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Communalism Moderates the Association Between Racial Centrality and Emergency Department Use for Sickle Cell Disease Pain

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Abstract

Sickle cell disease (SCD) is a genetic blood disorder that predominantly affects people of African descent. However, there is limited information on how social and cultural contexts affect SCD-related health care use. We explored whether communalism moderated the relation between racial centrality and emergency department use for SCD pain in a sample of 62 adults who were seen at a comprehensive clinic. Bivariate analyses showed a significant correlation between racial centrality and emergency department use ($r = -.30$, $p = .02$). Pain-adjusted regression analyses indicated a moderating effect of communalism ($b = .77$, $p < .01$) such that an inverse association between racial centrality and emergency department use was observed only at mean and low levels of communalism. Additional studies are needed to replicate these findings with larger samples. There is also a need for further studies that elucidate the role of culturally centered coping strategies on health care use in this patient group.

Keywords

sickle cell; racial identity; communalism; emergency department use

Introduction

Sickle cell disease (SCD) is the most common genetic blood disorder in the United States and affects more than 100,000 individuals—many of whom are of African descent (Bediako, 2009). In SCD, a mutated form of hemoglobin changes the structure of red blood cells such that they become hardened and assume a crescent or sickle shape. These “sickled” cells obstruct blood vessels and restrict the flow of oxygen and other important nutrients to major

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Authors’ Note

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organ systems (a process known as *vaso-occlusion*). Persistent, severe, and unpredictable vaso-occlusive pain episodes are the hallmark characteristic of SCD and constitute the primary reason that individuals seek health care services (Lanzkron et al., 2015). The hospital emergency department is the most common site of initiation for treating SCD pain, producing more than $3 million in annual health care expenditures alone (Lanzkron, Carroll, & Haywood, 2010).

Although pain is the most common precipitating factor that motivates health care use, researchers have shown that SCD patients generally experience pain at rates that exceed their actual utilization of health care services for treating pain (Smith et al., 2008)—suggesting that other factors might determine whether or when adults living with SCD utilize such services. Here, we explore the influence of sociocultural factors on health care utilization by examining associations between two vital dimensions of an Africentric worldview—racial centrality and communalism—and emergency department use in SCD.

It is well-established that culture confers health-promoting benefits (Abdou et al., 2010; Belgrave & Allison, 2006), and a few studies have examined elements of an Africentric worldview in SCD research. For example, racial centrality (the extent to which being Black is central to one's self concept) has been shown to be inversely related to overall health care use among adult SCD patients (Bediako, Lavender, & Yasin, 2007). In addition, Bediako and Neblett (2011) examined sociocultural influences on optimism and stress in a sample of African Americans living with SCD and found that communalism (a cultural orientation emphasizing interdependence within one's group) had positive implications for health-related outcomes. These findings inform our objective of examining SCD-related outcomes through a sociocultural lens.

In this brief report, we specifically explored (a) whether the previously reported negative association between *racial centrality* and overall health care use would extend to emergency department use and (b) whether *communalism* moderated the expected association. If previous findings extend to SCD research, we expect both racial centrality and communalism to be negatively associated with emergency department use. We also expect that the combined effects of higher racial centrality and greater communalism should be associated with less emergency department use.

Method

Participants

Participants were 62 individuals aged 21 years and older who received adult care at a university-affiliated hematology clinic in the Midwest. Eligible participants had a confirmed diagnosis (through electrophoresis testing) of one of the major types of SCD hemoglobinopathy (e.g., SS, SC, or Sβ thalassemia + or 0) and could speak and read English. The final sample comprised 36 women and 26 men (mean age = 31.93 years; SD = 9.72 years). All participants self-identified as Black or African American. Informed consent was obtained per procedures approved by the university's institutional review board.

Design and Procedures

The study utilized a within-group cross-sectional design. Participants completed a survey in the waiting area of the clinic and received a $10 grocery store gift card after returning the completed survey to the research team.

Measures

Pain—We evaluated two dimensions of SCD pain: frequency and severity. To determine *pain frequency*, we asked participants to indicate the number of distinct SCD episodes they experienced over the past 3 months. We evaluated *pain severity* by asking participants to rate the global intensity of these episodes on a scale ranging from 0 (*no pain at all*) to 10 (*pain as bad as it can be*). These indicators have been used for more than two decades in SCD research with adults and are highly correlated with objective clinical indicators of disease severity (Holloway, McGill, & Bediako, 2016).

Racial centrality—We used the eight-item Centrality subscale of the Multidimensional Inventory of Black Identity (Sellers, Smith, Shelton, Rowley, & Chavous, 1998) to assess the extent to which being Black is essential to an individual's self-definition. Participants used a scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*) to indicate their agreement with items such as "Being Black is an important reflection of who I am" and "My destiny is tied to the destiny of other Black people." After adjusting reverse-scored items, total scores were summed and averaged. Higher scores on the Centrality subscale indicate that race is more important to a person's self-concept. Prior research using samples of adults with SCD has reported reliability estimates of the Centrality subscale in the .70 to .80 range (Bediako et al., 2007; Bediako & Neblett, 2011). We observed an alpha coefficient of .72 for the Centrality subscale in this study.

Communalism—We utilized the 31-item Communalism Scale (Jagers & Mock, 1995) to measure *communalism*. Each item is measured on a 6-point Likert-type scale (1 = *completely false* to 6 = *completely true*). Sample items from the scale include "I prefer to work in a group" and "I place great value on social relations among people." Scores were summed and averaged such that higher scores indicated greater endorsement of communalism. The Communalism Scale demonstrates good internal consistency and previous studies report alpha coefficients ranging from .83 to .87 (Jagers & Mock, 1995). We observed an alpha coefficient of .86 for the Communalism Scale in this sample.

Emergency department use—We asked participants to respond to a single item in which they specified their use of emergency departments for treatment of SCD-related pain. Prior research shows high concordance between SCD patients' recall of their health care use and information obtained from medical records (Haywood et al., 2014).

Data Analytic Procedures and Results

We examined the primary study variables for data-recording accuracy, missing values, and violations of normality, linearity, and homoscedasticity. All values for the variables were

within plausible value ranges. Descriptive statistics for major study variables are shown in the lower half of Table 1.

Table 1 also depicts bivariate correlations for the major study variables. Pain frequency was not significantly associated with any of the study variables. However, pain severity was positively associated with emergency department use ($r = .37$, $p = .003$), indicating that participants who reported more severe SCD pain episodes tended to utilize the emergency department more often. Racial centrality was also significantly associated with emergency department use ($r = -.30$, $p = .02$), demonstrating a tendency for fewer emergency department visits as participants reported higher levels of racial centrality. We did not observe any other significant correlations among the study variables.

We explored whether communalism moderated the association between racial centrality and emergency department use with the PROCESS macro in SPSS 24.0 (Hayes, 2013). Our analysis consisted of a forced entry regression model in which emergency department visits was the outcome variable, with pain frequency and pain severity included as covariates. We calculated mean-centered values of the racial centrality × communalism product term to evaluate the combined effects of both variables in the model. We probed effects of simple slopes at the mean and ±1 standard deviation of communalism scores. Analyses were evaluated across 5,000 bootstrapped samples using Model 1 of the PROCESS macro. Results are summarized in Table 2.

The model accounted for 26% of the variance in emergency department use. After adjusting for all other variables in the model, pain severity ($b = .14$, $p < .01$) and racial centrality ($b = -.46$, $p = .01$) were uniquely associated with emergency department use—suggesting that reports of more severe pain and lower racial centrality tended to be associated with greater emergency department use. This finding reinforces the bivariate correlations reported above. Neither pain frequency ($b = .005$, $p = .74$) nor communalism ($b = .13$, $p = .49$) were associated with emergency department use after adjusting for other variables in the model. However, the interaction term was statistically significant ($b = .77$, $p < .01$), indicating that the effect of racial centrality on emergency department use was linearly dependent on communalism. The results of the conditional effects of racial centrality on emergency department use, shown in Figure 1, indicate that the association between racial centrality and emergency department use is negative and statistically significant at low ($b = -.92$, $p < .005$) and mean ($b = -.46$, $p = .01$) levels of communalism. At high levels of communalism, the association between racial centrality and emergency department use was not statistically significant ($b = -.004$, $p = .98$). This pattern of results suggests that communalism moderates the relation between racial centrality and emergency department use in SCD, such that a negative association is only significant at low and mean levels of communalism. At higher levels of communalism, there is no statistically significant linear association between racial centrality and emergency department use.

Discussion

Studies have shown that SCD pain treatment often initiates in hospital emergency departments (Lanzkron et al., 2015). Yet our knowledge of how social and cultural factors

influence emergency department use in SCD is quite limited. This study examined the moderating effect of communalism on the association between racial centrality and emergency department use for SCD-related pain. Bivariate analyses showed that *greater* pain severity and *lower* racial centrality were correlated with increased emergency department use. A statistical test for moderation was contrary to our expectations: We observed a negative association between racial centrality and emergency department use only at low and mean levels of communalism. The results of this study pertaining to the negative association between racial centrality and emergency department use appear to replicate previous findings reported by Bediako et al. (2007), lending further empirical evidence of the need to examine clinical outcomes in this patient population through a sociocultural lens.

Our finding that communalism moderated the association between racial centrality and emergency department use is novel. While it is difficult to specify the clinical implications of these findings, we speculate that the association between racial centrality and emergency department use hints at the complex role of culture in shaping patient adjustment to SCD. The finding that racial centrality is *negatively* associated with emergency department use is open to several interpretations. One interpretation is that SCD patients who are high in racial centrality might draw on an additional repository of culturally relevant coping mechanisms that patients at moderate or low levels of racial centrality may not readily access during the experience of pain episodes. Thus, patients in the former group would be less likely to utilize health care services when in pain, while those in the latter group would be more likely to do so. Conversely, individuals with a stronger racial self-concept may be more sensitive to perceived discrimination and stigmatization (Haywood et al., 2014; Holloway et al., 2016) and may be hesitant—even when in severe pain—to engage with the traditional health care system in order to avoid being treated unfairly. This might explain why individuals high in racial centrality report fewer emergency department visits. Further research is needed to clarify this relationship.

The fact that we observed a significant interaction only at low and mean levels of communalism also warrants deeper analysis. While prior research suggests that communalism may independently confer health-promoting benefits (Abdou et al., 2010), these findings may perhaps allude to a multi-level process where individual perceptions about one's "racialized self" that are associated with health outcomes only becomes salient when group connections are weak. When one's group connections are strong, there may be less of a need to rely on an *individualized* racial self-perception. Thus, there may be less variability in both racial centrality and pain among SCD patients high in communalism, which might explain our inability to observe a significant association between racial centrality and emergency department use in this group.

Limitations

Our study is limited by its implementation at a single site and its relatively small sample size, both of which inhibit generalizing these results to the broader population of adults living with SCD. Also, the cross-sectional design of our study prohibits causal inferences about the direction of effects pertaining to racial centrality or communalism. Finally, we note that the restricted range of communalism scores is concerning even though it did not

adversely affect our findings. Further research conducted with a larger sample of individuals living with SCD (particularly those that reflect the ethnic, demographic, and geographic diversity of the African diaspora) is needed and might help us further understand the role of communalism in health and health behaviors.

Conclusion

In light of these limitations, the current study yields additional evidence to support a need for further research that investigates the clinical significance of sociocultural factors within the SCD context. We believe that health psychologists who can explicitly incorporate culturally relevant approaches to research in this area would not only provide empirical clarification of the negative association between racial centrality and emergency department use but could also help identify the mechanism through which communalism operates to affect health outcomes. Such activities may also contribute to a more comprehensive understanding of “culture” and “race” in chronic illness research and facilitate the much-needed goal of generating evidence-based theories of health and health behavior among African Americans.

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References

Abdou CM, Dunkel Schetter C, Campos B, Hilmert CJ, Dominguez TP, Hobel CJ, Sandman C. Communalism predicts prenatal affect, stress, and physiology better than ethnicity and socioeconomic status. Cultural Diversity & Ethnic Minority Psychology. 2010; 16:395–403. DOI: 10.1037/a0019808 [PubMed: 20658883]

Bediako, SM. Psychosocial aspects of sickle cell disease: A primer for African American psychologists. In: Neville, HA.Tynes, BM., Utsey, SO., editors. Handbook of African American psychology. Thousand Oaks, CA: Sage; 2009. p. 417-427.

Bediako SM, Lavender AR, Yasin Z. Racial centrality and health care use among African American adults with sickle cell disease. Journal of Black Psychology. 2007; 33:422–438. DOI: 10.1177/0095798407307044

Bediako SM, Neblett EW Jr. Optimism and perceived stress in sickle-cell disease: The role of an Afrocultural social ethos. Journal of Black Psychology. 2011; 37:234–253. DOI: 10.1177/0095798410385681

Belgrave, FZ., Allison, KW. African American psychology: From Africa to America. Thousand Oaks, CA: Sage; 2006.

Hayes, AF. Introduction to mediation, moderation, and conditional process analysis: A regression-based approach. New York, NY: Guilford Press; 2013.

Haywood C Jr, Lanzkron S, Bediako S, Strouse JJ, Haythornthwaite J, Carroll CP, Beach MC. Perceived discrimination, patient trust, and adherence to medical recommendations among persons with sickle cell disease. Journal of General Internal Medicine. 2014; 29:1657–1662. DOI: 10.1007/s11606-014-2986-7 [PubMed: 25205621]

Holloway BM, McGill LS, Bediako SM. Depressive symptoms and sickle cell pain: The moderating role of internalized stigma. Stigma and Health. 2016; Advance online publication. doi: 10.1037/sah0000060

Jagers RJ, Mock LO. The Communalism Scale and collectivistic-individualistic tendencies: Some preliminary findings. Journal of Black Psychology. 1995; 21:153–167. DOI: 10.1177/00957984950212004

Lanzkron S, Carroll CP, Haywood C. The burden of emergency department use for sickle cell disease: An analysis of the National Emergency Department Sample Database. American Journal of Hematology. 2010; 85:797–799. DOI: 10.1002/ajh.21807 [PubMed: 20730795]

Lanzkron S, Carroll CP, Hill P, David M, Paul N, Haywood C. Impact of a dedicated infusion clinic for acute management of adults with sickle cell pain crisis. American Journal of Hematology. 2015; 90:376–380. DOI: 10.1002/ajh.23961 [PubMed: 25639822]

Sellers RM, Smith MA, Shelton JN, Rowley SAJ, Chavous TM. Multidimensional model of racial identity: A reconceptualization of African American identity. Personality and Social Psychology Review. 1998; 2:18–39. [PubMed: 15647149]

Smith WR, Penberthy LT, Bovberg VE, McClish DK, Roberts JD, Dahman B, Roseff SD. Daily assessment of pain in adults with sickle cell disease. Annals of Internal Medicine. 2008; 148:94–101s. DOI: 10.7326/003-4819-148-2-200801150-00004 [PubMed: 18195334]

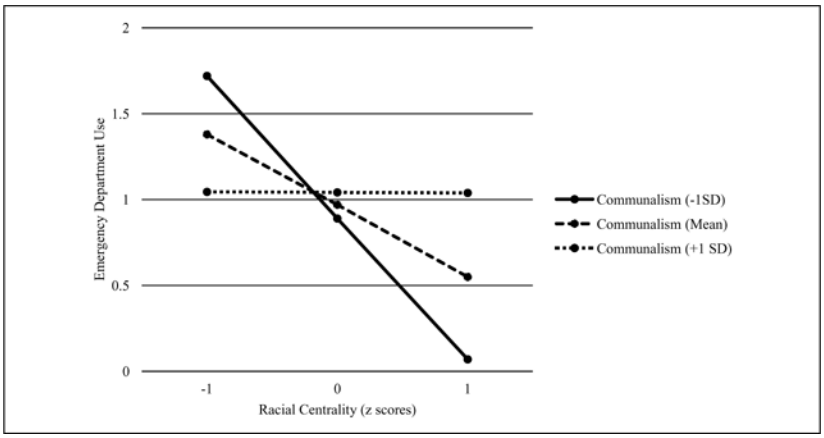

Figure 1.

Simple slopes equations of the regression of emergency department use for sickle cell disease pain on racial centrality *z* scores at mean and ±1 standard deviation of communalism.

Table 1

Correlations and Descriptive Statistics for Major Study Variables ($N = 62$).

	1	2	3	4	5
1. Pain frequency	—				
2. Pain severity	.14	—			
3. Emergency use	.07	**.37**	—		
4. Racial centrality	.02	−.16	**−.30**	—	
5. Communalism	.02	.08	−.01	.16	—
Mean	5.94	6.74	1.03	4.60	4.12
SD	2.18	3.14	1.40	0.90	0.59
Range	0-20	0-10	0-6	2-6	2-6
Cronbach's alpha	—	—	—	.72	.86

Note: Bold values indicate $p < .05$ or greater.

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Table 2

Linear Model Predicting Emergency Department Use for SCD Pain.

	b	SE b	t	p
Constant	.02	.31	0.05	.96
Pain severity	**.14**	**.05**	**2.77**	**.008**
Pain frequency	.005	.01	0.33	.74
Racial centrality	**−.46**	**.17**	**−2.66**	**.01**
Communalism	.13	.18	0.70	.49
Racial centrality × communalism	**.77**	**.27**	**2.82**	**.007**

Note: SCD = sickle cell disease; *SE* = standard error; $R2$ = .26; analyses conducted across 5,000 bootstrapped samples. Bolded values indicate $p < .05$ or greater.