be interpreted in light of their limitations. The sample was small and represents a nonrandom selection of workers in one state. Workers were selected either because they presented themselves with a skin condition or because the provider diagnosed a skin condition during the clinic visit. Factors than can cause skin conditions also may affect the eyes (eg, pesticides exposure), thereby inflating the prevalence of vision problems. However, the majority of the conditions diagnosed likely have no relationship to vision. We obtained all data by self-reports, and workers may have exaggerated their visual problems or their use of protective eyewear.

Nevertheless, these data suggest that farmworkers have significant levels of vision problems and make insufficient use of medical care for these problems. Further research is necessary to determine whether farmworkers accurately perceive vision problems and why so few obtain eye examinations and care. In addition, greater promotion of eye safety practices is needed. Although this population is known to be underserved, and although greater efforts to deliver eye services are needed, additional factors may limit eye care.[14] Limited cultural acceptance of eye care and corrective lenses may compound structural barriers to care, such as income and transportation.[17] A more complete understanding of such issues is necessary to improve the vision health of farmworkers.

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Table 1.

—Personal Characteristics of Farmworkers ($N = 79$)

Characteristic	*n*	%
Sex		
Male	53	67.1
Female	26	32.9
Age (y)		
18–24	9	11.4
25–30	22	27.8
31–40	30	38.0
≥ 41	18	22.8
Educational attainment (y)		
0–6	39	49.4
7–9	30	38.0
≥ 10	10	12.6
Birth nation		
Mexico	74	93.7
United States	2	2.5
Guatemala	1	1.3
Honduras	2	2.5
H-2A visa		
Yes	20	25.3
No	59	74.7
Language spoken[a]		
English	8	10.1
Spanish	78	98.7
Indigenous language	6	7.6

[a]Some participants spoke more than 1 language, so totals do not equal 79 (or 100%).

Table 2.

—Self-Reported Vision, Eye Problems, and Eye Care Among Farmworkers ($N = 79$)

Variable	*n*	%
Self-reported eyesight	74	
Excellent	17	23.0
Good	29	39.2
Fair	9	12.2
Poor	7	9.5
Don't know	12	14.9
Wear glasses or contact lenses	4	5.1
Difficulty …		
Recognizing a friend across the street	9	11.8
Watching television	10	13.0
Reading	16	19.5
Doing work requiring close vision	7	9.0
Eye symptoms in past 7 days		
Pain or burning	17	21.5
Redness	21	26.6
Itching	20	25.5
Last time visited eye care professional		
Within past year	21	26.4
Between 1 and 2 years ago	12	15.4
2 or more years ago	14	17.9
Never	30	38.5
Reason for not visiting eye care professional in past 12 months		
No reason to go; no problem	24	42.1
Have not thought of it	16	28.1
Cost or insurance	10	17.5
Cannot get to clinic	3	5.3
Do not know an eye doctor	2	3.5

Table 3.

—Self-Reported Use of Eye Protection Among Farmworkers ($N = 79$)

Variable	*n*	%
Wear eye protection, past 7 days (yes)	7	8.9
Item worn to protect the eyes		
Hat	45	57.0
Safety goggles or safety glasses	7	8.9
Sunglasses	7	8.9
Face shield	3	3.8
Discouraging characteristic of protective eyewear		
Uncomfortable	20	25.3
Fogs when you sweat	28	35.4
Falls off	13	16.5
Prevents seeing well enough to work	17	21.5
Do not like the way it looks	9	11.4