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Assessing the Everyday Discrimination Scale Among American Indians and Alaska Natives

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Abstract

The Everyday Discrimination Scale has been used widely as a measure of subjective experiences of discrimination. The usefulness of this measure for assessments of perceived experiences of discrimination by American Indian and Alaska Native (AI/AN) peoples has not been explored. Data derived from the Special Diabetes Program for Indians – Healthy Heart Demonstration Project (SDPI-HH), a large-scale initiative to reduce cardiovascular risk among AI/ANs with Type 2 diabetes. Participants (N=3,039) completed a self-report survey that included the EDS and measures of convergent and divergent validity. Missing data were estimated by multiple imputation techniques. Reliability estimates for the EDS were calculated, yielding a single factor with high internal consistency ($\alpha=0.92$). Younger, more educated respondents reported greater perceived discrimination; retired or widowed respondents reported less. Convergent validity was evidenced by levels of distress, anger, and hostility, which increased as the level of perceived discrimination increased (all $p<0.001$). Divergent validity was evidenced by the absence of an association between EDS and resilient coping. Resilient coping and insulin-specific diabetes knowledge were not significantly associated with perceived discrimination ($p=0.61$ and 0.16 , respectively). However, general diabetes-related health knowledge was significantly associated with perceived discrimination ($p=0.02$). The EDS is a promising measure for assessing perceived experiences of discrimination among those AI/ANs who participated in the SDPI-HH.

Key Words: perceived discrimination, American Indian, Alaska Native, Everyday Discrimination Scale, validity, diabetes

Assessing the Everyday Discrimination Scale Among American Indians and Alaska Natives

Introduction

A large body of evidence documents poorer health outcomes among individuals who report experiences they perceive as discrimination (hereinafter “perceived discrimination”) (Kressin, Raymond, & Manze, 2008; Paradies, 2006; Pascoe & Richman, 2009; Williams & Mohammed, 2009). Broadly defined, perceived discrimination is the belief that one has experienced unfair treatment by individuals and social institutions, and that this treatment was based on personal characteristics such as race, gender, or weight (Williams & Mohammed, 2009). Perceived discrimination may adversely affect physical, mental, and behavioral health by inducing stress and activating physiological and psychological responses, such as increased cortisol and adrenalin levels, as well as debilitating emotional conditions (Rodney Clark, Anderson, Clark, & Williams, 1999; Mays, Cochran, & Barnes, 2007). Perceived discrimination has been associated with cardiovascular disease (Friedman, Williams, Singer, & Ryff, 2009; Gyll, Matthews, & Bromberger, 2001), obesity (Gee, Ro, Gavin, & Takeuchi, 2008; Hunte, 2011; Tsenkova, Carr, Schoeller, & Ryff, 2011), psychological disorders (Gee, Ryan, Laflamme, & Holt, 2006; Ronald C. Kessler, Mickelson, & Williams, 1999; Whitbeck, McMorris, Hoyt, Stubben, & Lafromboise, 2002), and unhealthy behaviors such as smoking (Landrine & Klonoff, 2000; Les Whitbeck, Chen, Hoyt, & Adams, 2004; Martin, Tuch, & Roman, 2003; Whitbeck, Hoyt, McMorris, Chen, & Stubben, 2001).

Although these relationships are well established in the literature across several racial and ethnic populations (Kressin et al., 2008; Paradies, 2006; Pascoe & Richman, 2009; Williams & Mohammed, 2009), few studies have examined the links between perceived discrimination and health among American Indians and Alaska Natives (AI/ANs) (Paradies 2006; Whitbeck et al.,

2002; Whitbeck et al., 2001; Whitbeck et al., 2004; Chae & Walters, 2009; Johansson, Jacobsen, & Buchwald, 2006; Gonzales, Harding, Lambert, Fu, & Henderson, 2013). This body of research is limited by small samples specific to individual AI/AN communities or regions. The extent to which the findings are generalizable to other AI/ANs is unknown.

The EDS measures the subjective beliefs and perceptions of respondents, rather than objective, observable aspects of discrimination. Advancing our understanding of perceived discrimination and health among AI/ANs relies, in part, on the availability and informed use of reliable and valid measures of perceived discrimination. The majority of the available measures originate with African Americans (Kressin et al., 2008; Paradies 2006); the psychometric properties of the most commonly used measures have not been examined among AI/ANs (Kressin et al., 2008). Moreover, previous investigations of perceived discrimination and health among AI/ANs employed a variety of measures of perceived discrimination neither commonly used nor standardized (Burgess, Ding, Hargreaves, Van Ryn, & Phelan, 2008; Call et al., 2006; Chae & Walters, 2009; Crawley, Ahn, & Winkleby, 2008; Gonzales, Harding, Lambert, Fu, & Henderson, 2013; Hausmann, Jeong, Bost, & Ibrahim, 2008; Johansson, Jacobsen, & Buchwald, 2006; Les Whitbeck et al., 2004; Shariff-Marco et al., 2011; Whitbeck et al., 2001; Whitbeck et al., 2002). Such inconsistency limits our ability to compare estimates within and across groups, and our confidence about the links between perceived discrimination and health in AI/AN populations.

To address these limitations, we examined the reliability and validity of one of the most widely used measures of perceived discrimination, the Everyday Discrimination Scale (EDS), drawing upon data from a large, culturally and geographically diverse sample of AI/ANs. Specifically, we assessed the scale score reliability of the EDS. We also examined the

convergent and divergent validity of the EDS in relation to demographic characteristics, four psychosocial scales, and two health knowledge measures.

Methods

Study Population

The data derive from the Special Diabetes Program for Indians – Healthy Heart Demonstration Project (SDPI-HH). The SDPI-HH implemented evidence-based activities to reduce cardiovascular risk among AI/ANs diagnosed with Type 2 diabetes (hereinafter “diabetes”). The scope, methods, and related aspects of the SDPI-HH have been detailed elsewhere (Manson et al., 2011). The data are cross-sectional, drawn from a baseline questionnaire administered between January 2006 and July 2009 to 3,039 participants from 30 different federal, tribal, or urban Indian health care facilities across the 12 Indian Health Service administrative areas, representing more than 138 tribal communities.

The SDPI-HH protocol was reviewed and approved by the institutional review boards of the University of Colorado Denver, the Indian Health Service, and the entities charged with overseeing research in the respective SDPI-HH participating sites, such as tribal review committees and Tribal Councils. These review boards, and the University of Washington Institutional Review Board, reviewed and approved this secondary data analysis.

Measures

The EDS is a nine-item self-report scale that reflects thoughts and beliefs about experiencing discrimination (Williams & Mohammed, 2009). The EDS has shown acceptable psychometric properties among African Americans (R. Clark, Coleman, & Novak, 2004; Krieger, Smith, Naishadham, Hartman, & Barbeau, 2005; Shariff-Marco et al., 2011). The

usefulness of this measure has not been considered previously with respect to assessing perceived discrimination among AI/ANs.

The stem of the EDS was adapted for this particular study by adding the terminology “being Indian/Native”. The specific scale items and response categories were not changed. Participants were asked to respond to the following items while considering that the basis of the treatment was based on “being Indian/Native”. For example, the first scale item is: 1) Are you treated with less courtesy than other people? The respondents were instructed to answer this scale item considering that the treatment outlined was based on “being Indian/Native”. The remaining scale items include: 2) Are you treated with less respect than other people? 3) Do you receive poorer service in restaurants or stores? 4) Do people act as if they are better than you? 5) Do people act as if they are afraid of you? 6) Are you called names or insulted? 7) Are you threatened or harassed? 8) Do people act as if you are not smart? 9) Do people act as if you are dishonest? Participants responded to a four-point Likert-type scale (1=never, 2=rarely, 3=sometimes, and 4=often). We constructed a mean summary that ranged from 1 to 4, with a higher summary score indicating a higher frequency of perceived discrimination.

We selected four psychosocial scales and two health knowledge measures to assess convergent and divergent validity of the EDS. Three scales were predicted to correlate positively with EDS, thus assessing convergent validity. These scales included the Kessler Distress Scale (K6) (Furukawa, Kessler, Slade, & Andrews, 2003; R. C. Kessler et al., 2002; R. C. Kessler et al., 2003), the Expressed Anger Scale (Bunting, McClean, & Coates, 2000), and the Suppressed Hostility Scale (Bunting et al., 2000). Three scales and measures were predicted to *not* correlate with the EDS, thus assessing divergent validity, and included the Brief Resilient Coping Scale (Sinclair & Wallston, 2004), the General Diabetes Knowledge Scale (Chew, Bradley, & Boyko,

2004; Chew et al., 2008), and the Insulin-Specific Diabetes Knowledge Scale (Fitzgerald et al., 1998). To our knowledge, there is no empirical evidence to suggest a direct relationship between coping or health knowledge and perceived discrimination; therefore, we anticipated these constructs would be unrelated to the EDS.

The K6 was used to assess psychological distress in the preceding 30 days. It includes six items encompassing such feelings as sadness, nervousness, being restless or fidgety, hopelessness, everything is an effort, and low self-worth (Furukawa et al., 2003; R. C. Kessler et al., 2002; R. C. Kessler et al., 2003). The K6 has been shown to have strong relationships with mood disorders and health related quality of life, and has been shown to as a good indicator of psychological disorder in American Indian populations (Mitchell & Beals, 2011); in that sample, the Cronbach's alpha for the full sample was 0.83, and a one-factor confirmatory factor analysis was satisfactory with a comparative fit index = 0.95 (Mitchell & Beals, 2011). Responses are arrayed on a five-point scale ranging from 1 (none of the time) to 5 (all of the time). The mean summary score ranges from 1 to 5; a higher score indicates greater distress.

The Expressed Anger Scale is a six-item measure that assesses participants' verbal or physical expressions of anger (Bunting et al., 2000). Sample items include: 1) When I am angry, I do things like slam doors; 2) When I am mad, I say nasty things; and 3) When someone is bossy, I do the opposite of what they ask. Published estimates using data from a large sample of adults revealed a one-factor solution for the Expressed Anger Scale with standardized loadings ranging from 0.32–0.63 (Bunting et al., 2000). Response options are 'yes' or 'no,' with the resulting range for the mean summary score between 0 to 1 where a higher score indicates greater expressed anger.

The Suppressed Hostility Scale is a six-item measure that assesses a participant's tendency to hide or suppress feelings of anger and resentment directed toward others (Bunting et al., 2000). Sample items include: 1) I do many things that make me feel remorseful afterwards; 2) I often feel like a powder keg ready to explode; and 3) At times I feel I get a raw deal out of life. Estimates in a sample of adults revealed a one-factor solution for Suppressed Hostility Scale with factor loading ranging from 0.48–0.82 (Bunting et al., 2000). Response options are 'yes' or 'no;' again the range for the mean summary score is 0 to 1 with a higher score indicates greater suppressed hostility.

The Brief Resilient Coping Scale is a four-item measure that assesses participants' perspectives about their coping abilities in stressful situations (Sinclair & Wallston, 2004). Sample items include: 1) I actively look for ways to replace the losses I encounter in life; 2) I believe I can grow in positive ways by dealing with difficult situations; and 3) I look for creative ways to change difficult situations. Previous research conducted in two samples of adults reveals the Brief Resilient Coping Scale is valid and reliable ($\alpha = 0.69$ for pooled sample) (Sinclair & Wallston, 2004). Participants responded to a five-point scale, ranging from 1 (does not describe me at all) to 5 (describes me exactly). The mean summary score ranges from 1 to 5; higher scores signify greater coping ability.

The modified Brief Diabetes Knowledge Test is a 21-item measure with two subscales. The General Diabetes Knowledge Scale includes 13 items that assess participants' general understanding about diet, diabetes care practices, and conditions related to diabetes (Chew, Bradley, & Boyko, 2004; Chew et al., 2008). The Insulin-Specific Diabetes Knowledge Scale includes eight items that assess participants' understanding of insulin or diabetes medication use (Fitzgerald et al., 1998). Published evidence reveals that both tools are valid and reliable, $\alpha \geq$

0.70, for a variety of settings and patient populations (Fitzgerald et al., 1998). The instrument administered in the SDPI-HH was modified from the original to improve clarity, and to reflect updated medical information about diabetes. For example, insulin-specific questions were generalized into questions about “insulin or diabetes medication,” and “Don’t know” was added as a response option. For both subscales, the diabetes-related or insulin-specific questions offered four response options, only one of which was correct. The range for the proportion of correct responses was 0 to 1; a higher score represented greater diabetes-related health knowledge.

Demographic variables included age, gender, educational attainment, marital status, annual household income, and employment. Age, in years, was considered a continuous variable analytically. We also categorized age into five groups: 18–34, 35–44, 45–54, 55–64, and ≥ 65 years. All other demographics were collected as categorical variables.

Analyses

Descriptive statistics were computed as percentages in each category of the variable for the demographic characteristics. For each item in the EDS, we report mean, standard error (SE), and percent missing values. We conducted an exploratory principal components factor analysis to examine the number and nature of the underlying factors of the EDS. The scale score reliability of the EDS was assessed by calculating Cronbach’s alpha (α).

We used Generalized Estimating Equation (GEE) regression as opposed to ordinary least squares regression to adjust the standard error estimates for clustering within tribal site. Since patients seen at the same tribal site may be more similar than patients seen at different sites, ordinary least squares regression could have produced standard error estimates that were too small. Our GEE approach used the robust sandwich variance estimation procedure to account for the correlated nature of our data. GEE linear regression models were used to examine the

association between demographic characteristics and the EDS summary score. The EDS score was the dependent variable, and dummy variables for demographic categories were included as independent variables. A separate model was fitted for each demographic characteristic. We present the mean EDS summary score and standard error according to categories of the demographic variables. For age, the only demographic characteristic that was a measured continuously, we also fitted a model with continuous age as the independent variable to compute the standardized regression coefficient.

GEE linear regression models were also used to evaluate the convergent and divergent relationships between the psychosocial scales and health knowledge measures and the EDS summary score. The psychosocial scales and health knowledge measures were the dependent variables, and the EDS summary score was the independent variable. We present standardized regression coefficients to depict the association of each psychosocial scale and health measure with the EDS score. These models were adjusted for demographic characteristics significantly associated with the EDS summary score at the $p \leq 0.05$ level. Most demographic characteristics were treated as dummy variables in regression models; however, age was fit as a continuous variable.

Multiple imputation was used to estimate missing demographic and scale data (Raghunathan TE, 2001). Sequential regression multivariate imputation was used to generate five imputed datasets in the software package IVEware (Survey Methodology Program). Scale variables were imputed at the scale level, rather than at the item level, due to multicollinearity.

Derived variables were computed using SPSS Statistics 19 (IBM). Statistical analysis was completed using Stata 12 (StataCorp). All demographic and scale-level analyses used the “mi estimate” procedure in Stata to calculate parameter and standard error estimates that account for

variability across imputed datasets. A type-1 error rate of 0.05 was considered the threshold for statistical significance.

Results

The sample consisted of 3,039 AI/ANs enrolled in the SDPI-HH. As shown in Table 1, the majority of participants were aged ≥ 45 years (78%) and female (66%). Most participants had at least completed high school (80%), over half (56%) were married or living with a partner, over half (55%) had annual household incomes $\geq \$20,000$, and 41% were employed full-time.

[Insert Table 1 about here]

Table 2 reports the mean, SE, and percent-incomplete responses for each EDS item. The item with the lowest mean score was “Are you threatened or harassed?” (mean=1.45, SE=0.01); the item with the highest mean score was “Do people act as if they are better than you?” (mean=2.45, SE=0.02). The percentages of incomplete responses were similar across each individual EDS item with 6% or less.

[Insert Table 2 about here]

A principal components factor analysis, using the Kaiser criterion, revealed a one-factor solution, with this single factor accounting for 61% of the total variance of the scale items. Factor loadings ranged from 0.67–0.84 (data not shown). The scale score reliability of the EDS was high ($\alpha=0.92$). Based on these results a simple mean score was deemed an appropriate summary for the EDS.

Table 3 reports the mean EDS scores by respondent demographic characteristics. Perceived discrimination was higher among respondents younger than 65 years of age ($p < 0.001$, standardized coefficient for continuous age = -0.19) and those with more education ($p = 0.001$). Respondents who were married or widowed ($p = 0.005$) reported lower mean estimates of perceived discrimination compared to those who were never married, or were separated or divorced. Respondents who were retired also reported lower mean estimates of perceived discrimination compared to the other categories of employment status ($p < 0.001$). The level of perceived discrimination did not differ by gender or household income.

[Insert Table 3 about here]

Table 4 presents covariate-adjusted standardized regression coefficients for the association between psychosocial and health knowledge scores and the EDS. For convergent validity, standardized coefficients for distress, anger, and hostility ranged from 0.17 to 0.19 (all $p < 0.001$). For divergent validity, as expected, standardized coefficients for resilient coping, general diabetes-related health knowledge, and insulin-specific diabetes knowledge were smaller in magnitude (-0.01 to -0.07) than those assessed for convergent validity. Resilient coping and insulin-specific diabetes knowledge were not significantly associated with perceived discrimination ($p = 0.61$ and 0.16 , respectively); however, general diabetes-related health knowledge was significantly associated with perceived discrimination ($p = 0.02$).

[Insert Table 4 about here]

Discussion

American Indian and Alaska Native peoples experience significant health disparities. Understanding the possible contribution of perceived discrimination to these disparities requires measures that produce consistent and accurate estimates. This study examined the reliability and validity of perceived discrimination estimates derived from assessments using the EDS, within a large and diverse sample of AI/ANs. Results from this study provide evidence that the EDS performs in a reliable and valid manner among these AI/ANs. Hence, the EDS is likely to be a useful measure for future inquiry into the role of perceived discrimination in the health of AI/ANs.

As reported in previous research and supported by this study, the EDS functioned as a unidimensional measure of perceived discrimination and exhibited high scale score reliability (Clark et al., 2004; Taylor, Kamarck, & Shiffman, 2004; Krieger et al., 2005). As summarized in a systematic review of the literature on perceived discrimination and health (Paradies, 2006), previous investigations have found mixed results regarding the association between perceived discrimination and age. For example, some showed greater estimates of perceived discrimination among younger groups, while others showed greater degrees of perceived discrimination among older age groups or no variation in perceived discrimination by age (Paradies, 2006). Our study contributes to the literature regarding the association between perceived discrimination and age.

We also found that respondents with higher levels of education and those not yet retired reported greater degrees of perceived discrimination. Less perceived discrimination was found among those who were married and widowed. Our findings are consistent with the literature among non-Native U.S. populations (Paradies, 2006; Williams & Mohammed, 2009) and Indigenous Australians (Paradies, 2006). Individuals with higher levels of education or employment are likely to interact more often with people outside of their own demographic

group, which may lead to more opportunities to experience discrimination (Forman & Jackson, 1997). Higher education may also increase one's consciousness of social injustices such as experiences of interpersonal discrimination (Bird & Bogart, 2001; Pinel, 1999).

With regard to convergent validity, perceived discrimination was positively correlated with select mental health measures. Much of the published literature on perceived discrimination and health is focused on mental health (Paradies, 2006; Taylor, Kamarck, & Shiffman, 2004; Williams & Mohammed, 2009), and our findings are consistent with the published literature. Our results concerning divergent validity were consistent with our hypotheses for two of the three measures: the Brief Resilient Coping Scale and the Insulin-Specific Diabetes Knowledge Scale. On the other hand, the General Diabetes Knowledge Scale was statistically significantly related ($p=.02$), but the effect size was small compared to the effect sizes estimated for the selected mental health measures.

These results should be interpreted within the context of the study's limitations. First, the extent to which the findings are generalizable to all AI/ANs is uncertain, as the data derive from AI/AN patients with diabetes who volunteered to participate in the Special Diabetes Program for Indians – Healthy Heart Project. However, this large sample of participants represents 138 federally recognized tribes distributed across all Indian Health Service administrative service areas. Second, with the exception of the K6 scale (Mitchell & Beals, 2011), the psychometric properties of the psychosocial and health knowledge measures have not been systematically assessed with respect to their performance among AI/ANs. To the extent that these measures do not accurately reflect the experiences, feelings, or beliefs of the AI/AN participants, our evaluation of convergent and divergent validity for the EDS is necessarily limited. However, we found a striking relationship between the EDS and the K6 scale and other measures of mental

health, which is consistent with previously published findings (Ronald C. Kessler et al., 1999; Taylor et al., 2004; Whitbeck et al., 2002). Finally, the AI/AN population is very culturally diverse, with over 566 tribal entities recognized by the federal government (and others seeking such recognition) (Bureau of Indian Affairs, 2013). As an initial investigation, we did not explore possible differences by geographic region, grantee site, or other attributes of the AI/AN diversity. Nor did we examine limitations of EDS scale items, such as the lack of referent points against which participants are to evaluate themselves (“Are you treated with less courtesy than other people?”) and double barrel items (“Do you receive poorer service in restaurants of stores”). Therefore, future work may provide additional insights into varying forms of perceived discrimination in different AI/AN contexts, as well as potential limitations of the original EDS scale item measures as described above.

Finally, because our analyses draw from secondary data, we were unable to explore issues of content validity. This is a particularly important consideration because the EDS was originally developed to assess perceived discrimination within African American groups, and it may not capture the depth and dimension of discrimination that reflects the unique history, perceptions, and circumstances of AI/AN peoples. Indeed, as suggested by Thrasher et al. (2012), “some forms of discrimination operate similarly across groups, but others may be group specific and reflect unique histories and circumstances” (Thrasher, Clay, Ford, & Stewart, 2012). Failing to consider whether a measure adequately captures the perspectives of subgroups that differ from the group on which the measure was developed may result in over or underestimation of the construct being considered (Stewart & Napoles-Springer, 2012). Therefore, future research within AI/AN groups will need to explore the extent to which the EDS adequately captures AI/AN experiences of discrimination, and investigate whether the EDS-item measures

are culturally relevant and reflective of AI/ANs' histories and conceptualizations of discrimination. Such information will make it possible to determine whether new measures of perceived discrimination specific to AI/ANs are warranted.

However, development of a new and specific measure is not always feasible. To overcome this issue, investigators require information to help them determine whether to modify a measure or simply use it in its original state, as well as which modifications are required (Stewart, Thrasher, Goldberg & Shea, 2012). Therefore, it is important to understand the psychometric adequacy and equivalence of well-known measures within and across groups and this process is acceptable in the absence of group-specific measures (Stewart et al., 2012). Following this guideline, the modifications made to the EDS for this particular study were minor, and we are confident that the meaning and content of the original measure remained intact. Because ours is the first study to explore the psychometric properties of the EDS among AI/ANs, we chose tests of validity and reliability consistent with those used in previous research that also explored the psychometric properties of the EDS. The consistent nature of our analyses enables us to link our findings to the published evidence for comparison, while simultaneously allowing us to contribute new evidence to further understand the utility and performance of the EDS across groups.

Conclusion

The large health disparities currently suffered by AI/AN populations are well documented (Jones 2006; Castor et al., 2006). Perceived discrimination may play a role in understanding of the causes of such disparities. But such research requires psychometrically reliable and valid tools. Our results demonstrate that the EDS, when administered among AI/ANs, has high scale score reliability and reasonable convergent and divergent validity, and

therefore may serve as an appropriate measure of perceived discrimination among AI/ANs.

Future inquiry using this validated tool promises to enhance our understanding of the relationship between perceived discrimination and AI/AN health, an important subject which has been largely unexplored in this special population.

Table 1. Demographic characteristics of the Special Diabetes Program for Indians – Healthy Heart Demonstration Project participant

Characteristic	%
Age, years	
18 – 34	6
35 – 44	16
45 – 54	29
55 – 64	30
≥65	19
<u>Mean (SE)</u>	53.9
Gender	
Male	34
Female	66
Education	
8 th grade or less	5
Some high school	15
High school graduate/GED	25
Some college/vocational school	40
College/professional school graduate	15
Marital status	
Never married	14
Married or living with a partner	56
Separated or divorced	19
Widowed	10
Annual household income	
<\$10,000	24
\$10,000 – \$19,999	21
\$20,000 – \$29,999	17
\$30,000 – \$39,999	14
\$40,000 – \$49,999	10
≥\$50,000	14
Employment status	
Full-time	41
Part-time/seasonal	10
Retired	18
Disabled	14
Unemployed	14
Student/never worked for pay	4

Note. SE = standard error; GED = general equivalency diploma

Table 2. Item characteristics for the Everyday Discrimination Scale

	Mean (SE)	Missing, %
<i>Sometimes people feel as though they are treated differently than others because they are Indian/Native. What are your experiences?</i>		
Are you treated with less courtesy than other people?	2.30 (0.02)	4
Are you treated with less respect than other people?	2.20 (0.02)	4
Do you receive poorer service in restaurants or stores?	2.10 (0.02)	4
Do people act as if they are better than you?	2.45 (0.02)	5
Do people act as if they are afraid of you?	1.92 (0.02)	4
Are you called names or insulted?	1.67 (0.01)	4
Are you threatened or harassed?	1.45 (0.01)	4
Do people act as if you are not smart?	2.04 (0.02)	5
Do people act as if you are dishonest?	1.84 (0.02)	6
<i>Note.</i> SE = Standard Error; Everyday Discrimination Scale ranges from 1–4 (1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often)		

Table 3. Mean values showing the association between categorical demographic characteristics and the Everyday Discrimination Scale summary score

Characteristic	<i>Everyday Discrimination Scale</i>	
	Mean (SE)	p-value
Age, years		<0.001
18 – 34	2.08 (0.08)	
35 – 44	2.10 (0.06)	
45 – 54	2.11 (0.05)	
55 – 64	2.01 (0.06)	
≥65	1.67 (0.06)	
Gender		0.73
Male	2.00 (0.06)	
Female	1.99 (0.05)	
Education		0.001
8 th grade or less	1.88 (0.13)	
Some high school	1.99 (0.07)	
High school graduate/GED	1.87 (0.07)	
Some college/vocational school	2.04 (0.05)	
College/professional school graduate	2.10 (0.06)	
Marital status		0.005
Never married	2.06 (0.06)	
Married or living with a partner	1.95 (0.06)	
Separated or divorced	2.09 (0.06)	
Widowed	1.91 (0.07)	
Annual household income		0.17
< \$10,000	2.08 (0.06)	
\$10,000 – \$19,999	1.96 (0.06)	
\$20,000 – \$29,999	1.95 (0.06)	
\$30,000 – \$39,999	1.97 (0.07)	
\$40,000 – \$49,999	2.01 (0.07)	
\$50,000+	1.93 (0.07)	
Employment status		<0.001
Full-time	2.07 (0.05)	
Part-time/seasonal	1.97 (0.06)	
Retired	1.66 (0.06)	
Disabled	2.08 (0.06)	
Unemployed	2.13 (0.05)	
Student/never worked for pay	2.02(0.10)	

Note. SE = Standard Error; GED = General Equivalency Diploma

Table 4. Standardized regression coefficients showing the association between select psychosocial and health knowledge measures and the Everyday Discrimination Scale

Psychosocial scale measures	Standardized regression coefficient	p-value
Kessler Distress	0.19	<0.001
Expressed Anger	0.17	<0.001
Suppressed Hostility	0.19	<0.001
Resilient Coping	-0.01	0.61
Diabetes Knowledge – general	-0.07	0.02
Diabetes Knowledge – insulin use	-0.04	0.16

Notes. Models were adjusted for age, education, and marital and employment status. Scale ranges used were: Kessler Distress and Resilient Coping (1.0 - 5.0), Expressed Anger, Suppressed Hostility, and Diabetes Knowledge (0.0 - 1.0). Kessler Distress, Expressed Anger, and Suppressed Hostility were used to show convergent validity of the EDS; Resilient Coping and Diabetes Knowledge were used to show divergent validity of the EDS.

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