Discrimination and Depression among Urban Hispanics with Poorly Controlled Diabetes

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Objectives: We had three objectives for our study: 1) to describe the prevalence and burden of experiences of discrimination among Hispanics with poorly controlled diabetes; 2) to evaluate associations among discrimination experiences and their burden with comorbid depression among Hispanics with poorly controlled diabetes; and 3) to evaluate whether discrimination encountered in the health care context itself was associated with comorbid depression for Hispanic adults with diabetes.

Design: We conducted a cross-sectional analysis of baseline data of a randomized controlled trial (RCT).

Setting: We collected data in the context of an RCT in a clinical setting in New York City.

Participants: Our sample comprised 221 urban-dwelling Hispanics, largely of Caribbean origin.

Main Outcome Measures: The main outcome measure was major depression, measured by the Euro-D (score>3).

Results: Of 221 participants, 58.8% reported at least one experience of everyday discrimination, and 42.5% reported at least one major experience of discrimination. Depression was associated significantly with counts of experiences of major discrimination (OR=1.46, 95%CI=1.09-1.94, *P*=.01), aggregate counts of everyday and major discrimination (OR=1.13, 95%CI=1.02-1.26, *P*=.02), and the experience of discrimination in getting care for physical health (OR=6.30, 95%CI=1.10-36.03).

Conclusions: Discrimination may pose a barrier to getting health care and may be associated with depression among Hispanics with diabetes. Clinicians treating Caribbean-born Hispanics should be aware that disadvantage and discrimination likely complicate a presentation of diabetes. (*Ethn Dis*. 2015;25[2]:130–137)

Key Words: Epidemiology, Immigrant Health, Hispanics, RCTs, Discrimination, Health Disparities, Depression, Diabetes

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Introduction

In adults, type 2 diabetes is higher in Hispanics than non-Hispanic Whites.[1,2] Among those with type 2 diabetes, depression is more prevalent in Hispanics than non-Hispanic Whites[3] and, the prevalence of comorbid depression and type 2 diabetes is higher in Hispanics compared with the general population.[4]

Discrimination has been associated with poorer mental and physical health, worse health behaviors, and increased mortality.[5–9] Specifically, discrimination has been related to depression in racial and ethnic minorities[8,10]; while African Americans have been a research focus, this association has been found for Hispanics across age groups.[11–18] One study found that discrimination was associated with higher levels of depressive symptoms for African Americans and Hispanics with diabetes.[19] Moreover, discrimination has been associated with diabetes management indicators, such as regular hemoglobin A1C tests,[20,21] early eye exam intervals,[21] foot exams, regular blood pressure monitoring,[20] and filling pharmacy prescriptions on time.[22] However, relatively few reports[21,23–25] have examined discrimination encountered in the health care context itself. Additionally, to our knowledge, no reports have examined the overall, aggregate impact of discrimination (eg, the total burden of everyday and major discrimination as measured by the cumulative number of experiences) on health outcomes, and more specifically, depression.

Finally, discrimination remains understudied in Hispanic subgroups.[26] Rates of everyday discrimination appear to vary by cultural characteristics across different Hispanic subgroups (eg, reports of discrimination have been higher among Puerto Rican, Mexican, and other subgroups compared with Cubans; those who immigrated earlier; and those with weak ethnic identity).[27] Longer residence in the United States has been associated with higher frequencies of discrimination among Hispanic immigrants,[12,19,23,27] underscoring the need to examine discrimination in Hispanic subgroups born outside the United States.

Given these interrelationships, we sought to examine the association between discrimination and depression in a population of urban Hispanics, primarily of Caribbean descent (born in the Dominican Republic), with poorly controlled diabetes. We previously reported a high prevalence (52.8%) of depression in this group.[28]

We had three objectives for our analyses. First, we sought to describe the prevalence of discrimination experiences

We hypothesized that experiences of discrimination would be associated significantly with comorbid depression among Hispanics with poorly controlled diabetes.

among Hispanics with poorly controlled diabetes. Second, we sought to evaluate associations among discrimination experiences and their aggregate lifetime burden, which is not examined often in the literature, with comorbid depression among Hispanics with poorly controlled diabetes. We hypothesized that experiences of discrimination would be associated significantly with comorbid depression among Hispanics with poorly controlled diabetes. Third, we sought to evaluate whether discrimination encountered in the health care context itself was associated with comorbid depression for Hispanic adults with diabetes. We hypothesized that discrimination in the health care context would be significantly related to comorbid depression among Hispanics with poorly controlled diabetes.

METHODS

Study Sample

The Northern Manhattan Diabetes Community Outreach Project (NOCHOP) study has been described in detail elsewhere.[29] Briefly, the NOCHOP study participants were recruited from the Ambulatory Care Network at Columbia University Medical Center (CUMC). Potential participants were eligible if they were Hispanic, aged 35–70 years, resided in Northern Manhattan or Western Bronx (based on ZIP code), received an HbA1c test with a value greater than 8.0%. in the previous 12 months. Potential participants were ineligible if they: were deemed inappropriate by their primary care provider (PCP); had type 1 diabetes; had a life-threatening or severe and disabling illness; were first diagnosed with diabetes in the previous 12 months; planned to move out of the community within the following 12 months; were participating concurrently in another CVD or diabetes intervention trial; or, had an arm circumference greater than 47cm. Of the 2,232 potential participants, 1,396 (62.5%) were screened initially as ineligible. Of the 836 (37.5%) who were screened initially as eligible, 145 (17.3%) were ultimately deemed ineligible, 174 (20.1%) were not interested, and 157 (18.8%) could not be reached. The initial screening yielded a sample of 360 participants who were randomized in the study and received an in-person baseline evaluation at CUMC.

Of the 360, 221 (61.4%) completed a supplemental computer-assisted patient interview (CAPI), available in English and in Spanish, which elicited information regarding social and environmental factors. This battery of measures was collected at follow-up visits for the NOCHOP parent study or at an additional visit. All participants provided written informed consent for both phases of the study and received $20 payment for participating in the supplemental phase of the interview. The research design, survey questions, and study procedures were approved by the Institutional Review Board at CUMC.

Measures

All survey measures were obtained from trained staff using a CAPI system. Everyday discrimination was measured using a 10-item measure[30,31] that captures daily hassles. Responses were on a Likert scale; 5 (very often), 4 (fairly often) and 3 (sometimes) vs 2 (almost never) or 1 (never). Consistent with Williams[30] and Krieger,[31] responses were recoded into binary variables (very often, fairly often, and sometimes=1, almost never or never=0). Major discrimination was measured using a 13-item measure adapted from Williams, which was modified to include additional items regarding discrimination in two health care contexts, physical health and mental health: ''Have you ever been unfairly treated when getting treatment for physical health problems?'' and ''Have you ever been unfairly treated when getting treatment for mental health problems?'' We also modified the instrument to include both primary and secondary attributions, and attributions particularly relevant to the Northern Manhattan Hispanic community (eg, language proficiency). For both measures of discrimination, counts of events comprised the primary exposure. We also constructed a cumulative burden score of discrimination, in which the count of all experiences of major discrimination (very often, fairly often, and sometimes=1, almost never or never=0) were summed across all experiences of major discrimination for each respondent. Finally, we examined the total number of lifetime major experiences of discrimination, in which the reported number of lifetime discrimination experiences, or the number of times each respondent reported experiencing a particular instance of discrimination (eg, discrimination in getting treatment for physical health problems) over his or her lifetime (range 1–99), were summed across all major experiences of discrimination reported by the respondents.

Depressive symptoms and depression were measured using the 12-item Euro-D,[32] an empirically validated instrument in English[33] and Spanish.[34] Scores range from 0 to 12, with a maximum score of 12; a Euro-D score greater than 3 is consistent with *DSM*-defined major depression assessed with the Diagnostic Interview Schedule.[32] The Spanish version of Euro-D demonstrated 92% sensitivity and 77%

specificity for a score greater than 3, and 77% sensitivity and 89% specificity for a score greater than 4.[34] In the full NOCHOP baseline sample, Cronbach's alpha for the Euro-D depression scale was .84 and the explained common variance (ECV) was 36.08% with eigenvalues of 4.33 and 1.10.[28] For the purposes of these analyses, we used a depression classification variable, and dichotomized at the cut score indicative of clinical depression.

Potential sociodemographic correlates of depression included age, sex, education (years), annual income (<$3,000; $3,001–$10,000; $10,001–$20,000; ≥$20,001), current employment status (employed, unemployed, on disability, or other (retired, homemaker)), receipt of Supplemental Security Income (yes/no), and past-year stressful life events (count). Past-year stressful life events included marital separation or divorce, job loss or retirement, violence, major intra-family conflict, major personal injury or illness, death or major illness of a close family member, death of a spouse, or other major stress.

As described elsewhere,[29] HbA1c levels and plasma LDL cholesterol levels were measured after overnight fasting. Blood pressure was measured after resting for 15 minutes; three measurements were obtained, and the average of the last two measurements was used.

Statistical Analyses

First, descriptive statistics were calculated for all study variables. Second, the psychometric properties of the discrimination scales were examined. Third, binary logistic regression was employed to obtain odds ratios (OR) and 95% confidence intervals (CI) for the following associations with depression (Euro-D score>3): counts of discrimination events for everyday and major discrimination; the count of everyday and major discrimination experiences; the total number of lifetime major experiences of discrimination; and the individual experiences of major discrimination in the health care context. Based on graphical methods to select covariates, adjusted analyses included sex, age, receipt of supplemental security income, number of stressful life events, number of years of schooling, and antidepressant use in logistic regression models. All analyses were conducted using SPSS (version 19.0, IBM Corporation, 2010).

RESULTS

Sociodemographic, clinical, and health behavior characteristics of the sample are presented in Table 1. The sample was largely female and socioeconomically disadvantaged according to multiple indicators. The average BMI for participants classified them as clinically obese (BMI>30), and HbA1c levels reflected poor glycemic control; other cardiovascular risk factors were largely within normal ranges. While most of the sample took statins and aspirin, medication adherence overall was low. Of our total sample (N=221), 116 (52.5%) met criteria for major depression (Euro-D score>3).

In this sample, Cronbach's alpha for the experiences of major discrimination scale was 0.63 and the explained common variance (ECV) was 31.02% with eigenvalues of 2.83 and 1.2. For the everyday discrimination scale, Cronbach's alpha was .48, and the ECV was 28.72% with eigenvalues of 1.81 and 1.06.

Frequencies of Discrimination Experiences

Of the 221 participants, 128 (58.8%) reported at least one experience of everyday discrimination. The mean count of daily hassles was 1.9 (standard deviation [SD]=2.4). The most common experiences of everyday discrimination, occurring in approximately one-third of the sample (Table 2), were people acting as if they are better than the respondent (33.9%), people acting as if they think the respondent is not smart (31.7%), and the respondent being treated with less courtesy than other people (29.9%). About one quarter of respondents reported that being treated with less respect than others (25.3%). Other experiences of daily hassles reported by 15%-20% of respondents include people acting as if they are afraid of the respondent (17.2%), and receiving poorer service than other people at restaurants or stores (15.4%).

Of the 221 participants, 94 (42.5%) reported at least one major experience of discrimination, with a mean of .9 (SD=1.4). As shown in Table 3, overall, the most common major experiences of discrimination were related to occupational situations. The most frequent major experience discrimination, occurring in just under than one-fifth of the participants, was being unfairly fired from a job (18.6%). The next most frequent major experiences of discrimination, occurring in 10% of respondents were not being hired for a job, and being unfairly stopped, searched, questioned, or physically threatened or abused by the police.

A total of 201 experiences of major discrimination were reported by the 42.5% of NOCHOP COHD respondents reporting at least one major experience of discrimination. As shown in Table 3, together, ancestry or national origins, race/ethnicity, and shade of skin color comprised the main reason for 34.8% of the total number of experiences of major discrimination reported. Education or income was offered as the main reason for 14.4% of the major discrimination experiences. Other reasons, not captured by the response categories provided, were provided as the main reason for 29.4%.

Associations with Depression

Depression (Euro-D score>3) was associated significantly in both crude and adjusted analyses with counts of experiences of major discrimination, aggregate counts of everyday and major

Table 1. Sociodemographic, clinical, and health behavioral characteristics of the NOCHOP COHD sample (*N*=221)[a]

Characteristic	Frequency
Age, years, mean (SD)	57.4 (7.7)
Sex, female	60.6
Marital status	
Single/never married	15.8
Married or living with significant other	36.2
Separated/divorced/widowed	47.1
Nativity, foreign born	96.4
Primary language, Spanish	82.8
Annual income	
<$3,000	12.7
$3,001–$10,000	46.6
$10,001–$20,000	29.4
≥$20,001	10.0
Education, years, mean (SD)	8.7 (3.9)
Employment status	
Employed	18.6
Unemployed	19.0
On disability	46.2
Other (retired, homemaker)	15.4
Social services	
Receives SSI	37.1
Medicaid	86.9
Medicare	30.8
BMI, mean (SD)	31.3 (6.1)
Underweight (<18.5 kg/m^2)	0
Normal weight (18-5-24.9 kg/m^2)	12.4
Overweight (25.0–29.9 kg/m^2)	32.7
Obese (≥30.0 kg/m^2) (%)	54.8
HbA1c, mean (SD)	8.7 (1.7)
Systolic blood pressure, mm Hg, mean (SD)	136.0 (18.5)
Diastolic blood pressure, mm Hg, mean (SD)	80.9 (9.8)
Total cholesterol, mean (SD)	169.7 (42.1)
LDL, mg/dL, mean (SD)	95.8 (34.8)
Triglycerides, mg/dL, mean (SD)	149.3 (83.0)
Euro-D score, mean (SD)	4.4 (3.3)
Major depression, *n* (%)	116 (52.5)
Past year life events/stressors, mean (SD)	1.2 (1.2)
Smoking	
Never	53.4
Former	34.8
Current	10.9
Antidepressant use	21.3

[a] Data are % unless specified otherwise.

discrimination, and the experience of discrimination in getting care for physical health (Table 4). For counts of major discrimination adjusted analyses indicate that for every additional experience of major discrimination, the odds of clinical depression increased by 46% (OR=1.46, 95%CI=1.09–1.94, *P*=.01). Similarly, for the total count of both everyday and major discrimination, the odds of clinical depression increased by 13% (OR=1.13, 95%CI=1.02–1.26, *P*=.02). Among those who experienced discrimination in getting care, the odds of clinical depression were 6.3 times greater than those who did not (OR=6.30, 95%CI=1.10–36.03). Neither counts of everyday discrimination nor the total lifetime experiences of major discrimination were associated significantly with depression.

DISCUSSION

Discrimination has negative consequences for health[35] and may have differential effects on physical and mental health.[36] However, the vast majority of research on discrimination and health has been conducted in Black Americans. Moreover, the impact of discrimination on comorbid physical and mental health conditions has not been investigated extensively. Research regarding the extent and impact of various types of discrimination among Hispanics and across Hispanic subgroups[19,25,37–40] has infrequently included those of Caribbean origin, or has aggregated them among "other" subgroups.[27] Finally, virtually no research on discrimination has attempted to estimate the cumulative and collective impact of the number of experiences of discrimination and/or the totality of major and everyday discrimination.

To our knowledge, no research has addressed the impact of discrimination on the physical and mental health of Hispanics of Caribbean origin. Dominicans, comprising the majority of Northern Manhattan Hispanics, are targets for discrimination; they are more recent immigrants, have an African ancestry, speak mainly Spanish and/or English with a heavy accent, and are less acculturated.[37,41–44] They may also have depression related to discrimination, which is moderated by language proficiency, but research is limited.[37,45–49] In addition, little research addresses discrimination and diabetes in Hispanics,[50] and none addresses Northern Manhattan Hispanics, born primarily in the Dominican Republic.

In our sample of 221 Northern Manhattan Hispanics, largely of Caribbean origin, with poorly controlled

Table 2. Frequencies of everyday discrimination in the NOCHOP COHD Sample (*N*=221)

Experiences of everyday discrimination[a]	*n*, %
You are treated with less courtesy than other people	66, 29.9
You are treated with less respect than other people	56, 25.3
You receive poorer service than other people at restaurants or stores	34, 15.4
People act as if they think you are not smart	70, 31.7
People act as if they are afraid of you	38, 17.2
People act as if they think you are dishonest	22, 10.0
People act as if they're better than you are	75, 33.9
You are called names or insulted	23, 10.4
You are threatened or harassed	19, 8.6
You are followed around in stores	23, 10.4

[a] Frequencies of participants who responded 5 (very often), 4 (fairly often) and 3 (sometimes) versus 2 (almost never) or 1 (never).

In our sample of 221 Northern Manhattan Hispanics, largely of Caribbean origin, with poorly controlled diabetes, more than half (52.5%) met criteria for clinical depression (score >3 on the Euro-D).

diabetes, more than half (52.5%) met criteria for clinical depression (score >3 on the Euro-D). Experiences of discrimination were as common as depression in our sample and were attributed to disparity statuses. Nearly 60% of our sample reported at least one experience of everyday discrimination (ie, daily hassles), and more than 40% reported at least one experience of major discrimination. Of the latter group of respondents, almost half offered ancestry or national origins, race/ethnicity, shade of skin color, and education or income as the main reasons for experiences of major discrimination reasons fundamentally related to disadvantage in the United States.

Table 3. Frequencies of experiences of major discrimination and reasons for discrimination in the NOCHOP COHD Sample (*N*=221)

	n, %
Experiences of major discrimination	
At any time in your life, have you ever been unfairly fired?	41, 18.6
For unfair reasons, have you ever not been hired for a job?	22, 10.0
Have you ever been unfairly denied a promotion?	17, 7.7
Have you ever been unfairly stopped, searched, questioned, physically threatened or abused by the police?	22, 10.0
Have you ever been unfairly treated in the court system?	8, 3.6
Have you ever been unfairly discouraged by a teacher or advisor from continuing your education?	8, 3.6
Have you ever been unfairly prevented from moving into a neighborhood because the landlord or a realtor refused to sell or rent you a house or apartment?	9, 4.1
Have you ever moved into a neighborhood where neighbors made life difficult for you or your family?	16, 7.2
Have you ever been unfairly denied a bank loan or received a less preferable mortgage rate?	8, 3.6
Have you ever received service from someone such as a plumber or car mechanic that was worse than what other people get?	15, 6.8
Have you ever been unfairly treated when getting treatment for mental health problems?	4, 1.8
Have you ever been unfairly treated when getting treatment for physical health problems?	14, 6.3
Have you ever been unfairly treated when using public transportation?	14, 6.3
Reasons for major discrimination	
Ancestry or national origins	32, 15.9
Sex	1, 0.5
Race/ethnicity	30, 14.9
Age	8, 4.0
Shade of skin color	8, 4.0
Sexual orientation	1, 0.5
Religion	2, 1.0
Education or income	29, 14.4
Physical disability	13, 6.5
Mental illness	5, 2.5
Appearance	6, 3.0
Other	59, 29.4

Table 4. Associations between depression[a] and experiences of discrimination: crude and adjusted odds ratios (OR) and 95% confidence intervals (CI) in the NOCHOP COHD Sample (*n*=221)

Measure of discrimination	Crude OR	CI	*P*	Adjusted OR[b]	CI	*P*
Everyday discrimination	1.11	.99–1.24	.08	1.11	.97–1.27	.12
Major discrimination	1.39	1.11–1.75	.004[d]	1.46	1.09–1.94	.01[c]
Total count of everyday and major discrimination experiences	1.14	1.04–1.25	.004[d]	1.13	1.02–1.26	.02[c]
Lifetime number major experiences of discrimination	1.04	.98–1.11	.17	1.08	.99–1.17	.10
Discrimination getting care for physical health	6.18	1.35–28.35	.02[c]	6.30	1.10–36.03	.04[c]

[a] Depression was treated as binary and collapsed at the clinical depression cut score.
[b] Adjusted for sex, age, receipt of supplemental security income, number of stressful life events, number of years of schooling, and antidepressant use.
[c] $P<.05$.
[d] $P<.01$.

Clinical depression, as measured by the Euro-D (score>3), was associated significantly with several dimensions of discrimination experiences in this sample of Hispanics of Caribbean origin with poorly controlled diabetes. In keeping with other reports regarding Hispanics,[11,12] as experiences of major discrimination increased, odds of clinical depression increased. While counts of everyday discrimination experiences and the total number of lifetime experiences of major discrimination were not significantly associated with clinical depression in this sample of Caribbean-born Hispanics, the total count of everyday and major experiences of discrimination was associated linearly with clinical depression—these were driven mainly by major discrimination.

Notably, respondents who experienced discrimination in seeking care for a physical health problem were more than six times likely to meet criteria for clinical depression than those who did not. While discrimination, in general, has been shown to have an effect on health service use,[51,52] to our knowledge, relatively few research reports[53] have addressed this issue with a specific health care item in a discrimination battery, which represents a pernicious barrier to care for those with comorbid diabetes and depression.

Those who have comorbid chronic illnesses may present more for health care services and have a variety of providers, thus increasing the potential for negative or discriminatory experiences. In turn, these experiences may result in under-utilization of health care services,[23] and as a result, a greater burden of chronic illness overall. Clinical provider awareness and acknowledgement of minority patients' prior health care experiences could help reduce the deleterious impact of chronic physical and mental health problems experienced disproportionately by minorities.

Strengths and Limitations

To our knowledge, this study is the first to report the burden of experiences of discrimination in sample of Caribbean-born urban Hispanics with diabetes, as well as associations with depression. Measures of diabetes, depression, and experiences of discrimination in this sample are validated and well-characterized. The measures of depression and experiences of discrimination were administered by trained bilingual clinical interviewers. In addition, the latter measures were modified for the specific characteristics of our target population, which has not been studied extensively with respect to diabetes, depression, and experiences of discrimination.

While this study represents one of only a few in the literature addressing the impact of discrimination experiences on the intersection of physical and mental health,[19] the sample is small and culled from a group participating in a clinical trial of a community health worker intervention to improve diabetes control. Our sample is especially disadvantaged; it is unknown to what extent our findings are representative of all Caribbean-born Hispanics living in the United States. In addition, while our measure of depression was validated and demonstrated good internal validity, it is not a structured clinical interview, considered the gold standard for clinical depression diagnoses. Finally, and most importantly, this study is a cross-sectional study, and therefore, whether experiences of discrimination preceded the diagnosis of depression cannot be completely determined.

CONCLUSION

Our study represents an important contribution to our knowledge of the burden of discrimination experiences and their association with depression among Caribbean-born Hispanics with poorly controlled diabetes living in the United States. Our findings indicate that discrimination in the health care context and depression among Hispanics with diabetes is related, and that discrimination poses an important barrier to getting health care that may be particularly relevant to comorbid diabetes and depression in Hispanics of Caribbean descent. Future research should examine these associations, and clinicians treating Caribbean-born Hispanics should be aware that disadvantage and discrimination may have especially robust effects on the co-occurrence of

two health outcomes that further contribute to disadvantage because of their impact on functioning, as well as other poor health outcomes.

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