



**Background**

Perceived discrimination, or perceptions of being treated unfairly among members of minority groups [1], has harmful effects on mental and physical health [1–7] and can impede the reach of public health programs [8–12]. Conceptually, the terms perceived discrimination and discriminatory experiences refer to the perspectives and experiences of stigmatized groups—those marked by



experiences that are essentially minor, followed by suggested reasons for those experiences, such as ancestry, gender, or religion [34]. Answering 'A few times' or more to any of the nine EDS items triggered a separate module at the end of the EDS, in which potential reasons for the experience(s) were provided and the participant was asked to what degree the reason accounted for the experience(s). Each given reason was preceded by the question, 'Considering everything we just talked about, for those things that happened at least a few times or more, how much does it have to do with [reason]?' The reasons were provided in order of their presumed increasing sensitivity: 1) Poverty or economic problems; 2) Health problems; 3) Lack of education; 4) Language problems (trouble speaking Spanish); 5) Documentation problems; 6) Skin color; and 7) Origin, which was explained to participants as 'your country of birth' or 'where you are from.' These reasons were selected a priori based on previous ethnographic fieldwork [43] and literature review of Haitian-Dominican relations and the political history of bateyes. A 4-point Likert scale was provided for each given reason (with 'Don't know' coded as zero), where 1 = No, [reason] has nothing to do with it; 2 = Yes, a little; 3 = Yes, a lot; and 4 = Yes, very much so.

All survey questions were first translated from English to Spanish and Haitian Kreyòl and discussed in team meetings with native speakers of both languages. Then, the questionnaire was piloted to ensure comprehension and comfort. Survey questions were then back-translated by people not affiliated with the study to compare to the original English. Data were collected electronically using hand-held tablet computers running custom data collection software (Eagle Survey, The Carter Center).

#### Analysis

Only questionnaires with completed EDS modules, regardless of participation in the parasite diagnostic module, were included for analysis here. Descriptive statistics were calculated for bivariate associations between demographic factors and ethnic groups. Categorical variables were tested for independence using the adjusted Wald test [44]. Following previous convention [2, 33, 34], an EDS total score was obtained by summation of responses





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pairings between each EDS item and each given reason ( $n = 63$  pairs for each ethnic group), only 2 item-reason pairs were significant: the odds of endorsing poverty as having 'A lot' or 'Very much' to do with being treated with less respect were approximately 5 times higher among both Haitian-born (OR = 4.5; 95% CI = 2.2–9.1) and Dominican-born persons with Haitian descent (OR = 5.1; 95% CI = 2.3–11.3) ( $p = 0.021$ ). Second, Dominican-born persons with Haitian descent were 5.7 times more likely (95% CI = 1.3–33.7) to attribute being called names or insulted to documentation problems ( $p = 0.029$ ).

#### **D c** ¶

Most people living in bateyes of the Dominican Republic are permanent residents, rather than migrants, and appear to regularly experience some form of interpersonal

discrimination that they interpret as a result of poverty. Haitian birth and Haitian descent were strongly associated with high EDS scores; in addition to poverty, members of those ethnic groups also linked discrimination to their origin, documentation status, or skin color. EDS scores were not significantly associated with care-seeking for recent fever, nor were discriminatory experiences understood to occur because of health problems or disease.

As anticipated, perceived discrimination was highest among persons of Haitian ancestry—including both Haitian-born and Haitian-descended people born in the Dominican Republic. In contrast to those born in the Dominican Republic without Haitian descent—whose interpersonal experiences may be subtle, such as being treated as though they are not smart—Haitian-born and Haitian-descended people appear to experience more overt forms of discrimination, like feeling threatened or being called names. Additionally, Haitian-born and Haitian-descended people attributed discriminatory experiences to individual-level 'marks' that have been historically denigrated in Dominican society: skin color and origin [30



Persons born in the Dominican Republic without Haitian descent also linked poverty and interpersonal discrimination. There are some possible explanations for this finding. First,

Given higher prevalence of vector-borne disease in Haiti and history of discrimination against this population in Dominican society, public health programs that explicitly link the Haitian-born population to vector-borne disease can exacerbate stigma and blame [

not fully capture experiences of those living in bateyes of the Dominican Republic. While exploratory factor analysis of the EDS in this study revealed a unidimensional construct, more in-depth, qualitative research could explore other discriminatory experiences relevant to the lives of batey residents. Furthermore, the two EDS items displaying differential functioning ('People act like you are not smart' and 'You feel threatened') may have introduced measurement bias to inflate scores among Dominican-born without Haitian descent and Haitian-born and Haitian-descended individuals, respectively. These items deserve ethnographic exploration to ascertain why members of certain ethnic groups appear to more readily endorse those items even after matching to members of a reference group. Additionally, qualitative research could help to tease out the specific circumstances under which EDS experiences occur.

Because the survey was conducted in two languages (Spanish, Haitian Kreyòl), there is the potential for measurement bias in how certain questions were asked in their respective languages. While the survey team contacted participants on weekend evenings (when most residents were said to be home), some residents were no doubt missed,



Consent for publication  
Not applicable.

Competing interests  
The authors declare that they have no competing interests.

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Received: 8 October 2018 Accepted: 11 October 2019  
C303.299904;58:1985sc/417.4997007.41anta6.6929638.2201109688031156120197ecan453C59Dis.SA.

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