

# Reaping More Than What They Sow: A Critical Race Perspective on Environmental Microaggressions Toward Latinx Farmworkers

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Maira A. Areguin<sup>1</sup> , Que-Lam Huynh<sup>2</sup>, and Sara R. Berzenski<sup>2</sup>

## Abstract

There are 3+ million farmworkers in the 132.8-billion-dollar U.S. agricultural industry, most of whom are Latinx. Latinx farmworkers possess at least two marginalized identities, class and ethnicity, which expose them to prejudice and discrimination. Drawing from a critical race perspective, we proposed that prejudice and discrimination are experienced interpersonally and subtly embedded within the social and physical environments for Latinx farmworkers (i.e., environmental microaggressions (EMs)). Further, we hypothesized that farmworker-specific EMs would be associated with health. Data from 90 Latinx farmworkers ( $M_{\text{age}} = 46.09$  years, 63.3% women) partly supported our hypotheses. Results revealed interesting patterns of association with depression and anxiety symptoms, and physical function. Findings underscore the need to examine classism and racism as intersecting systemic forces in the lives of Latinx farmworkers, some of the most vulnerable peoples within U.S. American society.

## Keywords

Latinx farmworkers, health, environmental microaggressions, critical race theory, critical race psychology

Latinx<sup>1</sup> and immigrant communities are often targets of negative public discourse about labor and immigration issues. In particular, there has been a resurgence in explicit anti-Latinx and anti-immigrant sentiment within recent years as exemplified by Donald J. Trump's 2016 presidential campaign (Lopez et al., 2018). However, this is far from a novel phenomenon: Latinx have been scapegoated throughout U.S. history (e.g., forced repatriation of Mexicans/Mexican Americans at the onset of the Great Depression in 1929). Therefore, the current administration's platform, premised on deporting immigrants, keeping asylum seekers from entering the country, and building a wall on the southern border, is not unprecedented. This platform has created an environment where intolerance thrives, and it permeates communities in which Latinx and immigrants reside and work. Often, the public discourse (incorrectly) emphasizes how these communities are a burden to the U.S. economy without considering their contributions. For example, as farmworkers, they are the backbone of the 132.8-billion-dollar U.S. agricultural economy (U.S. Department of Agriculture, 2019). Despite their large presence and substantial contributions to the economy, there is a dearth of empirical research on Latinx farmworkers. The existing small and mostly qualitative literature showed that Latinx farmworkers report higher rates of depression and anxiety and lower self-esteem than the general population (National Center for Farmworker Health [NCFH], 2013; Hovey & Magaña, 2000, 2002).

Moreover, previous research demonstrated an association between discrimination and Latinx mental health, specifically for Latinx workers with precarious employment (Organista & Ngo, 2018). Together, these social trends and research findings suggest that psychologists should be investigating the experiences of Latinx farmworkers, yet this population remains severely understudied.

One of the most significant reasons for the lack of research on Latinx farmworkers is that scientific research centers the perspectives of White Americans (Salter & Adams, 2013; Sue, 1999). This bias results in the exclusion of Latinx farmworker's experiences with subordination due to their race and class in the research literature (Crenshaw, 1991). Critical race theory (CRT) aims to address this bias: CRT acknowledges how race and power intersect to perpetuate the dominant group's higher status and advantages (Salter & Adams, 2013). Additionally, CRT provides a useful theoretical framework to guide empirical research as scholars become more

<sup>1</sup> University of Michigan, Ann Arbor, MI, USA

<sup>2</sup> California State University, Northridge, CA, USA

## Corresponding Author:

Maira A. Areguin, University of Michigan, 530 Church St, Ann Arbor, MI 48109-1382, USA.

Email: mareguin@umich.edu

interested in the perspectives of marginalized groups (Major & Townsend, 2010; Sue et al., 2007). Through techniques such as counter-storytelling, CRT centers and contextualizes the lived experiences of people of color (Caldwell, 1995). In this spirit, we examined the association between everyday discrimination from one's environment (i.e., environmental microaggressions or EMs) and well-being for Latinx farmworkers, all the while centering on their viewpoints. While research suggests that there is an association between EMs and health for various marginalized groups, there is no psychological literature that examines this issue within farmworking communities.

### *Environmental Microaggressions (or EMs)*

Microaggressions may emerge verbally and/or nonverbally during social interactions, and their ambiguity leaves the perpetrator's intentions unclear while the perceiver still bears the consequences of exposure. Microaggressions, a form of covert discrimination, are associated with equally harmful consequences as overt discrimination (American Psychological Association, APA Working Group on Stress and Health Disparities, 2017; Brondolo et al., 2011; Jones et al., 2016). One way in which these denigrations appear is through negative messages embedded in a marginalized person's environment or context—EMs. Here, we focus on EMs that *may also* be classified as “environmental racism,” the disproportionate rate at which people of color are exposed to pollutants or denied access to sources of ecological benefit. For instance, farmworkers' homes often are near agricultural fields where pesticides are present, and the EM communicated to farmworkers is that their health is not a priority. Research on microaggressions has shown a reliable association between frequency of microaggressions experienced across one's life and poor health for various marginalized groups, including for Latinx individuals (e.g., Nadal et al., 2015; Nadal et al., 2014; see Wong et al., 2014, for a review). However, there is no quantitative measure of EMs, particularly one geared toward assessing these experiences and perceptions among Latinx farmworkers.

### *Gaps in the Literature*

To summarize, there are two major gaps in the literature on EMs and farmworkers. First, there is no quantitative measure of EMs. There *are* measures of interpersonal microaggressions (e.g., Racial Ethnic Microaggression Scale or REMS by Nadal, 2011; Racial Microaggression Scale or RMS by Torres-Harding et al., 2012) which include EM subscales, but they were neither developed nor validated in blue-collar, farmworking populations. Therefore, they do not assess experiences particularly relevant to Latinx farmworkers, such as pesticide exposure and access to safety information, and how these experiences are related to farmworker well-being.

Second, microaggressions have been examined only within college and professional populations (Nadal et al., 2014; Sue

et al., 2007; Torres-Harding & Turner, 2015). This is an especially important gap to address because people who fall to the margins of society are *most* susceptible to microaggressions due to their “undesirable” status (Sue, 2010). Given that Latinx farmworkers have marginalized racial and class statuses, they are likely vulnerable to EMs specific to their circumstances, yet they remain excluded from psychological research.

### *The Current Study*

In sum, there is an urgent need to investigate EMs for farmworkers given the gap in EM measurement compounded with the shortage of psychological research on Latinx farmworkers. We focused on the association between EMs and health (i.e., anxiety symptoms, depression symptoms, and physical function) and operationalized EMs as negative messages communicated to rural Latinx farmworkers through various features of their environment. These messages are encompassed in four themes drawn from the ER literature. Investigating the qualitative ER literature while employing counter-storytelling component of CRT exposed the ways that people of color who are in lower positions of power experience ER (Caldwell, 1995; Solórzano et al., 2000). Put another way, CRT-informed methodologies and required researchers to focus on and center the experiences and knowledge of marginalized group members, which helps to move scientific research away from a deficit-informed perspective of these communities. In doing this, we were able to access counter-stories about experiences with EMs from the perspectives of Latinx farmworkers, which in turn influenced our quantitative work.

This process involved evaluating existing ER literature and examining how hegemonic perspectives inform policies, often leaving marginalized groups' perspectives unsolicited and their needs unmet. Specific to our research goals, using a CRT lens allowed us to critically examine the ER literature and then generate themes and survey items for our EM Scale. Next, the first author (a Mexican American graduate student from a farmworking community) wrote the initial item pool based on this existing ER literature, and then the first two authors refined item wording before translating and administering them to Latinx farmworkers. Thus, we used an interdisciplinary approach to scale development: (1) We expanded our initial literature search to include fields outside of psychology; (2) we reviewed any literature that was relevant to our topic, whether it was from psychology or not and whether it was qualitative or quantitative in nature; and (3) we incorporated other relevant literatures into existing psychological theories (on our phenomena of interest) to expand our theoretical foundations and to incorporate a critical race perspective, which is lacking in mainstream psychological research and theorizing.<sup>2</sup>

Through this process, we found that the first theme emerging from the literature, *Working Conditions*, covers how farmworkers are exposed to environmental hazards at a close distance at work (Holmes, 2013). *Housing/Neighborhood*

*Conditions* revolves around poor housing conditions (e.g., dirt floors, roofs made of aluminum, common showers; Harrison, 2011; Holmes, 2013). *Language Concerns* centers on linguistic concerns, including lack of safety information available in farmworkers' preferred language (Cole & Foster, 2001; Harrison, 2011). Finally, *Coworker Evaluation* describes how farmworkers compare themselves to their coworkers and supervisors (Holmes, 2013).

## Hypotheses

Our first hypothesis was that four internally consistent factors based on the aforementioned themes would emerge (Hypothesis 1). Second, we hypothesized that there would be evidence of concurrent validity of the Farmworker Environmental Microaggressions Scale (FEMS), such that farmworker-specific EMs as measured by FEMS would be moderately correlated with a general measure of EMs (Hypothesis 2a), and FEMS scores would be associated with health measures (i.e., anxiety symptoms, depression symptoms, and physical function; Hypothesis 2b). Third, we hypothesized that farmworker-specific EMs as measured by FEMS would predict health above and beyond the general measure of EMs (Hypothesis 3).

## Method

### Participants

Participants were 97 rural Latinx farmworkers, recruited by snowball sampling and separately, from three public locations in the California Central Valley (Table 1 shows demographics by location). We recruited from December 29, 2016, through January 13, 2017.<sup>3</sup>

### Procedure

The first author and/or trained research assistants asked potential respondents if they were interested in participating in a study about the experiences of farmworkers. If they indicated yes, then we confirmed eligibility: 18+ years old, work in agriculture, and identify as Latinx. Eligible participants then gave verbal consent for participation. Following consent, we gave participants a paper-and-pencil survey, with the option to have the survey read to them. This ensured that those who have trouble reading were not excluded from the study. Of the 97 participants, 54 read the survey themselves, 38 had the survey read to them, 1 person did both, and we do not have information for 4 individuals.

The survey (offered in English and Spanish) included questions about health, EMs, and demographics. We used National Institutes of Health-provided Spanish versions of the health measures; for all other measures, we used a translation-back translation procedure (Brislin, 1970). First, an English-Spanish bilingual researcher reviewed and translated items from English to Spanish, and then another English-Spanish bilingual researcher reviewed and back-translated items from

Spanish to English. Translators discussed any inconsistencies between the original and back-translation and then came to an agreement on the appropriate English-Spanish translation. Translators were psychology graduate students with experience translating psychological measures for research and applied settings.

Ninety of 97 participants took the survey in Spanish (20–25 min to complete). Participants received a US\$5 gift card to Starbucks, Jamba Juice, or Save Mart at the completion of the study. This study was approved by the Institutional Review Board at the authors' university.

## Measures

*Patient-reported outcomes measurement information system (PROMIS)*. This is a standardized set of questionnaires to collect self-reported physical, mental, and social health data (Cella et al., 2007). We used the PROMIS anxiety, depression, and physical function measures.

*Anxiety short form*. Participants responded to 4 items about anxiety symptoms over the past 7 days. Items were rated on a 5-point Likert-type scale from 1 (*never*) to 5 (*always*). Sample item: "My worries overwhelmed me." Higher scores indicate more anxiety symptoms ( $\alpha = .816$ ).<sup>4</sup>

*Depression short form*. Participants responded to 4 items about depression symptoms over the past 7 days. Items were rated on a 5-point Likert-type scale from 1 (*never*) to 5 (*always*), with higher scores indicating more frequently experienced depression symptoms. Sample item: "I felt worthless" ( $\alpha = .876$ ).

*Physical function short form*. There were 5 health limitations items, rated on a 5-point Likert-type scale from 1 (*not at all*) to 5 (*cannot do*), with higher scores indicating more health limitations. Sample item: "Does your health limit you in walking more than a mile (1.6 km)?" There were 5 physical abilities items, rated on a 5-point Likert-type scale from 1 (*without any difficulty*) to 5 (*cannot do*), with higher scores indicating more trouble with physical activities. Sample item: "Are you able to wash and dry your body?" ( $\alpha = .846$ ).

*REMS*. The REMS EMs subscale (7 items; Nadal, 2011) was rated on a 5-point Likert-type scale from 1 (*I did not experience this event in the past 6 months*) to 5 (*I experienced this event 10 or more times in the past 6 months*), with higher scores indicating more experiences with general (not farmworker-specific) EMs after reverse-scoring the entire scale for easier interpretation. Sample item: "I observed people of my race portrayed positively in movies" ( $\alpha = .944$ ).

*FEMS*. Participants responded to the initial pool of 35 FEMS items covering four themes (*working conditions, housing conditions, language concerns, and coworker evaluation*). Items were rated on a 4-point Likert-type scale from 1

**Table 1.** Participant Demographics by Location and Sampling Method.

Demographic Variable	Location				Entire Sample
	Reedley Social Services	Orange Cove Day Care	Reedley Adventist Health	Snowball Sampling	
Total N	28	10	34	25	97
Men	15	2	5	13	35
Women	13	8	29	12	62
Education completed					
Less than High school	12	4	33	18	67
High school or G.E.D.	12	3	1	5	21
Some college	1	3	0	0	4
2 years or A.S.	3	0	0	0	3
Vocational school	0	0	0	2	2
Family income					
Less than 10,000	2	3	0	5	10
10,001–15,000	9	2	9	6	26
15,001–25,000	10	4	23	5	42
25,001–50,000	6	1	2	9	18
I do not know	1	0	0	0	1
Socioeconomic status					
Working class	8	4	20	9	41
Lower-middle class	15	4	14	14	47
Middle class	5	2	0	2	9
Agriculture as primary Employment					
Yes	25	9	33	23	90
No	3	1	1	2	7
Job in agriculture					
Packing	8	3	8	5	24
Picking	5	4	0	4	13
Pruning	1	0	0	1	2
Other	7	2	0	6	15
More than one	2	1	26	9	38
Ethnicity					
Mexican	27	10	29	25	91
Salvadorian	1	0	3	0	4
More than one	0	0	2	0	2
Born in U.S.					
Yes	2	3	0	1	6
No	26	7	34	24	91
U.S. citizen					
Yes	5	4	0	5	14
No	23	6	34	18	81
Preferred language					
English	1	4	0	1	6
Spanish	25	6	34	22	87
Other	0	0	0	2	2
More than one	2	0	0	0	2
Other Demographics: <i>M (SD)</i>					
Age in years	39.35 (10.45)	32.4 (9.28)	51.30 (5.66)	47.21 (13.85)	44.76 (11.79)
Years in agriculture	14.10 (8.4)	12.89 (10.64)	16.37 (4.63)	23.28 (13.09)	17.25 (10.04)
Years in U.S.	17.28 (6.96)	18.88 (7.65)	26.82 (5.97)	26.55 (8.71)	23.36 (8.23)

Note. To account for possible repeat participants across different recruitment sessions, respondents provided month and day of their birth, and we used this (with other demographics as necessary) to check for repeats.

G.E.D. = high school equivalency; A.S. = associates degree.

(*always*) to 4 (*never*), with a fifth option to indicate when an item is not applicable. Higher FEMS scores indicate more frequent experiences with farmworker-specific EMS ( $\alpha = .832$ ).

**Demographics.** Demographic questions included gender, age, education, income, socioeconomic status, agriculture as primary form of employment (yes/no), specific job in agriculture, years in agriculture, ethnicity, country of birth (United States/

other), citizenship status, preferred language, and years in the United States (if applicable).

## Results

### Exploratory Factor Analysis

**Data preparation.** For all analyses, we used data from 90 participants who completed the survey in Spanish. We conducted an exploratory factor analysis on the original 35 FEMS items with principal axis factoring and Promax rotation, using pairwise deletion for missing values. This initial analysis failed to converge on a solution. We addressed this by examining item descriptive statistics and pairwise inter-item correlations, and successively removing problematic items in sets, with convergence tested after each set of removals. We removed 15 items (see Supplemental Materials) and the 20 remaining items successfully converged in the Exploratory Factor Analysis (EFA).

**Factor extraction.** An examination of the scree plot (see Figure 1), variance explained, and parallel analysis all identified a four-factor solution, consistent with expectations, explaining 55.86% of the variance (see Supplemental Materials). Moderate-to-large correlations among Factors 1, 2, and 3 indicated that the oblique solution was appropriate.

Table 2 displays item loadings from the structure matrix. In cases when items loaded  $>.30$  on multiple factors, we retained them on the factor that most closely aligned with theoretical expectations. In all but three cases, this was also the factor on which the item had the highest loading. Four items did not load  $>.30$  on any factor which made conceptual sense, so we removed them from the scale. The remaining 16 items constituted the final FEMS ( $\alpha = .832$ ), with four subscales: Pesticide Exposure (Items 7, 8, and 19;  $\alpha = .745$ ), Housing Conditions (Items 15, 16, 17, 18, and 25;  $\alpha = .763$ ), Resources and Information Availability (Items 9, 11, 12, 20, 21, and 26;  $\alpha = .752$ ), and Representation (Items 30 and 31;  $\alpha = .769$ ; Table 2). There was overlap, along with some minor differences, between the four factors that emerged and the themes we identified from the ER literature. Specifically, the expected working conditions factor emerged but was more specifically focused on pesticide exposure alone. The housing conditions factor emerged as expected. The language concerns factor emerged but was more broadly focused on both resource and information availability. Finally, the coworker evaluation factor also emerged, specifically focused on ethnic representation. Thus, broadly the expected domains emerged from the analyses, but at increased and decreased levels of specificity, so we concluded that the factor analysis findings provided partial support for Hypothesis 1.

**Concurrent validity.** To test Hypothesis 2a, we examined the association between FEMS and a general measure of EMs (a subscale of REMS). The FEMS total score was moderately negatively correlated with REMS score ( $r = -.38$ , 95% CI  $[-.58, -.18]$ ,  $p < .001$ ), as shown in Figure 2, providing

support for the contention that these were not entirely overlapping measures and that FEMS indeed captured additional elements of EMs directed toward rural Latinx farmworkers.<sup>5</sup> Of note, the correlation between the FEMS and the REMS was higher among those individuals who read the survey themselves ( $r = -.55$ ,  $p < .001$ ) than those to whom the survey was read out loud ( $r = -.18$ ,  $p = .282$ ), suggesting validity may be stronger among the former group. The correlations between REMS and FEMS subscales were large to moderate and negative ( $r_{\text{pesticide}} = -.49$ , 95% CI  $[-.68, -.30]$ ,  $p < .001$ ;  $r_{\text{housing}} = -.40$ , 95% CI  $[-.64, -.18]$ ,  $p < .001$ ;  $r_{\text{representation}} = -.38$ , 95% CI  $[-.58, -.18]$ ,  $p < .001$ ), with the exception of the resources and information availability subscale ( $r = .03$ , 95% CI  $[-.19, .25]$ ,  $p = .790$ ). As noted for the total score, the magnitude of these correlations was higher among those individuals who read the survey to themselves.<sup>6</sup> We provide potential interpretations of the directionality of these negative correlations in the Discussion section.

### Descriptive Results

Table 3 displays descriptive statistics and bivariate correlations between study variables. There were no gender differences in mean levels of EMs. Among all participants, the mean for REMS and FEMS total scores were moderate. Further, the Representation factor had the highest mean, whereas Resources and Information Availability had the lowest mean, with Pesticide Exposure and Housing Conditions in the middle. Additionally, reported frequency of EMs was moderately positively correlated with length of time an individual had been living in the United States ( $r = .27$ , 95% CI  $[.05, .50]$ ,  $p = .019$ ). In terms of health, participants reported higher mean depressive and anxiety symptoms than physical function problems.

### Associations With Health

As another test of concurrent validity, we examined FEMS and its subscales as they relate to health (Hypothesis 2b; Table 3). For comparison purposes, we also examined associations between health and REMS, given that these investigations are novel in the Latinx farmworker population. Higher scores on REMS were *not* associated with any mental or physical function variables. There were also *no* associations between FEMS total scores and health, although there was a small association between FEMS and more frequent depressive symptoms. In examining FEMS subscales, there were small-to-moderate associations between more frequent Pesticide Exposure and more frequent depressive and anxiety symptoms.

Finally, we examined the incremental predictive validity of FEMS over REMS (Hypothesis 3; Table 4). In predicting depressive symptoms, adding FEMS to the model produced a small change in variance explained ( $\Delta r^2 = .03$ ,  $p = .091$ ) above and beyond the predictive capability of REMS. In the final step, FEMS was a small predictor of depressive symptoms, whereas REMS did *not* predict depressive symptoms. Pesticide Exposure produced a small change in variance explained

**Table 2.** Exploratory Factor Analysis Results With Principal Axis Factoring, Promax Rotation: Item Loadings and Descriptive Statistics.

Item	Loading on Factor 1 (Pesticide Exposure)	Loading on Factor 2 (Housing Conditions)	Loading on Factor 3 (Resources and Information Availability)	Loading on Factor 4 (Representation)	Mean (SD)	N
7. I have noticed that my coworkers were asked to utilize pesticides at work. (R)	<b>.820</b>	.217	.021	.018	2.66 (1.17)	87
8. I have seen pesticides around my place of work. (R)	<b>.751</b>	.374	.235	.022	2.83 (1.11)	89
9. I have noticed that information on pesticides was provided to my coworkers	-.127	-.028	<b>.414</b>	.072	1.47 (0.80)	90
11. I noticed that my employer has emphasized the importance of limiting my exposure to pesticides.	.073	.172	<b>.602</b>	-.040	1.40 (0.66)	85
12. I have noticed that my employer has held informational meetings about pesticide exposure in my language of choice.	.179	.142	<b>.673</b>	-.153	1.41 (0.62)	87
15. I have noticed that the houses available to me are run down. (R)	.459	<b>.510</b>	.182	-.050	2.28 (0.95)	64
16. I have noticed that some housing situations require that I share a communal bathroom with others. (R)	.686	<b>.632</b>	.345	-.232	2.45 (1.04)	64
17. I have noticed that the homes offered to me have a heater.	.270	<b>.745</b>	.149	-.059	1.72 (0.64)	68
18. I have noticed the homes offered to me have air conditioning.	.298	<b>.836</b>	.161	.240	1.68 (0.72)	69
19. I have noticed that my home has been exposed to pesticides because of my proximity to agricultural fields. (R)	<b>.456</b>	.175	.338	.038	1.81 (1.02)	72
20. I have noticed that my home is away from the city. (R)	.574	.406	<b>.683</b>	-.173	1.83 (1.11)	58
21. I have noticed that my home is away from businesses. (R)	.506	.362	<b>.800</b>	-.282	1.93 (1.12)	61
*23. I have noticed that the police officers whom I interact with look like me.	.316	.383	.201	-.087	2.61 (0.99)	85
25. I have noticed that the homes offered to me do not have a kitchen. (R)	.369	<b>.308</b>	.479	-.053	2.11 (1.03)	74
26. I have noticed that my home is far from a hospital. (R)	.345	.638	<b>.532</b>	.051	2.14 (1.25)	66
*29. I have noticed that my boss is younger than me. (R)	.406	.327	.153	.134	2.49 (0.93)	85
30. I have noticed that my coworkers (not my boss or manager) speak Spanish. (R)	.171	.109	.012	<b>.733</b>	3.76 (0.50)	89
31. I have noticed that my coworkers (not my boss or manager) are other Latinos. (R)	.057	.122	-.038	<b>.788</b>	3.72 (0.62)	90
*34. I have only seen women working in packing houses. (R)	.069	.008	.241	.151	2.85 (0.98)	87
*35. I have never seen women operate heavy machinery (e.g., forklifts) at my place of employment. (R)	.671	.375	.254	.107	2.15 (0.97)	89

Note. Items marked with an asterisk (\*) were removed from the final scale following the Exploratory Factor Analysis. Final item factor placements are noted in **bold**. (R) indicates a reverse-scored item.

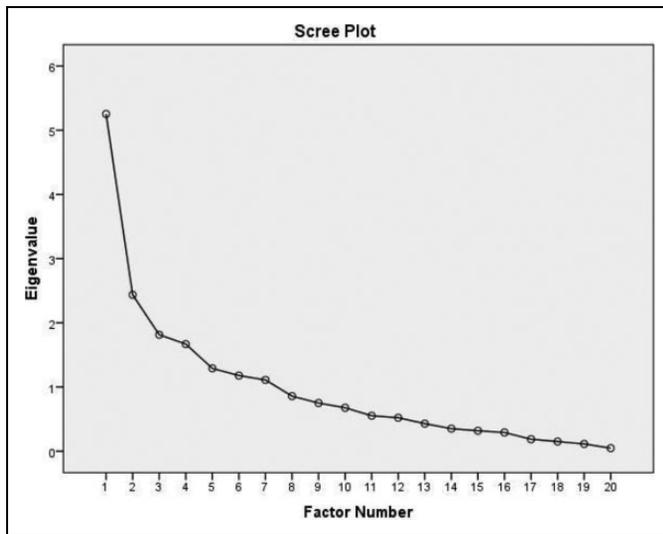
( $\Delta r^2 = .05, p = .032$ ) above and beyond the predictive capability of REMS. In the final step, Pesticide Exposure was a moderate predictor of depressive symptoms ( $\beta = .26, 95\% \text{ CI } [.02, .51], p = .032$ ), whereas REMS did not predict depressive symptoms ( $\beta = .03, 95\% \text{ CI } [-.22, .27], p = .837$ ). A similar pattern was observed for Housing Conditions, although the effects were small.

We also observed a similar pattern for the incremental validity of FEMS over REMS in predicting anxiety symptoms. Pesticide Exposure produced a small change in variance explained for anxiety symptoms ( $\Delta r^2 = .05, p = .033$ ) above and beyond the predictive capability of REMS. In the final step, Pesticide Exposure was a small-to-moderate predictor of anxiety symptoms ( $\beta = .26, 95\% \text{ CI } [.02, .50], p = .033$ ), whereas REMS did not predict anxiety symptoms ( $\beta = .05, 95\% \text{ CI } [-.19, .29], p = .683$ ).

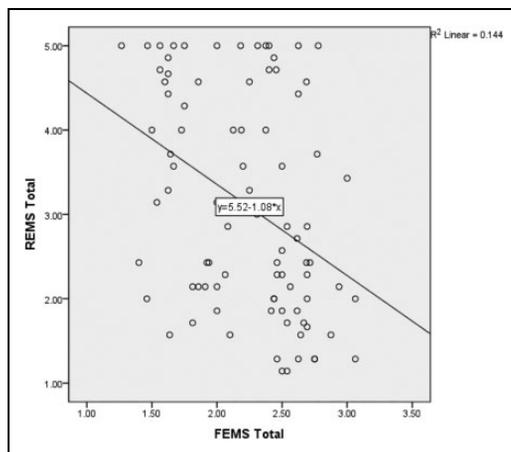
In predicting physical function, adding FEMS to the model produced a small change in variance explained ( $\Delta r^2 = .04, p = .054$ ) above and beyond the predictive capability of REMS. In the final step, FEMS was a small-to-moderate predictor of more physical function problems, after accounting for the predictive value of REMS, and REMS was also a small-to-moderate predictor of more physical health problems. No FEMS subscale models demonstrated incremental effects in predicting physical function.

## Discussion

We documented EMs experienced by a relatively small sample of rural Latinx farmworkers and examined associations between EMs and health. Using a CRT framework, we identified EMs relevant to Latinx farmworkers in the qualitative ER



**Figure 1.** Scree plot from exploratory factor analysis of the Farmworker Environmental Microaggressions Scale.



**Figure 2.** Correlation between Farmworker Environmental Microaggressions Scale and Racial Ethnic Microaggression Scale total scores.

literature and generated items for a quantitative EM measure. Consistent with some of our predictions, Latinx farmworkers reported experiencing EMs related to pesticide exposure, poor housing conditions, lack of resources and information, and lack of ethnic representation among the higher ranks at work. Further, farmworker-specific EMs are associated with poorer mental health and lower physical function even after accounting for general EMs.

In terms of measurement, four relatively independent dimensions of FEMS (with 16 items) yielded reliable scores and seemed to capture meaningful EMs specific to Latinx farmworkers: Pesticide Exposure, Housing Conditions, Resources and Information Availability, and Representation. Although these factors were broadly aligned with our predictions and the themes we identified in the ER literature, they contained items that cover more specific (rather than more broad or wide-ranging) issues than we expected (see Table 2). Mean factor scores indicate that participants report farmworker-specific EMs often, and EMs specific to pesticide exposure *most* frequently. Analogous to these findings, mean scores reveal that participants also report experiences with general EMs fairly often. The specificity of these FEMS factors highlights nuances in the Latinx farmworkers’ experiences, and this measure offers a way to easily quantify the everyday concerns of this group.

In terms of concurrent validity, we found that farmworker-specific EMs (as measured by FEMS) were moderately negatively correlated with general EMs (as measured by REMS; Nadal, 2011). There are at least three potential explanations for this finding. First, we should note that the general EM items assess racial representation in the media (e.g., movies, TV, and print media) and society (e.g., government, workplaces, and schools), whereas the farmworker-specific EM items assess issues particular to Latinx farmworkers within their work and home environments. As such, these two measures can be said to be assessing global REMS versus local FEMS issues pertaining to Latinx farmworkers. It is possible that when farmworkers are attuned to global issues (e.g., media representation), they are not attuned to local issues (e.g., work conditions at the farm) and vice versa (Friedman & Förster, 2010). Another

**Table 3.** Bivariate Correlations Between Environmental Microaggressions and Health Variables.

Environmental Microaggressions Measures	M (SD)	Depressive Symptoms	Anxiety Symptoms	Physical Function
		1.68 (0.71)	1.88 (0.76)	1.19 (0.38)
FEMS total	2.23 (0.46)	.20* [−.01, .42]	.17 [−.05, .38]	.13 [−.09, .35]
Pesticide exposure	2.48 (0.92)	.25* [.04, .46]	.24* [.03, .45]	.05 [.17, .27]
Housing conditions	2.05 (0.61)	.16 [−.08, .38]	.10 [−.14, .33]	.06 [−.20, .32]
Resources & information availability	1.63 (0.63)	.08 [−.13, .30]	.08 [−.13, .30]	.17 [−.04, .39]
Representation	3.73 (0.53)	.08 [−.13, .29]	.03 [−.18, .24]	.04 [−.17, .25]
REMS	3.12 (1.29)	−.10 [−.31, .11]	−.06 [−.27, .15]	.16 [−.05, .37]

Note. Brackets indicate 95% confidence intervals around correlations. FEMS = Farm Worker Environmental Microaggressions Scale (rated on 4-point Likert-type scale); REMS = Environmental Microaggressions subscale of the Racial and Ethnic Microaggressions Scale (rated on 5-point Likert-type scale; Nadal, 2011); all health variables were rated on 5-point Likert-type scales.

\* $p < .10$ , \*\* $p < .05$ .

**Table 4.** Incremental Validity of FEMS Over REMS in Predicting Health Variables.

Environmental Measures	Depressive Symptoms			Anxiety Symptoms			Physical Function		
	$\beta$	<i>p</i>	$R^2$ ; Cohen's $f^2$	$\beta$	<i>p</i>	$R^2$ ; Cohen's $f^2$	$\beta$	<i>p</i>	$R^2$ ; Cohen's $f^2$
Step 1 REMS Total	-.08 [-.30, .14]	.484	.006; .006 [-.025, .039]	-.02 [-.24, .19]	.832	.001; .001 [-.012, .014]	.16 [-.05, .38]	.135	.026; .027 [-.037, .100]
Step 2 REMS total FEMS total	<.01 [-.23, .23] .20 [-.03, .44]	.993 .091	.040; .042 [-.037, .135]	.05 [-.19, .28] .18 [-.05, .41]	.695 .121	.029; .030 [-.037, .107]	.25 [.02, .48] .22 [.00, .46]	.034 .054	.069; .074 [-.030, .202]

Note. Brackets indicate 95% confidence intervals. FEMS = Farm Worker Environmental Microaggressions Scale; REMS = Environmental Microaggressions subscale of the Racial and Ethnic Microaggressions Scale (Nadal, 2011).

possibility is that as they experience more farmworker-specific EMs (as measured by the FEMS), they may turn to Spanish-language media (as measured by the REMS) as a way to engage with their heritage to counter the effects of everyday racism (Branscombe et al., 1999). Related to this, a third possible explanation is that the vast majority of our sample (and 100% of the respondents whose data we analyzed and presented here) preferred Spanish over English when completing our study. Thus, we may infer that they *also* prefer Spanish-language media, where there *is* adequate racial representation (i.e., leading to lower ratings on the REMS). Future research should further examine global (general) versus local (farmworker-specific) EMs to elucidate the mechanisms underlying this association.

We observed patterns of association between farmworker-specific EMs and health that deserve attention. Consistent with existing research, we found that Latinx farmworkers who reported more frequent exposure to pesticides at work and at home also reported more depression and anxiety symptoms (Stallones & Beseler, 2002). We also found that individuals who reported more experiences with farmworker-specific EMs (total FEMS scores) also reported a higher mean level of depression. In contrast, those who reported more experiences with general EMs did not have higher mean level of mental or physical function issues.

In terms of incremental validity, we found that more experiences with farmworker-specific EMs predicted several indicators of health above and beyond reports of general EMs. In particular, farmworker-specific EMs predicted depressive symptoms, anxiety symptoms, and physical function even after accounting for general EMs. In terms of the FEMS subscales, we found that reports of pesticide exposure at work and at home were a better predictor of depressive and anxiety symptoms than reports of general EMs. These findings indicate that with the FEMS, we have captured unique, farmworker-specific concerns and experiences that are meaningful to this population. Together, our findings suggest that (a) it is possible and indeed important to conduct research from the perspective of marginalized individuals while employing theoretical perspectives novel to psychology, such as CRT; and (b) it is important to consider EMs specific to farmworkers when we conduct research on these populations, as farmworker-specific EMs account for a nontrivial amount of variability in mental and physical function for Latinx farmworkers.

### Implications

The current study has two major implications for theory and research on microaggressions. First, we quantified the various ways in which farmworkers are routinely exposed to subtle and seemingly innocuous discrimination from their surroundings. Giving specific attention to this population is necessary: Farmworkers are at the margins of society, thus they are more susceptible to experiencing discrimination (Sue, 2010). We successfully employed CRT to identify and quantify EMs toward farmworkers. This framework posits that because

structures are inherently racist, the environment communicates negative messages to marginalized individuals (Bell, 1980; Crenshaw, 1991; Salter & Adams, 2013). Therefore, the instances of discrimination we uncovered provide insight to the nuanced experiences of farmworking Latinx who live and work within racist structures.

Second, findings demonstrate the importance of assessing farmworker-specific EMs to better understand health for this group. We demonstrated that farmworkers report fairly frequent and nontrivial rates of farmworker-specific EMs in addition to general EMs at similar rates to students of color on college campuses (Nadal, 2011). Thus, we should strive to investigate farmworkers' experiences with EMs as we do for students of color. This is crucial because research has shown that experiencing microaggressions is associated with worsened mental health (e.g., Nadal et al., 2014; Nadal et al., 2015). Consistent with this, farmworkers experience pesticide exposure frequently, which explained a significant amount of variance in health (i.e., depression and anxiety symptoms, physical function) even after controlling for general EMs. Thus, FEMS allowed us to pinpoint pesticide exposure as an impactful issue for farmworkers that should be examined further.

### *Strengths, Limitations, and Future Directions*

This study adds the perspective of Latinx farmworkers, a severely underrepresented group, to a growing body of microaggressions literature. Further, our study has promising external validity, as we recruited Spanish-speaking participants from contexts not usually found in psychological research studies.

Despite these strengths, there are some limitations worth noting. First, some research has shown that Latinx may display depression as somatically (Lewis-Fernandez et al., 2005; Tamayo et al., 2007), but the PROMIS survey that we administered did not assess physical manifestations of depression. Therefore, researchers should consider using more culturally sensitive assessments of depression and anxiety symptomology in future studies.

Next, our research was conducted on a mostly (94%) Mexican population. There are many other Latinx who work in agriculture, which limits our ability to generalize the results of this study to non-Mexican farmworkers (NCFH, 2016). For example, Central American individuals experience discrimination from White and Mexican individuals. Thus, researchers should proactively recruit non-Mexican farmworkers to expand on our findings.

Third, because our measure was developed for Latinx farmworkers, which is a strength of our project, the current FEMS items may not be applicable to other marginalized populations. To assess EMs experienced by other groups, researchers should engage in a similar process that we used to develop the FEMS: center the experiences of the group under study using a CRT framework, review and incorporate literatures from fields

outside of psychology, and actively engage members of that community throughout the research process.

Finally, our sample was relatively small, making statistical analyses underpowered. The current sociopolitical climate and frequent immigration raids focused on farmworkers created recruitment challenges for us. Despite this limitation, our findings highlight important, previously unknown facets of farmworkers' lives and experiences. We encourage other researchers to build on these findings, with particular focus on previously ignored or underrepresented populations outside of academic settings.

### **Conclusion**

Our desire to reflect the experiences of farmworkers influenced our interdisciplinary approach to creating an EM Scale for farmworkers. In the face of growing evidence that farmworkers' social position makes them especially vulnerable to discrimination, it is important that researchers examine the intricacies of their experiences. Utilizing a CRT framework ensured that farmworkers' experiences were at the forefront during each stage of the research process. It also allowed us to borrow from the ER literature, pinpoint farmworkers' experiences with discrimination to create a quantitative scale and then examine how these EMs are associated with health. Further, although field research requires additional time and resources as compared to laboratory research, we argue that this is the most appropriate way to include those who fall to the margins of society. Using an interdisciplinary approach afforded us the ability to incorporate methods and findings from other fields and capture the diverse experiences of underrepresented groups.

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The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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### **ORCID iD**

Maira A. Areguin  <https://orcid.org/0000-0003-1059-8141>

### **Supplemental Material**

The supplemental material is available in the online version of the article.

### **Notes**

1. We use *Latinx* to refer to all individuals from Latin America. The majority of our participants were Mexican/Mexican American.
2. For more information on this interdisciplinary approach, please contact the first author.

3. Recruitment took place after the 2016 presidential election, when there were multiple, large-scale Immigration and Customs Enforcement raids targeting farmworkers in this region.
4. In the survey used for data collection, we did not provide any numbers next to the response options.
5. We interpret effect sizes and confidence intervals throughout the Results section. We present (but do not interpret) exact  $p$  values.
6. Given the initial cross-loading of several items on multiple subscales, we examined alternate specifications of factors: subscales containing only the highest loading items, subscales with all cross loading items removed, subscales with all cross loading items double loading, and so on. Conclusions did not substantively differ across specifications (see Supplemental Materials for a summary).

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### Author Biographies

**Maira A. Areguin** is a doctoral candidate in psychology and women's studies at the University of Michigan. Her research broadly examines the experiences of Latinx populations, specifically Latinx college students at predominantly White institutions, Latinx farmworkers and their experiences with instances of everyday discrimination, and how White people perceive Latinx immigrants.

**Que-Lam Huynh**, PhD, is an associate professor of social psychology at California State University, Northridge. Her research program centers on the perspectives of marginalized populations and primarily focuses on the impact of and social-cognitive processes underlying people's experiences with contemporary, subtle forms of prejudice and discrimination.

**Sara R. Berzenski**, PhD, is an associate professor of psychology at California State University, Northridge, in the quantitative and developmental areas. Her major research interests center on examining emotional development in contexts of adversity. Specific lines of inquiry include the development of emotion knowledge, child maltreatment, and psychometrics.

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