HHS Public Access

What Predicts a Mayoral Official's Opinion about the Role of Stress in Health Disparities?

Adolfo G. Cuevas[1], **Sarah Levine**[1], **Jonathan Purtle**[2]

[1]Department of Community Health, Tufts University, 574 Boston Ave, Suite 208, Medford, MA 02155, USA

[2]Department of Health Management & Policy, Urban Health Collaborative, Drexel University Dornsife School of Public Health, Philadelphia, PA, USA

Abstract

High stress is a public health issue in the United States (US), that disproportionately affects socially-marginalized group members, including racial and ethnic minorities and those of low socioeconomic status. While city governments have the potential to reduce stress exposure and health disparities through municipal policies, very little is known about factors that are associated with mayor officials' beliefs about stress as a determinant of disparities. This information is important because it can inform the design of interventions to educate city policymakers about evidence related to stress and health disparities. Using data from a 2016 survey of 230 mayor officials (101 mayors, 129 senior staff), multivariable logistic regression was used to determine the extent to which respondents' individual characteristics (e.g., ideology, highest level of education) and the characteristics of their city's population (e.g., percentage of residents non-white) were associated with their identification of stress as a factor that has a "very strong effect" on health disparities. Forty-four percent of respondents identified stress as having a very strong effect on health disparities. In the fully adjusted model, every percentage point increase in the proportion of a respondent's city population that was non-White increased the odds of identifying stress as having a very strong effect on health disparities by 2% [adjusted odds ratio (aOR) = 1.02; 95% CI = 1.00,1.04]. Interventions are needed to increase city policymakers' knowledge about the role of stress in the production of health disparities, which could, in turn, help cultivate political will for city policies that reduce disparities.

Keywords

Stress; Policy; Policymakers; Urban; Health disparities

Adolfo G. Cuevas, Adolfo.cuevas@tufts.edu.

Introduction

The 2017 American Psychological Association survey, *Stress in America*, found that approximately 75% of Americans report experiencing one symptom of stress in the past month, with one-third of these adults reporting feeling anxious, irritable, or fatigue due to stress [1]. The adverse health effects of stress are well known [2,3]. Stressful events, particularly persistent exposure to stressors, are associated with cardiovascular dysfunctions, diabetes, depression and anxiety disorders, and increased risk of premature death [4,5].

Racial/ethnic minorities and those of lower socioeconomic status (SES) have a higher prevalence of stress exposure compared to Whites and those of higher SES, respectively [6–8]. Differential exposure to stress experiences places members of socially marginalized groups at a disproportionately increased risk of illness [9]. For instance, racial/ethnic minorities experience more discriminatory events and day-to-day discriminatory acts, which are sources of stress [10–12]. The stress of discriminatory experiences is associated with poor health outcomes, such as self-rated poor health, chronic health conditions, and high blood pressure [11,12]. Lower SES is associated with more psychological distress and higher levels of stress hormones, such as cortisol and epinephrine—in part because of their disproportionately high levels of exposure to stressors [12] [12–14].

Despite compelling evidence of stress as a social determinant of health and driver of health disparities [12,15], there is a lack of awareness among policymakers about the existence of health disparities and the role that stress could play in their production [16–19]. Policymakers have the ability to implement prevention and intervention measures that could reduce exposure to, and the health consequences of, stress [12]. A 2008–2009 survey of US adults found that 73% identified stress as a factor that has a very strong effect on health, with racial/ethnic minorities and adults with more than a high school education more likely to identify stress as a health risk factor than non-Hispanic whites and adults with a high school education or less (80% vs. 69% and 78% vs. 70%, respectively [17].. Nevertheless, in a 2018 study characterizing US city policymakers' opinions about health disparities, it was found that only 44% of mayoral officials believe that stress has a strong impact on health disparities [16]. This finding is significant because city governments have the potential to reduce health disparities and promote health equity through municipal policies [8,12]. If mayor officials are knowledgeable about the causes of health disparities, they might be more likely to pursue and support stress-reduction interventions that reduce disparities. Little is known of the factors that may potentially influence mayor's perceptions of stress is a key contributor to health disparities.

Building on previous research [16], we examine which individual (e.g., ideology, mayor's highest level of educational attainment) and area characteristics (e.g., proportion of a city's population that is non-Hispanic White) are associated with mayor officials' identification of stress as a factor that has a "very strong effect" health disparities. Identification of these factors can help researchers determine ways to cultivate political will among city policymakers for policies that reduce exposure to, and mitigate the effects of, stress among socially marginalized populations. To our knowledge, this is the first study to examine opinions about stress and health among policymakers.

Method

Between September and December 2016, a 29-item survey was sent to the mayors of all US cities with a 2015 population of 50,000 or more. A detailed description of the study design is available elsewhere [16]. Mayor contact information from the National Conference of Mayors. Each mayor was mailed two hard copy versions of the survey, e-mailed seven times with a link to the online version of the survey, and called up to 20 times to complete the survey by telephone. While recruitment materials stated that it was preferred for the mayor to complete the survey, senior staff (e.g., deputy mayor) were permitted to complete the survey as an alternate.

A total of 230 mayor respondents (101 mayors, 129 senior staff) completed the survey. The response rate was 30.3%, which is substantially higher than those of other recent surveys of elected officials [20–25]. Respondents were more likely than non-respondents to be from the Midwest and less likely to be from the West (27.0% vs. 18.4% and 29.6% vs.40.9%, respectively $\chi^2 = 11.62$, $p = .009$). These were the only observed differences between respondents and non-respondents. Data were collected by SSRS, a survey research firm.

Dependent Variable

Respondents were asked to rate the extent to which they thought stress "affect[s] differences in health between socially advantaged and disadvantaged groups" (0 = no effect, 10 = very strong effect). Consistent with previous research [16,17], we dichotomized the scores into a "very strong effect" if respondents assigned a rating of 8, 9, or 10 and no/ moderate effect if respondents assigned a rating of 7 or less.

Independent Variables: Individual Characteristics

Education—Respondents reported the highest level of education that they completed. Responses included seven options, including "some high school or less", "Trade, technical, or vocational education beyond high school" and "Doctoral degree". These categories were operationalized as an ordinal variable. Consistent with previous research [16], we categorized this variable as college or less, master's degree, or doctoral degree.

Years in Office—Respondents indicated "how many years [they] have served in [their] current position." Response options included less than one, one to 2 years, three to five years, six to nine years, and ten years or more. Consistent with previous research [16], we coded this variable as less than three years or three years or more.

Ideology—Respondents rated how they typically think of themselves when it comes to social and fiscal issues from a scale of 1 through 7, with 1 being extremely liberal and 7 being extremely conservative. These items were adapted from American National Election Studies' questions and operationalized as ordinal variables [26]. Consistent with previous research [16], we coded ratings of 1, 2, and 3 as "liberal," ratings of 4 as "moderate," and ratings of 5, 6, and 7 as "conservative."

Independent Variables: Area Characteristics

Population Size—Using 2015 data, we determined the population size of the mayor officials' respective cities. We categorized population size into two groups: less than 100,000 residents and 100,000 residents or more.

Census Region—We assigned each mayor's city to the US Census region of its state (i.e., Northeast, South, Midwest, West).

Percentage of City Population in Poverty—Using 2015 US Census data, we determined the percentage of residents living under the federal poverty limit in each city.

Percentage of City Population Non-White—Using 2015 US Census data, we determined the percentage of residents who did not identify as White in the 2015 US Census data.

Analysis

We performed descriptive analyses to characterize the sample's sociodemographic characteristics. We also conducted chi-square tests, Mann-Whitney U-tests, or independent samples t-tests to assess differences in individual and area characteristics between mayor officials who did and did not identify stress as having a very strong effect of health disparities. We used bivariate analyses to assess associations between individual characteristics and area characteristics and strong endorsement of stress as a cause of health disparities. We then used multivariable logistic regression and included all individual and area characteristics in one model to determine the extent to which characteristics were independently associated with identification of stress having a very strong effect on health disparities.

Results

Forty-four percent of mayor respondents identified stress as having a "very strong effect" on health disparities. Respondents who endorsed stress as a major factor in disparities had significantly greater percentage of non-White residents in their municipalities compared to mayor officials who did not endorse stress as a major factor $t(222) = -2.06$, $p = 0.04$ (see Table 1). No differences were observed between mayor officials who endorsed stress as a major factor compared to those who did not endorse stress as a major factor in level of education (U = 5824.50, $p = 0.64$), years in office $\chi^2(1, N = 223) = 0.0005$, $p = 1.00$ (no cells had an expected count of less than 5; Fisher's Exact test was used to test statistical significance), fiscal ideology (U = 5068.00, $p = 0.10$), social ideology (U = 4976.50, $p = 0.06$), census region $\chi^2(3, N = 224) = 5.28$, $p = 0.15$, population size $\chi^2(1, N = 224) = 2.16$, $p = 0.14$, nor percentage of residents living under the federal poverty limit $t(221) = -0.69$, $p = 0.49$.

For every percentage point increase in the proportion of a respondent's city population that was non-White increased the odds of identifying stress as having a very strong effect on health disparities by 2% (OR = 1.02; 95% CI = 1.01, 1.03). The strength of this association remained after adjusting for other individual and area characteristics [adjusted odds ratio

(aOR) = 1.02; 95% CI = 1.01,1.04] (Table 2). Compared to mayor officials in Northeast regions, those in the Midwest regions had lower odds of identifying stress as a major factor in health disparities (OR = 0.35; 95% CI = 0.14, 0.90). The strength of this association remained after adjusting for other individual and area characteristics (aOR = 0.34; 95% CI =0.14, 0.90). Compared to mayor officials who identified as socially conservative, those who identified as moderate had 2.13 greater odds of endorsing stress as a major cause of health disparities (95% CI = 1.04,4.34). However, the association was attenuated in a fully adjusted model that controlled for other individual and area-level characteristics (aOR = 2.17; 95% CI = 0.92, 5.15). There was no evidence that other individual and area characteristics were associated with odds of identifying stress as a factor that has a very strong effect on health disparities.

Discussion

We examined how mayor officials' individual characteristics and area factors in the jurisdictions they represent influence endorsement that stress has a very strong effect on health disparities in their cities. We found that 44% of mayor respondents identified stress as having a very strong effect. This is proportion is lower than that observed in a 2008–2009 survey of US adults which found that 73% identified stress having a very strong effect on health in general [17]. Mayor officials of municipalities with higher percentage of non-White residents were significantly more likely to endorse stress as a significant cause of health disparities, even after adjusting for other individual and area characteristics. It may be that mayor officials representing municipalities with more non-White residents have greater frequency of contact with their non-White constituents, which in turn, can increase mayor officials' awareness and understanding of the causes of disparities and the role that stress play in contributing to racial/ethnic inequities. Previous studies have shown that greater contact with non-Whites predicted endorsement of race-targeted initiatives (e.g., affirmative action, black economic empowerment, investment in Black schools) [27,28]. It may also be that areas with greater percentage of non-Whites may also have greater magnitude of racial disparities. This circumstance may motivate mayor officials to identify and understand the causes of racial disparities within their municipalities. Mayor officials with greater percentage of residents living under the federal poverty may also endorse other determinants of health (e.g., health insurance, income, education, housing quality), primarily if they represent a more racially homogenous municipality. Overall, these findings suggest that diversity, potential through intergroup contact, can have important positive effects not only at the individual-level, but at the policy-level as well. Studies need to replicate our findings to determine how the frequency of contact and racial/ethnic make-up of a municipality affect mayor officials' awareness of health disparities. For instance, Benz and colleagues (2011) found that public awareness of disparities between Whites and Hispanics or Latinos increased significantly among the general public over an 11-year period, but awareness of disparities between Whites and African Americans remained unchanged. With the growing Hispanic/Latino population [29], there may be an increase in mayor officials' awareness and understanding of the causes of racial/ethnic disparities among Hispanics/Latinos. Understanding how a municipality's sociodemographic influences a mayor's knowledge can provide insight for developing effective health communication methods.

Mayor officials in Midwest regions had lower odds of endorsing stress as a major contributor to health disparities, even after adjusting for individual characteristics and area factors. This is particularly concerning as health disadvantage, marked by higher mortality and morbidity, is more pronounced in Midwestern and Southern regions of the US [30]. Studies also show that high rates of health disparities are also concentrated primarily in states or counties in these regions [30–33]. Future research should examine how mayor's opinions of stress are related to the health profile of members of their respective cities. Meanwhile, educational campaigns, particularly in the Midwestern region, are needed to increase awareness of social determinants of health disparities.

We found that mayor officials who were more socially conservative were less likely to strongly endorse stress as a major cause of disparities. The association was attenuated when we adjusted for the other individual and area characteristics. Nevertheless, a health communication barrier may be differing perception of messages by political ideology. Liberals are typically more likely to be aware of health disparities than conservatives [17]. Liberals are also more likely to attribute differences in status to social structural factors, whereas conservatives attribute differences to individual behavioral causes [34,35]. As a result, more conservative mayor officials may not recognize stress as it would indicate recognition of the social structures that contributes to high stress and disproportionately affect socially disadvantaged groups. Conservatives are more likely to perceive messages about health disparities as weak and elicit more counter arguments due to predisposing values towards personal responsibility [35].

Public policies greatly affect social determinants of health [36], but as Rodriguez [37] suggests, those most affected by social determinants are not accurately represented in political processes, and therefore health inequalities persists [36,38]. Policies not only can improve access to resources for health and reduce exposure to risk factors, they can also remove the determinants that produce and maintain inequalities [39]. More effective communication is needed to raise awareness of the role of stress and other determinants of health among, and understanding the corelates of opinions about political leaders' characteristics can lead to more effective public health policies that can improve population health [40].

One way to improve communication about health disparities includes the use of mass media to raise awareness of existence of health disparities, improve knowledge of the magnitude an consequences of health disparities, and heighten belief that societal factors are the cause of health disparities [41]. Effective messaging that transcends political ideology is needed to address the impact of stress on health disparities. The development of communication strategies must also begin with a clear understanding of the size, composition, and receptivity of the target audience [42]. The nature of communication about health disparities can shape attitudes about disparities in the general public and generate political willpower to reduce disparities [41]. As such, different strategies for raising awareness and improving knowledge may be required to generate political support among mayor officials. Future research should examine distinct forms of communication to increase awareness of disparities, particularly to those with more conservative ideologies.

Limitations

Response rate for the mayor sample was 30.3%. Although this response rate is substantially higher than other recent survey of elected officials [20–25], study findings need to be replicated to improve generalizability. Mayor respondents from Western cities were under-represented in the sample, and respondents from Midwestern cities were overrepresented. It is possible that conservatives are overrepresented in the mayor sample due to the large proportion of ideologically conservative residents in Midwestern states, meaning that the results underestimate the awareness of health disparities among mayors and their staff. The majority of survey respondents were senior staff to the mayor. Research is needed to understand the roles staff play in local policymaking to determine if staff-focused strategies are necessary. The study did not collect additional sociodemographic information from the respondents, which may influence their knowledge and understanding of health disparities. For instance, mayor officials' race/ethnicity as well other social identities (e.g., gender, sexual orientation) may play a role in how mayor officials view the role of stress. Moreover, the type of academic discipline may play a role in the endorsement of stress. The discussion of the causes and consequences of social and health inequalities is central to certain fields, like public health and sociology. Social science majors would, therefore, have a different understanding of the social determinants of health disparities than natural science majors (e.g., biology). Future research should examine how different academic training shapes political leaders' understanding of social inequities. The question asked about stress did not specify what the socially advantaged and disadvantaged groups were (e.g., race, gender, income). Depending on the comparison, the responses to the questions would differ. We did not examine how public health-related factors may be associated with endorsement of stress as a major contributor to disparities. Factors such as the magnitude of health and social inequities and level of communication among mayor officials, public health departments, and community members can contribute to mayor officials' understanding of the social determinants of health disparities. Lastly, given the cross-sectional nature of the study, it is difficult to determine causation.

Conclusion

This study found that much work remains to be done to raise awareness of the impact stress has on the production and perpetuation of health disparities. Given that nearly half of mayor respondents did not endorse stress as having a major effect on health disparities, there is a need for improved communication to increase knowledge the existence of health disparities and their causes. Facilitating greater contact with socially-disadvantaged groups may increase knowledge, awareness, and empathy among mayor officials in understanding the social determinants of health disparities. Educational campaigns are still needed to increase a mayor's awareness of health disparities. Increased knowledge of the health effects of stress can lead to greater political willpower to reduce health disparities.

Funding Information

References

1. American Psychological Association. Stress in America: coping with change. Stress Am Surv. 2017.

2. Gu J, Strauss C, Bond R, Cavanagh K. How do mindfulness-based cognitive therapy and mindfulness-based stress reduction improve mental health and wellbeing? A systematic review and meta-analysis of mediation studies. Clin Psychol Rev. 2015;37:1–12. [PubMed: 25689576]

3. Schneiderman N, Ironson G, Siegel SD. Stress and health: psychological, behavioral, and biological determinants. Annu Rev Clin Psychol. 2005;1:607–28. [PubMed: 17716101]

4. Kopp MS, Réthelyi J. Where psychology meets physiology: chronic stress and premature mortality —the central-eastern European health paradox. Brain Res Bull. 2004;62:351–67. [PubMed: 15168900]

5. Mariotti A The effects of chronic stress on health: new insights into the molecular mechanisms of brain-body communication. Future Sci OA. 2015;1:FSO23–3. [PubMed: 28031896]

6. Sternthal MJ, Slopen N, Williams DR. Racial disparities in health: how much does stress really matter? Bois Rev Soc Sci Res Race. 2011;8:95–113.

7. Turner RJ, Avison WR. Status variations in stress exposure: implications for the interpretation of research on race, socioeconomic status, and gender. J Health Soc Behav. 2003;44:488–505. [PubMed: 15038145]

8. Williams DR, Priest N, Anderson N. Understanding associations between race, socioeconomic status and health: patterns and prospects. Health Psychol. 2016;35:407–11. [PubMed: 27018733]

9. Jackson JS, Knight KM, Rafferty JA. Race and unhealthy behaviors: chronic stress, the HPA axis, and physical and mental health disparities over the life course. Am J Public Health. 2010;100:933–9. [PubMed: 19846689]

10. Cuevas AG, Williams DR. Perceived discrimination and health: integrative findings. Oxf Handb Integr Health Sci. 2018.

11. Paradies Y, Ben J, Denson N, Elias A, Priest N, Pieterse A, et al. Racism as a determinant of health: a systematic review and meta-analysis. PLoS One. 2015;10:e0138511. [PubMed: 26398658]

12. Thoits PA. Stress and health: major findings and policy implications. J Health Soc Behav. 2010;51:S41–53. [PubMed: 20943582]

13. Cohen S, Doyle WJ, Baum A. Socioeconomic status is associated with stress hormones. Psychosom Med [Internet]. 2006;68 Available from: https://journals.lww.com/psychosomaticmedicine/Fulltext/2006/05000/Socioeconomic_Status_Is_Associated_With_Stress.10.aspx

14. Grzywacz JG, Almeida DM, Neupert SD, Ettner SL. Socioeconomic status and health: a micro-level analysis o exposure and vulnerability to daily stressors. J Health Soc Behav. 2004;45: 1–16.

15. Braveman P, Gottlieb L. The social determinants of health: It's time to consider the causes of the causes. Public Health Rep. 2014;129: 19–31.

16. Purtle J, Henson RM, Carroll-Scott A, Kolker J, Joshi R, Diez Roux AV. US mayors' and health commissioners' opinions about health disparities in their cities. Am J Public Health. 2018;108:634–41. [PubMed: 29565663]

17. Booske BC, Robert SA, Rohan AMK. Awareness of racial and socioeconomic health disparities in the United States: the national opinion survey on health and health disparities, 2008–2009. Prev Chronic Dis. 2011;8:A73–3. [PubMed: 21672397]

18. Williams DR. Miles to go before we sleep: racial inequities in health. J Health Soc Behav. 2012;53:279–95. [PubMed: 22940811]

19. Robert SA, Booske BC. US opinions on health determinants and social policy as health policy. Am J Public Health. 2011;101:1655–63. [PubMed: 21778491]

20. Anderson SE, Butler DM, Harbridge L. Legislative institutions as a source of party leaders' influence. Legis Stud Q. 2016;41:605–31.

21. Anderson SE, DeLeo RA, Taylor K. Policy entrepreneurs, legislators, and agenda setting: information and influence. Policy Stud J. 2019.

22. Niederdeppe J, Roh S, Dreisbach C. How narrative focus and a statistical map shape health policy support among state legislators. Health Commun. 2016;31:242–55. [PubMed: 26086340]

23. Pagel C, Bates DW, Goldmann D, Koller CF. A way forward for bipartisan health reform? Democrat and republican state legislator priorities for the goals of health policy. 2017;

24. Purtle J, Lê-Scherban F, Wang X, Shattuck PT, Proctor EK, Brownson RC. Audience segmentation to disseminate behavioral health evidence to legislators: an empirical clustering analysis. Implement Sci. 2018;13:121. [PubMed: 30231934]

25. Zhu JM, Chhabra M, Grande D. Concise research report: the future of Medicaid: state legislator views on policy waivers. J Gen Intern Med. 2018;33:999–1001. [PubMed: 29761264]

26. American National Election Studies. American National Election Studies. Liberal-conservative self-identification 1972–2016 [internet] 2016 [cited 2019 May 11]. Available from: https://electionstudies.org/resources/anes-guide/top-tables/.

27. Dixon J, Durrheim K, Tredoux CG, Tropp LR, Clack B, Eaton L, et al. Challenging the stubborn Core of opposition to equality: racial contact and policy attitudes. Polit Psychol. 2010;31:831–55.

28. Northcutt Bohmert M, DeMaris A. Interracial friendship and the trajectory of prominority attitudes: assessing intergroup contact theory. Group Process Intergroup Relat. 2015;18:225–40.

29. Colby SL, Ortman JM. Projections of the Size and Composition of the U.S: 2014–2060 [Internet]. Popul. Estim. Proj 2017 [cited 2019 May 12]. Available from: https://www.census.gov/library/publications/2015/demo/p25-1143.html

30. Avendano M, Kawachi I. Why do Americans have shorter life expectancy and worse health than do people in other high-income countries? Annu Rev Public Health. 2014;35:307–25. [PubMed: 24422560]

31. Murray CJ, Kulkarni SC, Michaud C, Tomijima N, Bulzacchelli MT, Iandiorio TJ, et al. Eight Americas: investigating mortality disparities across races, counties, and race-counties in the United States. PLoS Med. 2006;3:e260. [PubMed: 16968116]

32. Myers CA, Slack T, Martin CK, Broyles ST, Heymsfield SB. Regional disparities in obesity prevalence in the U nited S tates: a spatial regime analysis. Obesity. 2015;23:481–7. [PubMed: 25521074]

33. Singh GK, Kogan MD, van Dyck PC. A multilevel analysis of state and regional disparities in childhood and adolescent obesity in the United States. J Community Health. 2008;33:90–102. [PubMed: 18049885]

34. Skitka LJ, Mullen E, Griffin T, Hutchinson S, Chamberlin B. Dispositions, scripts, or motivated correction? Understanding ideological differences in explanations for social problems. J Pers Soc Psychol. 2002;83:470–87. [PubMed: 12150241]

35. Gollust SE, Cappella JN. Understanding public resistance to messages about health disparities. J Health Commun. 2014:1–18.

36. Rodriguez JM. The politics hypothesis and racial disparities in infants' health in the United States. SSM - Popul Health [Internet] 2019 [cited 2019 Aug 29];8 Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6617336/

37. Rodriguez JM. Health disparities, politics, and the maintenance of the status quo: a new theory of inequality. Soc Sci Med. 2018;200: 36–43. [PubMed: 29421470]

38. Rodriguez JM, Geronimus AT, Bound J, Dorling D. Black lives matter: Differential mortality and the racial composition of the U.S. electorate, 1970–2004. Soc Sci Med. 1982;2015(136–137): 193–9.

39. Golden SD, McLeroy KR, Green LW, Earp JAL, Lieberman LD. Upending the social ecological model to guide health promotion efforts toward policy and environmental change. Health Educ Behav. 2015;42:8S–14S. [PubMed: 25829123]

40. Purtle J, Goldstein ND, Edson E, Hand A. Who votes for public health? U.S. senator characteristics associated with voting in concordance with public health policy recommendations (1998–2013). SSM - Popul Health. 2017;3:136–40. [PubMed: 29349211]

41. Niederdeppe J, Bigman C, Gonzales A, Gollust S. Communication about health disparities in the mass media. Niederdeppe J, editor. J Commun 2013;63:8–30.

42. Bye L, Ghirardelli A, Fontes A. Promoting health equity and population health: how Americans' views differ. Health Aff Proj Hope. 2016;35:1982–90.

Table 1

Characteristics of survey sample. Mayors and their senior staff, stratified by identification of stress as having a very strong effect on health disparities

Characteristics	Stress identified as having no/moderate effect of health disparities (n =124)		Stress identified as having major effect on health disparities (n = 100)		p value	
	Obs.	%	Obs.	%	Obs.	p value
Individual characteristics						
Education	123			38.8	98	0.64
College degree or less		47.2		38.8		
Master's degree		35.0		50.0		
Doctoral degree		17.9		11.2		
Years in office	124				99	1.00
<3 years		31.5		31.3		
3 years		68.5		68.7		
Fiscal ideology	118				97	0.10
Liberal		11.0		17.5		
Moderate		26.3		29.9		
Conservative		62.7		52.6		
Social ideology	119				97	0.06
Liberal		41.2		50.5		
Moderate		30.3		33.0		
Conservative		28.6		16.5		
Area characteristics						
Census region	124				100	0.15
Northeast		8.9		16.0		
South		31.5		33.0		
Midwest		31.5		20.0		
West		28.2		31.0		
Population size	124				100	0.14
<100,000		63.7		54.0		
100,000		36.3		46.0		
		M(SD)		M(SD)		
Percentage of poverty	123	17.4 (7.8)		18.1 (7.7)	100	0.49

Characteristics	Stress identified as having no/moderate effect of health disparities (n =124)		Stress identified as having major effect on health disparities (n = 100)		p value
Percentage of non-Whites	32.9 (87.0)	124	49.7 (23.1)	100	0.04

Table 2

Association between individual and areal characteristics and identification of stress as having a very strong effect on health disparities

Characteristics	Model 1 OR (95% CI)	p value	Model 2 aOR (95% CI)	p value
Individual characteristics				
Education				
College or less	1 (Ref)		1 (Ref)	
Masters	1.74 (0.98,3.10)	0.06	1.64 (0.84,3.22)	0.15
Doctorate	0.76 (0.33,1.75)	0.52	0.78 (0.32,1.89)	0.58
Years in office				
< 3 years	1 (Ref)		1 (Ref)	
3 years	1.01 (0.57,1.78)	0.98	1.36 (0.84,2.59)	0.35
Fiscal ideology				
Conservative	1 (Ref)		1 (Ref)	
Moderate	1.90 (0.85, 4.25)	0.12	1.14 (0.41,3.17)	0.80
Liberal	1.36 (0.73, 2.52)	0.33	1.05 (0.51,2.14)	0.96
Social ideology				
Conservative	1 (Ref)		1 (Ref)	
Moderate	2.13 (1.04,4.34)	0.04	2.17 (0.92, 5.15)	0.08
Liberal	1.89 (0.88, 4.04)	0.10	2.03 (0.88,4.64)	0.10
Area characteristics				
Percentage of poverty	1.01 (0.98, 1.05)	0.49	1.00 (0.95, 1.04)	0.96
Percentage of non-Whites	1.02 (1.01, 1.03)	0.003	1.02 (1.00, 1.23)	0.01
Population size				
<100,000	1 (Ref)		1 (Ref)	
100,000	1.50 (0.87,2.56)	0.14	1.23 (0.65,2.35)	0.53
Census region				
Northeast	1 (Ref)		1 (Ref)	
South	0.58 (0.24,1.43)	0.24	0.49 (0.18,1.35)	0.17
Midwest	0.35 (0.14,0.90)	0.03	0.34 (0.11,0.92)	0.04

Characteristics	Model 1		Model 2	
	OR (95% CI)	*p* value	aOR (95% CI)	*p* value
West	0.61 (0.25,1.51)	0.28	0.68 (0.25,1.89)	0.46

OR Odds ratio, *aOR* adjusted odds ratio

Model 1: Unadjusted model

Model 2: Fully adjusted model adjusting for all individual and area characteristics