

Prevalence of self-reported dermatologic symptoms among farmers living in Gracias a Dios, Honduras



To the Editor: In 2013, dermatologic disorders were the fourth leading cause of nonfatal disease burden worldwide.¹ Limited access to health care services, finances, and safe drinking water have been suggested to increase the burden of dermatologic diseases prevalent in rural regions.²

Furthermore, agricultural workers experience occupational risk factors (eg, UV radiation exposure, heavy metals, chemicals, pesticides, and dermatomycoses) that contribute to dermatologic conditions and malignancies.^{3,4} With ~23.4% of the Honduran labor force in the agricultural industry, an assessment of this population for the symptoms of dermatologic conditions is important for disease prevention and management.⁵ This study aimed to evaluate the presence of dermatologic symptoms affecting individuals from a rural village in Honduras. We hypothesized that agricultural workers will be disproportionately affected presumably because of increased exposure to environmental risk factors compared with nonagricultural laborers.

A cross-sectional survey was administered by village health workers and local Rotarian members on June 9, 2020, to consenting adults in Gracias a Dios, Honduras. The proportions (%) were estimated for categorical variables; continuous variables were expressed as mean \pm SD. Bivariate analyses, comparing farmers and nonfarmers, were performed. The statistical level of significance was set at $P < .05$ and corrected for multiple comparisons for binomial proportions using the Sidak procedure. The analyses were performed using SAS, version 9.4 (SAS Institute, Inc).

Among 53 surveyed individuals, the response rate was 81.1%. The mean age of the participants ($N = 43$) was 41.3 ± 17.7 years. Men accounted for 47% of the study population, and approximately 37% of the respondents reported at least 1 skin lesion (Table I). The symptoms more frequently reported were itching (21%), color change (14%), redness/irritation (14%), and pain (9%). Farmers had a greater number of reported skin lesions or symptoms than other village residents (50% vs 28%, respectively). The lesions more frequently reported included rash,

Table I. Patient demographics*

Variable	All partici- pants ($N = 43$)	Occupations other than agricultural worker ($n = 25$)	Agricultural workers ($n = 18$)	<i>P</i> value
	<i>n</i> (%) or mean \pm SD	<i>n</i> (%) or mean \pm SD	<i>n</i> (%) or mean \pm SD	
Age (y)	41.3 \pm 17.7	39.2 \pm 19.7	44.3 \pm 14.4	.3591
Sex				<.0001
Male	20 (46.5)	5 (20.0)	15 (83.3)	
Female	23 (53.5)	20 (80.0)	3 (16.7)	
Presence of asthma	5 (11.6)	1 (4.0)	4 (22.2)	.1436
Presence of allergies	4 (9.3)	2 (8.0)	2 (11.1)	1.0000
Presence of either asthma or allergies	7 (16.3)	2 (8.0)	5 (27.8)	.1101
Having animals	20 (46.5%)	11 (44.0)	9 (50.0)	.6972

*The *P* values were obtained using the *t* test or Wilcoxon test and the χ^2 or Fisher test.

blisters, scale formation (dry, flaky skin), and hair loss. Farmers had a higher mean of skin lesions, especially in the extremities (4.0 vs 1.1) (Table II). The affected body locations included the head (9.3%: scalp, ears, face, and neck), trunk (16.3%: shoulders, chest, abdomen, and back), arms (23.3%: triceps, biceps, elbows, wrists, palms, and fingers), legs (25.6%: thighs, knees, legs, feet, and toes), and extremities (37.2%: arms or legs).

Our results showed the presence of dermatologic symptoms in a rural village in Honduras, with the highest rates reported among male agricultural workers. Although many factors may contribute to the development of dermatologic conditions, these data support our hypothesis that agricultural workers will be disproportionately affected presumably because of increased exposure to environmental risk factors. Our study limitations include the small sample size, the fact that a single community was surveyed, and the use of a nonvalidated survey, limiting the interpretation and conclusions that can be drawn.

These results emphasize the importance of surveying rural agricultural communities for dermatologic complaints. Further, they signify the importance of providing accessible health education on occupational and environmental risk factors. To further evaluate risk factors and the prevalence of dermatologic symptoms in rural communities, larger multisite studies are needed.

Table II. Skin symptoms and lesions*

Variable	All (N = 43)	No farmer (n = 25)	Farmer (n = 18)	P value
	n (%) or mean ± SD	n (%) or mean ± SD	n (%) or mean ± SD	
Skin symptoms				
Itching [†]	9 (20.9)	3 (12.0)	6 (33.3)	.3254 [‡]
Redness/irritation	6 (14.0)	2 (8.0)	4 (22.2)	.7072 [‡]
Fever	4 (9.3)	3 (12.0)	1 (5.6)	.9929 [‡]
Color changes in skin	6 (14.0)	2 (8.0)	4 (22.2)	.7072 [‡]
Pain experienced with skin lesions	4 (9.3)	0 (0.0)	4 (22.2)	.1180 [‡]
Skin lesions				
Rash	3 (7.0)	1 (4.0)	2 (11.1)	.9969 [‡]
Blisters	3 (7.0)	1 (4.0)	2 (11.1)	.9969 [‡]
Skin lightening or loss of pigmentation	2 (4.7)	1 (4.0)	1 (5.6)	1.0000
Burning sensation	1 (2.3)	0 (0.0)	1 (5.6)	.9775 [‡]
Scale formation and dry, flaky skin	4 (9.3)	3 (12.0)	1 (5.6)	.9990 [‡]
Hair loss	4 (9.3)	2 (8.0)	2 (11.1)	.9999 [‡]
Pustules	2 (4.7)	1 (4.0)	1 (5.6)	1.0000
Ulcerations	0	0	0	
Pus/fluids	1 (2.3)	0 (0.0)	1 (5.6)	.9775 [‡]
Inflammation	2 (4.7)	1 (4.0)	1 (5.6)	.0000
Reporting at least 1 skin lesion or symptom	16 (37.2)	7 (28.0)	9 (50.0)	.6676 [‡]
Total number of skin lesions or symptoms (0-14)	1.2 ± 2.5	0.8 ± 1.8	1.7 ± 3.3	.1592
Body location (grouped)				
Head/neck	0.2 ± 0.7	0.1 ± 0.3	0.3 ± 1.0	.7139
Trunk	0.4 ± 1.1	0.3 ± 0.1	0.6 ± 1.2	.1254
Arms	1.0 ± 2.1	0.6 ± 1.8	1.6 ± 2.4	.0622
Legs	0.7 ± 1.6	0.2 ± 0.5	1.3 ± 2.2	.1622
Extremities (legs or arms)	2.3 ± 4.3	1.1 ± 2.0	4.0 ± 5.8	.0832
Total number of body sites (0-21)	2.3 ± 4.5	1.3 ± 3.0	3.8 ± 5.8	.0884

*P values were obtained using the t test or Wilcoxon test and the χ^2 or Fisher test.

[†]Among those with itching, it was worse at night for 8 (88.9%).

[‡]Multiple comparisons for binomial proportions were performed using the Sidak correction procedure.

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Conflicts of interest

None disclosed.

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