



# Testing the factor structure of the brief sense of community scale among black girls and the relationship with ethnic identity, empowerment and social support

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## ARTICLE INFO

### Keywords:

Black girls  
Youth  
Community  
Ethnic identity  
Measurement

## ABSTRACT

Research on Psychological Sense of Community (SOC) among Black girls are limited due to lack of validated measures for this group. Using confirmatory factor analysis (CFA), the first and second-order factor structure of the Brief Sense of Community Scale (BSCS) used to measure Psychological SOC was examined using a sample of Black girls from an urban community ( $N = 340$ ). Using a regression-based approach, the second-order five-factor model of the BSCS was also examined with intrapersonal psychological empowerment (PE), social support, and ethnic identity as conceptually related variables. Findings support that: (1) psychological SOC can be conceptualized and measured through four dimensions among Black girls; and (2) intrapersonal PE, social support, and ethnic identity were significantly associated with SOC.

## 1. Introduction

Black girls living in urban communities throughout the United States represent a unique group with intersecting social identities. Due to their race, gender, age, and other factors such as socioeconomic status, religion, and sexual orientation, Black girls are often left to rely on very few supportive structures to validate their self-worth (Clonan-Roy, Jacobs, & Nakkula, 2016; Opara, Rivera Rodas, Garcia-Reid, & Reid, 2020). Unfortunately, gendered racist stereotypes that have been placed on Black girls, leave them to challenge negative ideologies (Opara, 2018). Within an environmental context, urban Black girls may reside in neighborhoods where they have limited resources to nurture their development and ensure their successful transition into adulthood. Due to their location in urban locales, they may be exposed to risk factors such as substance use (Opara, Lardier, Reid, & Garcia-Reid, 2019), community violence (Opara et al., 2020), influences of sexual risk behaviors, inadequate health education, and abuse. These factors can have devastating outcomes on urban Black girls.

Research has shown the importance of “community” for Black youth

(Brawner, Jemmott, Wingood, Reason, & Mack, 2018; Lardier, Reid, & Garcia-Reid, 2018). However, very few, if any quantitative studies have studied sense of community and its effect on urban Black girls. This may be due to the lack of validated measures of sense of community for urban Black girls, specifically. As an example, Black girls are often grouped with Black adolescent boys in research or even grouped together with other adolescent girls. Such an approach leaves behind their unique social location and reduces their experience to be convoluted with others (Aston, Graves, McGoey, Lovelace, & Townsend, 2018; Opara, 2018). Establishing validated measures for Black girls that live in urban communities and measuring its outcomes can play a vital role in understanding the effects of feelings of community have on urban Black girls, what this means for them and how having a connection to their community can lead to positive and substantial progress. Psychological Sense of Community (SOC) represents a key construct in human development that can be useful in work for Black girls, as we begin to understand how they navigate through oppressive systems to achieve success.

Psychological SOC conceptualizes how supportive, engaged and

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<https://doi.org/10.1016/j.childyouth.2021.106095>

Received 26 October 2020; Received in revised form 7 May 2021; Accepted 29 May 2021

Available online 1 June 2021

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cohesive individuals view their own communities. Broader definitions of psychological SOC position this idea within feelings of belongingness and a shared belief that community members will meet one another's needs through these relationships (McMillan & Chavis, 1986). The construct psychological SOC comprises of four specific dimensions: (1) *membership* (belongingness to the community); (2) *influence* (feeling of making a difference in the community as a member); (3) *needs fulfillment* (perception that members in the community will meet one another's needs; and (4) *emotional connection* (shared emotional connection or experience).

Among youth of color (e.g. Black, Hispanic), Psychological SOC has been associated with various outcomes including community civic engagement (Lardier, 2018; Lardier, Opara, Garcia-Reid, & Reid, 2020), social well-being (Albanesi, Cicognani, & Zani, 2007), citizen participation in prevention programming (Peterson & Reid, 2003), health and wellness (BeLue, Taylor-Richardson, Lin, McClellan, & Hargreaves, 2006), ethnic group identity and belongingness (Kenyon & Carter, 2011), empowerment including intrapersonal psychological empowerment (i.e. perception to engage in leadership and sociopolitical change activities) and cognitive psychological empowerment (i.e., critical awareness of social injustices and inequalities) (Forenza & Lardier, 2017a; Lardier, 2018; Lardier et al., 2020; Opara et al., 2019). Opara et al. (2019) conducted a study examining latent class profiles of psychological empowerment on psychological sense of community and other related variables such as ethnic identity, social support and 30-day drug use. The study included a sample of both Black and Hispanic adolescent girls that lived in an urban community in northeastern United States and found that psychological sense of community, ethnic identity and social support were associated with lower levels of drug use among the sample (Opara et al., 2019). Despite such work among youth of color, further investigation is needed into the measurement and understanding the measurement properties of psychological SOC, particularly among diverse groups of youth such as Black girls. In addition, the contribution of psychometric properties of measurements for Black girls solely, is limited in the literature.

## 2. Measurement of psychological SOC

The Brief Sense of Community Scale (BSCS) is the most frequently used measure of psychological SOC (Nowell & Boyd, 2014; Peterson, Speer, & McMillan, 2008; Plys & Qualls, 2020). Peterson et al. (2008) developed and validated a brief eight-item measure for SOC, which included new items that were designed to be consistent with McMillan and Chavis (1986) original theoretical model that measures four dimensions of the construct (membership, needs fulfillment, influence, and emotional connection). Peterson et al. (2008) using CFA, tested the factor structure of SOC among a sample of adults in the Midwest through these analyses, they identified support for the four-factor structure of the BSCS, and importantly, as a second-order structure- therefore, displaying evidence of the measure underlying as a single SOC construct. While limited, other studies have further validated the BSCS factor structure cross-culturally, mainly among adults (Rivera-Segarra, Rivera-Medina, and Varas-Diaz, 2016; Wombacher, Tagg, Bürgi, & MacBryde, 2010). For instance, Wombacher et al. (2010) examined the factor structure of the German version of the BSCS among 270 members of the German military and found support for the second-order four-factor model. In another study, Stračárová and Halamová (2015) examined the Slovak version of the BSCS among 170 Slovakian community members and identified support for the four-dimension factor structure. Most recently, Buckley, Kim, and Burnette (2020) examined the BSCS among Spanish-speaking older adults in Puerto Rico and identified through CFA that the four-factor structure provide good model-to-data fit. Unlike these investigations, Rivera-Segarra Rivera-Medina, and Varas-Diaz (2016) examined the psychometric properties and measurement equivalence of a modified Spanish-version of the BSCS in a musical community in Puerto Rico and did not identify support for the original four-factor

solution, but instead a bidimensional model. Despite variation in this one study, the extant research supports the four-dimensional factor structure of the BSCS. Outside of these investigations, there is a need for continued examination and validation among samples of racial-ethnic minority groups in diverse community settings in the United States.

Very few studies have validated the BSCS among adolescents and adolescents of color. The first study to validate among a diverse sample of primarily Black and Hispanic urban adolescents, found support for the four-factor, multidimensional, second-order factor structure (Lardier, 2018). No study, to the authors knowledge, have validated the scale specifically among urban Black girls.

The presence of limited scholarship assumes that psychological SOC is a uniform construct across groups and social contexts (Mammana-Lupo, Todd, & Houston, 2014). Psychological SOC conceptualization can vary from culture to culture and context to context (Forenza & Lardier, 2017b). This critical understanding positions psychological SOC, and the measurement of psychological SOC through the BSCS, as a context-specific variable. Because adolescents and the communities in which they reside are not homogenous, careful consideration should be taken in measures that are used to dictate their experiences. Furthermore, it is unlikely that one universal measure of SOC can capture all the important dynamics across various communities (e.g., urban/rural, low socioeconomic status/high socioeconomic status). Such considerations require further validation of the scales such as the BSCS on specific population (e.g., Black girls living in urban communities). This is crucial as to prevent the assumption of homogeneity among racially diverse groups (Peterson & Hughey, 2004).

## 3. Associated variables: Psychological Empowerment, social Support, and ethnic identity

**Intrapersonal psychological empowerment.** Black girls have the burden of navigating through systems of patriarchal dominance and racial discrimination, which can directly place them at increased risk of feeling unwanted, inferior, and threatened. Therefore, it is essential that research redirects its focus on cultivating empowerment among Black girls within their communities, as a crucial component in their successful transition into adulthood (Opara et al., 2020). Psychological empowerment is a multidimensional construct that includes intrapersonal (emotional and one's perception of being empowered), interactional (inter-group relationships), and behavioral components (how one behaves; Zimmerman, 2000). The intrapersonal component (or intrapersonal psychological empowerment [PE]) is defined as the way people perceive their capability to influence social and political systems important to them, their self-view of control, and the level of power they possess within their environment (Zimmerman, 2000). Empowerment research has shown the importance of nurturing intrapersonal psychological empowerment among adolescents. Furthermore, various studies have shown the importance of empowerment-based processes on risky behaviors among youth such as drug use (Opara et al., 2020), violence (Morrel-Samuels, Zimmerman, & Reischl, 2013), and sexual risk behaviors (Hammé Peterson, Buser, & Westburg, 2010).

Intrapersonal PE has been associated with sense of community and belongingness among urban youth of color (Lardier, 2018) and girls of color (Opara et al., 2020). Peterson, Peterson, Agre, Christens, and Morton (2011) found that higher levels of socio-political awareness not only increased neighborhood belongingness in youth but also predicted lower levels of alcohol and drug use among youth. Literature has shown that among youth of color, engaging in more voluntary, community-based organizations, can increase higher levels of neighborhood sense of community, which can therefore lead to youth feeling more empowered (Peterson & Reid, 2003). Such a finding can be playing a vital role in the lives of urban Black girls, who may live in socially disorganized neighborhoods. However, research on the conceptualization of psychological sense of community among Black girls, is limited. Strengthening intrapersonal PE has the ability to increase critical

awareness of one's community by enabling Black girls to become aware of socio-cultural resources that can improve their environment and meet their needs (Forenza & Lardier Jr., 2017b; Opara et al., 2020).

Although research on psychological sense of community and intrapersonal PE has been primarily conducted among youth, psychological sense of community appears to be an even more important factor for adolescent girls, though this idea is rarely explored. Peterson, Lowe, Aquilino, and Schneider (2005) found unique gender differences on the effects of intrapersonal PE and psychological SOC on females versus males, specifically, women's intrapersonal PE was weaker when they had a lower perceived psychological SOC. Speer, Peterson, Armstead, & Allen (2013) further elaborated that psychological SOC is not monolithic experience, and that women may experience variations in psychological SOC, which may be due to both historical disenfranchisement when compared to men and are more likely to feel empowered due to a collective network of complex, intimate relationships. Given their social location in society, it can be assumed that Black girls may experience varying experiences within their communities and be less likely to be empowered due to their intersecting, marginalize identities. Therefore, additional research is needed to examine the factor-structure of the BSCS among Black girls. Within this study and given the close relationship, psychological empowerment is being examined as evidence of construct validity for the BSCS.

**Ethnic Identity.** Ethnic identity is a major developmental change in adolescence and young adulthood, through the joint processes of exploration and commitment (Phinney, 1989) that contributes to significantly to one's sense of belonging and their likelihood of feeling empowered. Given that Black girls belong to social locations where their identities intersect with their race, gender and often socioeconomic status, an important subcomponent of their identity may rely on ethnic identity. Black adolescents often use their immediate social environments and communities to form opinions, ideas, and views about themselves as a way to form their own identities. Ethnic identity refers to (a) self-identification with a specific ethnic group; (b) the sense of belonging and attachment to such a group; (c) the perceptions, behaviors, and feelings one has, due to such membership; (d) and involvement in the cultural and social practices of the group (Phinney, 1989; Phinney & Chavira, 1992; Phinney & Ong, 2007). Ethnic identity can be complex as Black girls may have stronger ties to their ethnicity (e.g., Black Caribbean, African) as opposed to their racial identity (Black Americans). Though research has shown that Black Americans tend to view their ethnic identity and racial identity similarly (Phinney, 1996). Because ethnic identity can be shaped by environments, while limited, there is some research indicating a strong association between psychological SOC and ethnic identity among youth of color. This has been seen among minority youth, such as Dominican adolescents where high psychological SOC was associated with high ethnic identity (Garcia-Reid, Peterson, Reid, & Peterson, 2013); similar results for American Indian youth (Kenyon et al., 2011); and Latino youth (Rivas-Drake, 2012), which showed how psychological sense of community mediated the relationships between ethnic identity and self-esteem. However, there are very few, if any studies that specifically examine ethnic identity and psychological sense of community among Black girls. Pertaining to Black girls in the U.S., their identity is both ethnic and racial due to historical and current disenfranchisement and oppression that intersect with lives of Black girls' collective lives. Increasing ethnic pride and identity through psychological sense of community among Black girls, can serve as a protective factor against poor developmental outcomes that they may be at risk of due to their environment and social location.

**Social support.** For youth, having supportive networks has ability to allow marginalized youth to feel empowered and therefore, nurture an attachment to their community. Social support has been linked to intrapersonal PE (Lardier et al., 2019), psychological sense of community and community attachment (Christens & Lin, 2014). Because social support as a strengths-based, empowering processes can also serve as a

significant buffer for Black girls who live in disorganized, urban neighborhoods. Opara et al. (2019) showed that social support, ethnic identity, psychological sense of community and intrapersonal PE had a direct association with lower drug use among girls of color. Taken together, understanding the measurement properties of psychological sense of community, how Black urban adolescent girls conceptualize sense of community and how it can be associated with important processes such as ethnic identity, social support and psychological empowerment is crucial.

#### 4. Purpose

The purpose of this study is to build on the measurement and conceptualization of the BSCS among a sample of U.S. urban Black girls. The BSCS, while recently validated among a sample of youth of color (e.g., Lardier et al., 2018), has not been adequately tested among Black girls. We examined the factor structure of the BSCS among a robust sample of U.S. Black girls living in an urban community using Confirmatory Factor Analysis (CFA). In addition, using a regression-based approach, we then examined the second-order five-factor model of the BSCS on conceptually related variables: intrapersonal PE and ethnic identity.

#### 5. Method

##### 5.1. Participants and procedures

Data were collected for this study were part of a larger comprehensive need assessment within a northeastern U.S. urban school district, which helped inform environmental strategies and prevention-intervention protocols within the target community. A convenience sample of students ( $N = 1639$ ) were recruited from a large urban high school in the northeastern U.S. For the current study, a delimited sample ( $N = 340$ ) of Black girls were examined. This sample of Black girls were between 13 and 15 (30.70%) and 16 and 18 years of age (69.30%). Students were near-evenly distributed between 9th (24.33%), 10th (21.12%), 11th (28.88%), and 12th (25.67%) grades. Over 60% were on the free or reduced lunch program, a proxy for low socioeconomic status.

##### 5.2. Measurement

**Psychological sense of community.** Adolescent participants completed the 8-item *Brief Sense of Community Scale*, which is based on the McMillan and Chavis (1986) Psychological SOC theory, as well as the empirical work of Peterson et al. (2008). The BSCS was designed to assess four dimensions of psychological SOC: *needs fulfillment (NF)*, *membership (MB)*, *influence (IN)*, and *emotional connection (EC)*. Sample items included the following: "I feel like a member of this neighborhood" and "I Have a say about what goes on in my neighborhood" Cronbach's alpha was 0.85 (See Table 1 for means and standard deviations). Researchers have previously demonstrated support for the four-dimension factor structure of the BSCS among youth (e.g., Lardier et al., 2018) and adult samples (Peterson et al., 2008), with Cronbach's Alphas ranging from 0.85 to 0.92.

**Intrapersonal psychological empowerment.** Adolescent participants completed the 17-item Sociopolitical Control Scale for Youth (SPCS-Y), which was developed to examine the intrapersonal component of PE (Peterson et al., 2011). Peterson et al. (2011) through CFA identified that the SPCS-Y was a two factor measure that examined leadership competency (sample items: "I am a leader in groups" and "I can usually organize people to get things done"; Cronbach's alpha = 0.89) and policy control (sample items: "I have attended a public meeting to push for a policy change" and "I have participated in a protest march or rally"; Cronbach's alpha = 0.85). For the current study, the eight-item measure of leadership competence (Cronbach's alpha = 0.84)

**Table 1**

Descriptive statistics and correlations of psychological sense of community latent construct, psychological sense of community sub-dimensions, and latent variables with associated sub-dimensions.

	1	2	3	4	5	6	7	8	9	10	11	12
1. Psychological SOC	–											
2. Needs Fulfillment	0.86***	–										
3. Membership	0.89***	0.71***	–									
4. Influence	0.81***	0.60***	0.60***	–								
5. Emotional Connection	0.89***	0.68***	0.77***	0.64**	–							
6. Intrapersonal PE	0.11*	0.12**	0.17*	0.12*	0.15*	–						
7. Leadership Capacity	0.13*	0.15**	0.15*	0.15*	0.12*	0.87***	–					
8. Self-efficacy	0.11*	0.13*	0.17*	0.14*	0.14*	0.91***	0.61***	–				
9. Ethnic Identity	0.13*	0.16*	0.11**	0.13*	0.18*	0.42***	0.39***	0.36***	–			
10. Ethnic Identity Exploration	0.10*	0.15*	0.14**	0.19*	0.15*	0.36**	0.34***	0.32***	0.90***	–		
11. Ethnic Commitment	0.14*	0.14*	0.10**	0.15*	0.11*	0.38**	0.36***	0.33***	0.89***	0.61***	–	
12. Social Support	0.28***	0.26***	0.21**	0.26***	0.23***	0.25***	0.18***	0.25***	0.20***	0.21***	0.15*	–
Mean	2.83	2.74	3.04	2.61	3.05	3.91	4.05	3.75	17.48	8.51	8.97	2.36
Standard Deviation	1.21	1.35	1.47	1.33	1.47	0.56	0.58	0.66	3.75	2.11	2.07	0.41

Note. SOC = Sense of Community. PE = Psychological Empowerment.

\* p value < 0.05; \*\* p value < 0.01; \*\*\* p value < 0.001.

and nine-item measure of policy control (Cronbach’s alpha = 0.81) were used and combined (Cronbach’s alpha = 0.85). Adolescent participants responded using a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The measurement model for the two-factor model on this latent variable fits the data very well ( $\chi^2 = 120.72$  (99),  $p = .10$ ; CFI = 0.98; RMSEA = 0.03 [95% CI = 0.01, 0.05]).

**Ethnic identity.** Adolescent participants responded to the 20-item The Multigroup Ethnic Identity Measure (MEIM). For the current study, the MEIM-Revised (MEIM-R) (Phinney & Ong, 2007) was used. Previous studies have identified support for the utility of both the MEIM (e.g. Burrow-Sanchez, 2014; Ponterotto, Gretchen, Utsey, Stracuzzi, & Saya, 2003) and MEIM-R among Hispanic youth (e.g., Schwartz, Unger, Des Rosiers, et al., 2014; Schwartz, Unger, Lorenzo-Blanco, et al., 2014). Sample items included for the MEIM-R Ethnic Identity Exploration dimension: “I have spent time trying to figure out more about my ethnic group”, “Participating in cultural practices of group”. Sample items included for the MEIM-R Ethnic Identity Commitment dimension: “A strong sense of belonging to group” and “A strong attachment towards group”. Responses were recorded using a 4-point Likert scale ranging from *strongly disagree* (1) to *strongly agree* (4). For the current study, the three-item exploration dimension (Cronbach’s alpha = 0.82) and commitment dimension (Cronbach’s alpha = 0.80) were combined (Cronbach’s alpha = 0.85). The measurement model for the two-factor model on this latent variable fits the data very well ( $\chi^2 = 8.15$  (6),  $p = .22$ ; CFI = 0.99; RMSEA = 0.03 [95% CI = 0.01, 0.07]).

**Social Support.** The Social Support Rating Scale (SSRS) measures social support or attachment to members of the community (Cauce, Felner, & Primavera, 1982). This scale consists of eight items evaluating social support among adolescents from a variety of sources, including principals, teachers, and friends. Cauce et al. (1982) validated this scale among a sample of adolescents and discovered support for three dimensions in the scale: *family* (parents and relatives), *formal* (e.g., teachers, principals, and state workers), and *informal* (e.g., friends and peers) support. Respondents indicated the level of helpfulness provided by each source on a Likert-type 5-point scale ranging from not at all helpful to very helpful. Cronbach’s alpha for scale with this sample was 0.87. The measurement model on this latent variable fits the data very well ( $\chi^2 = 21.50$  (15),  $p = .12$ ; CFI = 0.99; RMSEA = 0.04 [95% CI = 0.01, 0.07]).

**6. Results**

*6.1. Descriptive Statistics and correlations*

Table 1 shows correlation matrix, means, and standard deviations for all measured variables. Mean-level differences were assessed between

grade in school and measured variables, as well as access to free or reduced lunch (a proxy for low socioeconomic status) and measured variables for inclusion as covariates. No differences were identified. Table 1 shows correlations among latent variables and sub-dimensions of latent variables. All study measures and sub-dimensions for each measure were correlated. As expected, the overall psychological SOC construct was correlated with both intrapersonal psychological empowerment, ethnic identity measured by the MEIM-R, and social support. Similarly, intrapersonal psychological empowerment, ethnic identity, and social support were correlated.

*6.2. Confirmatory factor analysis*

Confirmatory Factor Analysis was conducted using STATA (SE 15.1) software (StataCorp, 2020) to assess the validity of the BSCS as a second-order, four-factor structure: *membership*, *influence*, *needs fulfillment* and *emotional connection*. Reflective models (scale) were fit (Peterson et al., 2017), which specifies that the relationships emanate from a larger psychological SOC construct and are directed toward observed measures. This suggests that variation in the BSCS leads to variation in the four-factor structure, which is associated with variations in the BSCS measures (Peterson et al., 2017). Three models were examined among Black girls:

*Model 1:* Examined the four-factor model of the BSCS.

*Model 2:* Examined the second-order factor model of the BSCS.

*Model 3:* A structural model examining the association between psychological SOC (measured using the BSCS) and intrapersonal psychological empowerment, ethnic identity, and social support.

Several fit indices were used to assess model fit. Following standard practice, first the Chi square ( $\chi^2$ ) test was assessed, with non-significant  $\chi^2$  values providing some evidence of acceptable model fit. Chi square, however, must be considered in relation to several other fit indices (West, Taylor, & Wei, 2012). Therefore, the following fit indices were also examined: Comparative Fit Index (CFI), and Tucker Lewis Index (TLI), with values that are greater than 0.95 indicating desirable fit; and the Root Mean Square Error of Approximation (RMSEA), with values that are  $\leq 0.05$  = good fit, 0.05–0.08 = acceptable fit, 0.08–0.10 = marginal fit, and  $>0.10$  = poor fit (West et al., 2012). The Akaike Information Criterion (AIC) was examined too, with smaller AIC solutions considered providing a better fit to the sample data (West et al., 2012).

Table 2 displays the standardized item loadings for confirmatory factor analysis of the Brief Sense of Community Scale (BSCS). For the BSCS as a four-factor model (model 1), the unconstrained model demonstrated good overall fit to the sample data:  $\chi^2 = 11.63$  (10),  $p = .31$ ; CFI = 0.99; RMSEA 0.02 [95% CI = 0.001, 0.06], AIC = 7837.58. Standardized measurement weights ranged from 0.66 to 0.94. For the

**Table 2**  
Standardized item loadings for confirmatory factor analysis of the Brief Sense of Community Scale (BSCS) among black girls.

Item	Model 1				Model 2			
	Four Factor Model				Four Factor Second-Order Model			
	NF	MB	IN	EC	NF	MB	IN	EC
BSCS 1: I can get what I need from this neighborhood.	0.79				0.79			
BSCS 2: This neighborhood helps me fulfill my needs.	0.90				0.9			
BSCS 3: I feel like a member of this neighborhood.		0.86				0.86		
BSCS 4: I belong in this neighborhood.		0.75				0.75		
BSCS 5: I have a say about what goes on in my neighborhood.			0.66				0.65	
BSCS 6: People in this neighborhood are good at influencing each other.			0.72				0.72	
BSCS 7: I feel connected to this neighborhood.				0.87				0.86
BSCS 8: I have a good bond with others in this neighborhood.				0.75				0.75

Note. NF = Needs Fulfillment, MB = Membership, IN = Influence, EC = Emotional Connection.  
All measurement weights significant at  $p < .001$

BSCS as a four factor second-order model (model 2), the unconstrained model also demonstrated good overall fit to the sample data:  $\chi^2 = 13.12$  (11),  $p = .31$ ; CFI = 0.99; RMSEA 0.02 [95% CI = 0.001, 0.06], AIC = 7837.07. First order, standardized measurement weights ranged from 0.83 to 0.95. Second order, structural weights ranged from 0.80 to 0.89. This model explained 69% of the variance in needs fulfillment, 73% of the variance in membership, 86% of the variance in influence, and 91% of the variance in emotional connection. Model 2 displays the BSCS as a higher-order model measuring four-dimensions of psychological SOC.

Final analyses explored the association psychological SOC had with intrapersonal PE, ethnic identity, and social support as conceptually related variables. This final unconstrained model showed good model-to-data fit ( $\chi^2 = 24.46$  (20),  $p = .29$ ; CFI = 0.96; RMSEA 0.03 [95% CI = 0.02, 0.06], AIC = 7837.50). In this model, psychological SOC significantly predicted ethnic identity ( $b = 0.15$ ,  $p < .01$ ) and intrapersonal PE ( $b = 0.14$ ,  $p < .05$ ), as well as social support ( $b = 0.28$ ,  $p < .001$ ), providing construct validity support on these conceptually related variables.

## 7. Discussion

The present study examined the eight-item BSCS (i.e., the measure of neighborhood SOC; Peterson et al., 2008) and tested the BSCS on a sample of Black girls living in an urban community. Our study is one of the first studies to examine the validity of the BSCS among Black girls. Results from this study confirm the first order and second-order structure of the BSCS among Black girls. Our analyses illustrated that the four-factor, second-order structure provided the best overall model fit (Model 3). This finding indicates that the second-order, four-factor model of the BSCS represents one underlying psychological SOC construct. This outcome aligns with the extant research that has also provided evidence on the validity of the four-factor BSCS as representing one underlying psychological SOC construct among Black and Hispanic/Latinx adolescents (Lardier et al., 2018; Lardier et al., under-review), as well as Puerto Rican older adults (Buckley et al., 2020), German military members (Wombacher et al., 2010), and Slovakian adult community members (Stračárová & Halamová, 2015). Similar to prior investigations (e.g., Lardier, 2018; Lardier et al., 2018; Peterson et al., 2008; Opara et al., 2019), both the overall BSCS and its underlying subscales were correlated with one another and as expected, positively correlated with intrapersonal PE, ethnic identity, and social support. These findings contribute significantly to the literature on Black girls by presenting strengths-based protective factors than can serve as buffers to engagement of risky behaviors.

By deliberately developing skills and strategies to foster a sense of connection, belonging, and community, Black girls in urban neighborhoods can feel empowered and have a positive view of their identity, thereby, increasing their self-worth. Such processes allow for adolescent girls to feel more in control of their decisions and have the confidence to

seek assistance or support from trusted adult allies within their immediate communities (Clonan-Roy et al., 2016). While it is important to note that not all Black girls who live in urban communities are able to obtain such reliable allies or supportive networks, our findings show the importance of incorporating structures in place to provide such resources for Black girls. This study also takes an anti-deficit approach when discussing Black girls, by highlighting the strengths-based findings, which supports the strengths of communities, neighborhoods, and families that Black girls belong to. Implications from findings including promoting ethnic pride and identity within communities that Black girls can thrive in. As ethnic identity plays a significant role in how Black girls view themselves in relation to the world, incorporating elements of ethnic-racial identity and pride within community, school or family programming for Black girls, can serve as a significant protective factor in their success (Mims & Williams, 2020; Opara et al., 2020; Sanchez, Hamilton, Gilbert, & Vandewater, 2018). Furthermore, encouraging family, community support of adult allies to be dedicated and committed to Black girls is essential in increasing their psychological SOC and feelings of empowerment (Cooper, Brown, Metzger, Clinton, & Guthrie, 2013). This allows Black girls to see themselves within their communities and potentially build the confidence in their self-worth.

While this study contributes significantly to SOC literature, there are a few limitations. First, we used a cross-sectional study, therefore we cannot determine causal inferences. We encourage researchers to propose longitudinal models that can capture sense of community and how it develops over time. Second, the BSCS may not capture all the nuances of a specific group of Black girls, particularly those that identify may identify as Black-Caribbean, Afro-Latina, or African. Only adolescent girls who identified as Black only, participated in the study. Future studies need to consider multiple groups of adolescents and further validate the factor structure of this scale among Black girls from different ethnicities. In addition, this scale was validated among a small group of Black girls who lived in an urban community, future studies should validate the scale among Black girls who live in rural, high socioeconomic status/wealthy, and suburban areas to account for any differences by neighborhood and socioeconomic status. Last, this study engaged in analyzing the factor structure among a specific group of urban Black girls from a single community in the Northeastern United States. Therefore, results may not be generalizable to the entire population of Black girls in the U.S. We encourage future use of the BSCS and validation of the scale in other sub-samples of Black girls in the U.S.

## 8. Conclusion

Despite study limitations, this study contributes to the current limited literature on the psychometric properties of psychological sense of community on Black girls. Psychological sense of community is an important construct for Black girls, especially those that live in urban communities. While previous studies have examined psychological

sense of community on youth of color that often include adolescent girls, Black girls and their unique position within society, tends to be a group that is ignored within methodological research. Findings from this study provide a more critical discussion in methodological research by centering Black girls by using strengths-based constructs that can serve to aid in understanding how Black girls can be empowered. Empowering Black girls is a significant protective factor that serves as a buffer in the engagement in risky behaviors and improve developmental outcomes for this group. We encourage researchers and practitioners to promote the benefit of strengthening empowering processes to create community partnerships and supportive structures that highlight ethnic identity principles while nurturing Black girls.

#### Data availability statement

Data available on request due to privacy/ethical restrictions. The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

#### CRediT authorship contribution statement

**Ijeoma Opara:** Conceptualization, Writing - original draft, Writing - review & editing. **David T. Lardier:** Writing - review & editing, Writing - original draft, Conceptualization, Methodology, Analysis. **Pauline Garcia-Reid:** Funding acquisition (P.I.). **Robert J. Reid:** Supervision, Writing - review & editing, Funding acquisition (P.I.).

#### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

#### Acknowledgements

This study was supported by the Drug Free Communities Grant (DFC) Initiative (Grant #SP022-19-01), funded through the Substance Abuse and Mental Health Services Administration (SAMHSA). The first author is supported by the National Institutes of Health Director's Early Independence Award (DP5OD029636) and is partially supported with funding from a National Institute on Mental Health (R25-MH087217). Points of view, opinions, and conclusions in this paper do not necessarily represent the official position of the U.S. Government.

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