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Gendered racial microaggressions scale: Measurement invariance across sexual orientation

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Research Article

Gendered Racial Microaggressions Scale: Measurement Invariance Across Sexual Orientation

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Abstract

Gendered racial microaggressions are often assessed using the Gendered Racial Microaggressions Scale. Despite its use with mixed samples of heterosexual and sexual minority Black women, this instrument has yet to be evaluated for its measurement invariance across sexual orientation. This study evaluated the measurement invariance of the Gendered Racial Microaggressions Scale across sexual orientation (heterosexual [$n = 1{,}147$] versus lesbian, gay, or bisexual [LGB], $n = 359$) in a sample of 1,506 Black cisgender women ages 18–30 years old. The Gendered Racial Microaggressions Scale's four-factor structure, including Beauty and Sexual Objectification, Silenced and Marginalized, Strong Black Woman, and Angry Black Woman, was replicated with our sample. Results from the multigroup confirmatory factor analysis indicated the Gendered Racial Microaggressions Scale had configural, metric, and scalar invariance across sexual orientation groups. Strict invariance was not established. Multi-group comparison of latent factor mean scores revealed Black LGB women as having higher Beauty and Sexual Objectification scores than Black heterosexual women on the Gendered Racial Microaggressions stress appraisal scale. The Gendered Racial Microaggressions Scale can be recommended in meaningfully assessing differences in latent factor mean scores among Black heterosexual and LGB women. Practitioners, researchers, and policy makers should seek to address the role of intersectional microaggressions in the lived experiences of sexual and gender minorities of color, including as it relates to systemic disadvantage and health, mental health, and social disparities.

Keywords

women of color, microaggressions, LGB issues, measure and assessment development, intersectionality

Gendered racial microaggressions involve microinvalidations, microinsults, or microassaults that target women of color (Lewis & Neville, 2015; Lewis et al., 2013). In less than a decade since its introduction, the Gendered Racial Microaggressions Scale (GRMS; Lewis & Neville, 2015) has become the prevailing instrument for measuring the harmful effects of gendered racial microaggressions on Black women's physical and mental health (Dale & Safren, 2020; Laster Pirtle & Wright, 2021; Moody & Lewis, 2019; Thompson & Dale, 2021; Wright & Lewis, 2020). While the GRMS has been used with mixed samples of heterosexual and sexual minority Black women (Lewis & Neville, 2015; Moody & Lewis, 2019), to our knowledge, no studies have evaluated whether its measurements of gendered racial microaggressions are invariant across sexual orientation groups. Without this evidence, statistical comparisons across groups may be misleading (Meredith, 1993). In the current study, we evaluated the factorial structure and measurement invariance of the GRMS frequency and stress appraisal scales across sexual orientation groups in a sample of young Black women.

Microaggressions

Microaggressions are verbal and nonverbal subtle slights and insults that communicate hostility towards members of marginalized groups (Sue et al., 2007). Prior research describes microaggressions using the following categories: microinvalidations, microinsults, and microassaults (Sue, 2010). Microinvalidations are communications that unintentionally minimize the experiences of minoritized people (Sue, 2010). For example, upon politely complaining about poor

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service, a Black customer might be told by the store manager to "calm down." Microinsults unintentionally demean a person's identity, often related to stereotypes (Sue, 2010). For example, a teacher might say to an Asian student who received a C grade on a test, "I thought your people were good at math." Finally, microassaults are intentional harmful acts, such as name-calling and exclusion (e.g., coworkers nicknaming a Muslim American "ISIS").

Single Identity Microaggressions. With roots in critical race theory, the microaggressions literature has largely centered on the study of single identity microaggressions, particularly microaggressions related to one's racial/ethnic identity (Sue, 2010; Sue et al., 2007). In recent years, microaggressions scholarship has expanded to include other identity groups, such as sexual and gender minorities (SGM). Taxonomies for SGM microaggressions extend from those related to racial/ethnic microaggressions (i.e., microinvalidations, microinsults, microassaults; Nadal et al., 2010). For example, upon coming out as bisexual, a person's disclosure might be dismissed as "a phase" (microinvalidation) or stereotyped as "sexually adventurous" (microinsult). SGM people are vulnerable to microassaults, with a recent study finding that two-thirds (67.5%) of surveyed SGM adults reported hearing insulting comments about SGM people in the workplace (Sears et al., 2021). Numerous instruments have been developed to measure SGM microaggressions (Fisher et al., 2018; Nadal, 2019). However, a scoping review of 27 SGM microaggressions instruments reported that their validation studies included samples of less than 30% participants of color, posing concerns about their applicability with SGM of color (Fisher et al., 2018). Indeed, there remains a need to rigorously consider how to best capture the microaggressions at the intersections of SGM and other social positions (Balsam et al., 2011; Fattoracci et al., 2021).

Intersectional Microaggressions. Intersectionality is a term coined by Black feminist scholars and activists to more effectively illustrate how Black women's intersecting social identities, as contextualized within systems of oppression, contribute to their structural and social subjugation (Collins, 2000; Crenshaw, 1991). While debate persists about whether intersectionality is a theory, framework, or methodological approach, researchers across multiple disciplines have drawn on intersectionality to document how interlocking oppressions produce inequities for Black women within health care, employment, economic, and other sectors (Gezici & Ozay, 2020; Laster Pirtle & Wright, 2021; Sears et al., 2021) The use of intersectionality has also been used to examine how structural inequities at the intersections of racism, sexism, and cis-heterosexism contribute to increased vulnerabilities for Black SGM women and femmes (Bauer et al., 2021; Bowleg, 2012; Collins, 2000, Rosenthal & Lobel, 2020). It is within this tradition that we consider whether and how gendered racism and gendered racial microaggressions, specifically, may be experienced differently by Black sexual minority women.

Gendered Racism and the GRMS. Gendered racism involves the simultaneity of racism and sexism (Essed, 1991) as manifested structurally (e.g., oppressive policies and discourses), interpersonally (e.g., gendered racial microaggressions), and individually (e.g., internalized gendered racial stereotypes). Gendered racist ideologies often manifest in stereotypical beliefs about Black women, such as the hypersexual and seductive Jezebel, the self-sacrificing and enduring Strong Black Woman, and the emasculating and domineering Sapphire (Collins, 2000; Thomas et al., 2004). Gendered racial stereotypes are yielded within the broader White heteropatriarchal society to control Black women's identities, bodies, and behaviors (Thomas et al., 2004). The GRMS incorporates gendered racist stereotypes about Black women into three of its subscales, namely, Beauty and Sexual Objectification (i.e., Jezebel), Strong Black Woman (i.e., Strong Black Woman), and Sapphire (i.e., Angry Black Woman). Another subscale, Silenced and Marginalized, reflects the contributions of prior qualitative research that illuminated Black women's experiences with silencing in professional environments to avoid gendered racial microaggressions (Lewis et al., 2013; Shorter-Gooden, 2004). The use of the GRMS has produced substantial evidence of how gendered racial microaggressions contribute to Black women's adverse physical (Laster Pirtle & Wright, 2021), sexual and reproductive (Rosenthal & Lobel, 2020), and mental health (Dale & Safren, 2020; Thompson & Dale, 2021; Wright & Lewis, 2020) outcomes. In addition, research using the GRMS has begun to identify mechanisms that might mitigate the effects of gendered racial microaggressions on Black women's mental health, such as gendered racial identity (Williams & Lewis, 2019).

The GRMS and Sexual Minority Black Women. The initial validation study of the GRMS (Lewis & Neville, 2015) involved a sample of Black women, the majority of whom identified as heterosexual (93%) with the remainder identifying as lesbian, bisexual, questioning, or queer. While reporting that the four-factor model had an acceptable model fit with the data, the analytic strategy did not disaggregate subsamples by social positions, such as sexual orientation. Indeed, the authors called for future research to examine "the construct validity of the GRMS with diverse groups of Black women," noting that the "frequency and stress appraisal of experiences with gendered racial microaggressions might vary on the basis of several of these demographic variables" (Lewis & Neville, 2015, p. 300). Further, to our knowledge, all empirical studies using the GRMS with Black women have involved majority (>82%) heterosexual samples (Lewis & Neville, 2015; Thompson & Dale, 2021; Wright & Lewis, 2020), with only one study including sexual orientation within its analytic strategy (Moody & Lewis, 2019). Specifically, Moody and Lewis (2019)

included sexual orientation (dichotomized as 0 = heterosexual and 1 = lesbian, gay, bisexual, queer, asexual) as a control variable within regression analyses and discussed Black sexual minority women as overlooked in the literature.

Intersectional Microaggressions and Sexual Minority Black Women. In recent years, research has begun to explore intersectional microaggressions among SGM of color (Balsam et al., 2011; Fattoracci et al., 2021; Nadal et al., 2015; Singh et al., 2021; Weber et al., 2019). Qualitative research has identified overlapping themes, highlighting: (1) sexual minority women of color's experiences with hegemonic gender ideologies, (2) the sexual objectification of sexual minority women of color, and (3) the assumption of inferiority related to sexual minority women of color (Nadal et al., 2015; Weber et al., 2019). While contributing valuable insights, a more nuanced understanding is needed of how microaggressions targeting Black sexual minority women are rooted in gendered racism and heterosexism.

To our knowledge, there are only three published instruments that measure intersectional microaggressions among SGM of color: the Experienced Sexual Racism Scale (Bhambhani et al., 2021), the LGBT People of Color Microaggressions Scale (Balsam et al., 2011), and the Intersectional Ethnic and LGB Microaggression Scale (Fattoracci et al., 2021). As the Experienced Sexual Racism Scale was developed to measure sexual racism as experienced by men of color who have sex with men (Bhambhani et al., 2021), it is not applicable to sexual minority women of color. Although the LGBT People of Color Microaggressions Scale (Balsam et al., 2011) measures microaggressions experienced by SGM men and women of color, it has been critiqued for its additive structure with items such as: "having to educate White LGBT people about racism." The Intersectional Ethnic and LGB Microaggression Scale (Fattoracci et al., 2021) measures microaggressions at the intersections of racism and heterosexism, with items such as, "I overheard jokes about [race/ethnicity] people who are [sexual orientation]." Developed without an explicit gendered focus, neither of these instruments are designed to measure microaggressions at the intersections of gendered racism and heterosexism. Further, while the GRMS is the prevailing instrument for measuring gendered racial microaggressions, it has yet to be validated for measurement invariance across sexual orientation groups.

Measurement Invariance

Measurement invariance testing involves the evaluation of an instrument to determine if it measures a construct in the same way across groups or across time (Putnick & Bornstein, 2016). Measurement invariance testing commonly involves assessments of configural, metric, scalar, and strict invariance (Vandenberg & Lance, 2000). Configural invariance indicates that the latent structural model is equal across groups, while metric invariance indicates that factor loadings are equal across groups (Putnick & Bornstein, 2016). Scalar invariance indicates that the factor loadings and item intercepts are equal across groups, permitting meaningful multigroup comparisons of factor means (Meredith, 1993). Finally, strict invariance indicates that factor loadings, item intercepts, and residuals are equal across groups (Meredith, 1993).

The Current Study

While the GRMS (Lewis & Neville, 2015) is a widely used instrument to measure the frequency and stress appraisal of gendered racial microaggressions among Black women with varied sexual orientations (Lewis & Neville, 2015; Moody & Lewis, 2019), to our knowledge, it has yet to be evaluated for measurement invariance across sexual orientation groups. In the present study, we examined whether the GRMS accurately measures the frequency and stress appraisal of gendered racial microaggressions within its four-factor structure across sexual orientation groups (heterosexual vs. LGB). The measurement invariance of the GRMS frequency and stress appraisal scales was evaluated by conducting configural, metric, scalar, and strict invariance tests across sexual orientation groups. In doing so, we addressed the following questions: (1) Do the constructs of gendered racial microaggressions frequency and stress appraisal display a four-factor structure in our sample and across sexual orientation subsamples? (2) Do the constructs of gendered racial microaggressions frequency and stress appraisal demonstrate measurement invariance across sexual orientation groups? (3) Are there mean score differences in the four factors of the GRMS frequency and stress appraisal constructs across sexual orientation groups?

Method

Participants

The final sample included 1,506 cisgender young Black women with a mean age of 23 years ($SD_{age} = 3.41$). Participants who self-identified as Black cisgender or transgender women between the ages of 18 and 30 met inclusion criteria; however, no participants identified as transgender. Most participants identified as exclusively or predominantly heterosexual (76.1%) followed by 17.9% as bisexual, and 6.0% as exclusively or predominantly lesbian/gay. Most of the sample identified as African American (83.9%), with 5.1% as Afro-Latina, 4.5% as multiracial/biracial, 4.2% as African, and 2.3% as West Indian/Caribbean. Most participants worked full-time (36.0%), followed by 22.1% who were full-time students. Over a quarter of participants reported having completed some college.

Procedure

This study was part of a larger cross-sectional study that collected data in June–July 2019 specific to the gendered racial identities and psychosexual well-being of young Black women.

Institutional review board approval was granted at a large Southeastern university. Participants were recruited through Qualtrics Panels. Upon provision of informed consent, participants took the anonymous online survey which was hosted on Qualtrics. The average time of survey completion was approximately 60 min. Following survey completion, participants were debriefed and reminded about confidentiality. Participants were compensated directly by Qualtrics Panels in an amount that was not disclosed to our research team.

Measures

Gendered Racial Microaggressions. The GRMS (Lewis & Neville, 2015) was used to measure the frequency and stress appraisal of gendered racial microaggressions. Participants indicated the lifetime frequency of experiencing gendered racial microaggressions (23 items) on a Likert-type scale (1 = *Never* to 6 = *Once a week or more*) and the stress appraisal associated with gendered racial microaggressions (25 items) on a Likert-type scale (1 = *This has never happened to me* to 6 = *Extremely stressful*). Higher total average scores indicated greater frequency and stress appraisal. Average scores were calculated for each subscale. Lewis and Neville (2015) validated the GRMS within a four-factor structure: Beauty and Sexual Objectification, Silenced and Marginalized, Strong Black Woman, and Angry Black Woman. Sample items included: "Made a sexually inappropriate comment" (Beauty and Sexual Objectification), "I have felt unheard" (Silenced and Marginalized), "I have been told that I am too independent" (Strong Black Woman), and "Someone has accused me of being angry when speaking calm" (Angry Black Woman).

Convergent validity of scores on the GRMS was supported by positive correlations with the Schedule of Sexist Events (Klonoff & Landrine, 1995) and the Racial and Ethnic Microaggressions Scale (Nadal, 2011). Prior studies have reported a Cronbach's α of 0.92 for the GRMS frequency scale (Dale & Safren, 2020; Williams & Lewis, 2019) and a Cronbach's α of 0.95 for the GRMS stress appraisal scale (Dale & Safren, 2020). In this study, we use McDonald's ω which has been discussed as superior to Cronbach's α for measuring a composite reliability when tau-equivalence is not met (Hayes & Coutts, 2020). In this study, McDonald's ω for the GRMS frequency scale was 0.98 and McDonald's ω for the stress appraisal scale was 0.97. McDonald's ω for the subscales were: Beauty and Sexual Objectification (frequency: 0.96; stress appraisal: 0.94); Silenced and Marginalized (frequency: 0.94; stress appraisal: 0.92); Strong Black Woman (frequency: 0.83, stress appraisal: 0.89); Angry Black Woman (frequency: 0.81, stress appraisal: 0.82).

Sexual Orientation. Participants indicated their sexual orientation as: exclusively heterosexual, predominantly heterosexual, bisexual, exclusively lesbian/gay, and predominantly lesbian/gay.

Data Analytic Procedures

Measurement Model Analysis. Based on the normality of data, we used maximum likelihood estimator in Mplus Version 8 (Muthén, & Muthén, 1998–2017) to conduct confirmatory factor analysis (CFA) to test the measurement models of the GRMS frequency and stress appraisal scales. Items were treated as indicators of the four factors in the GRMS. For measurement model analysis, we used single group CFA to test the four-factor GRMS frequency and stress appraisal models with a combined heterosexual and LGB sample. Next, we conducted separate CFAs for the heterosexual and LGB samples and assessed for their respective model fit. Model fit was assessed using a variety of recommended absolute (chi-square, root mean square error of approximation [RMSEA], standardized root mean square residual [SRMR]) and incremental (comparative fit index [CFI]) indices (Kline, 2005). For the RMSEA, a value <0.08 is considered acceptable, with a value <0.06 considered good (Hu & Bentler, 1999). For the CFI, a value >0.90 is considered acceptable, with a value ≥0.95 demonstrative of good fit (Hu & Bentler, 1999). For the SRMR, a value less than 0.05 is considered indicative of good fit (Byrne, 1998). Although we report the chi-square statistic, we place less emphasis on this measure based on its sensitivity to large samples (Cheung & Rensvold, 2000; Hu & Bentler, 1999).

Measurement Invariance Analysis. We used maximum likelihood estimator in Mplus Version 8 (Muthén, & Muthén, 1998–2017) to conduct multigroup CFA to test for measurement invariance for both the GRMS frequency and stress appraisal scales. Specifically, we imposed hierarchically-increasing constraints at four levels of measurement invariance testing (Putnick & Bornstein, 2016). For the configural invariance test, all factor loadings were estimated freely across sexual orientation groups. For the metric invariance test, we constrained factor loadings to be equal across sexual orientation groups. For the scalar invariance test, we constrained factor loadings and item intercepts to be equal across sexual orientation groups. Standardized mean score comparisons across sexual orientation groups were permitted if scalar invariance was established (Vandenberg & Lance, 2000). For the strict invariance test, we constrained factor loadings, item intercepts, and residual variances to be equal across sexual orientation groups. Measurement invariance was indicated when all three conditions were met within model comparison: a nonsignificant chi-square difference (Meredith, 1993), a change in RMSEA ≤ .015 (Chen, 2007) and a change in CFI ≤ .01 (Cheung & Rensvold, 2000).

Results

An a-priori power analysis was conducted in R using the semPower package (Moshagen & Erdfelder, 2016) for sample size estimation within structural models. Simulated data followed factor loadings from the initial validation

Table 1. Bivariate Analyses of the Gendered Racial Microaggressions Frequency and Stress Appraisal Scale and Sub-Scale Mean Scores by Sexual Orientation.

	Heterosexual ($n = 1,147$)	LGB ($n = 359$)			
Variable	*M* (*SD*)	*M* (*SD*)	*df*	*t*	*p*[a]
GRMS frequency	3.37 (1.43)	3.50 (1.37)	1,538	1.55	.12
GRMS stress appraisal	2.57 (1.17)	2.73 (1.21)	1,538	2.16	.03*
BSO—GRMS frequency	3.35 (1.50)	3.50 (1.43)	1,538	1.72	.09
SM—GRMS frequency	3.37 (1.51)	3.49 (1.46)	1,538	1.29	.20
SBW—GRMS frequency	3.43 (1.48)	3.58 (1.49)	1,538	1.79	.07
ABW—GRMS frequency	3.40 (1.50)	3.45 (1.43)	1,538	0.58	.56
BSO—GRMS stress appraisal	2.56 (1.22)	2.75 (1.27)	1,538	2.50	.01*
SM—GRMS stress appraisal	2.61 (1.26)	2.73 (1.28)	1,538	1.67	.10
SBW—GRMS stress appraisal	2.47 (1.19)	2.61 (1.25)	1,538	2.00	.05
ABW—GRMS stress appraisal	2.70 (1.32)	2.82 (1.35)	1,538	1.55	.12

Note. LGB = lesbian, gay, or bisexual; GRMS = Gendered Racial Microaggressions Scale; BSO = Beauty and Sexual Objectification sub-scale; SM = Silenced and Marginalized sub-scale; SBW = Strong Black Woman sub-scale; ABW = Angry Black Woman sub-scale.
[a]*p* values were determined using independent samples *t*-tests.
*$p < .05$.

study by Lewis and Neville (2015), rounding to factor loading thresholds demonstrated in a-prior study (Comrey & Lee, 1992). We tested a difference in factor loading of 0.40 as a large difference on one item between two groups with an α level of 0.05 (Kim & Yoon, 2011). The minimum sample size for both groups was found to be $n = 282$. Our sample consisted of Black women who identified as exclusively or predominantly heterosexual ($n = 1,147$), bisexual ($n = 269$), or exclusively or predominantly lesbian/gay ($n = 90$). Since both sexual minority groups were below the minimum sample threshold ($n = 282$), we collapsed lesbian/gay and bisexual into one category (i.e., LGB). To determine a similar pattern of results, we conducted sensitivity analyses comparing heterosexual and bisexual groups. The final sub-samples by sexual orientation groups included: Group 1/Heterosexual: $n = 1,147$; Group 2a/LGB: $n = 359$; Group 2b/bisexual: $n = 269$).

We used IBM SPSS Statistics for Windows (Version 28.0) to conduct all univariate and bivariate analyses. Upon examination of box plots and Q–Q plots, we found no missing data or outliers. Skewness and kurtosis values were within the acceptable ranges of ±2.00 and ±7.00, respectively (Byrne, 2010). On average, participants reported experiencing gendered racial microaggressions *a few times a year* and reporting this as *not at all stressful* to *somewhat stressful*. Bivariate analyses of the GRMS and sub-scales by sexual orientation are presented in Table 1. LGB participants had a slightly higher mean score ($M_{appraisal} = 2.73$, $SD_{appraisal} = 1.21$) on the GRMS stress appraisal scale compared to heterosexual participants ($M_{appraisal} = 2.57$, $SD_{appraisal} = 1.17$), $t(1,538) = 2.16$, $p = .03$. LGB participants had a slightly higher mean score ($M_{objectify} = 2.75$, $SD_{objectify} = 1.27$) on the Beauty and Sexual Objectification subscale in the GRMS stress appraisal scale compared to heterosexual participants ($M_{objectify} = 2.56$, $SD_{objectify} = 1.22$), $t(1,538) = 2.50$, $p = .01$. There were no other significant group differences in the GRMS stress appraisal sub-scales. There were no significant group differences in the GRMS frequency scale mean score or any other subscale mean score.

Measurement Models

Total Sample CFAs. We conducted a CFA of the four-factor models of the GRMS frequency and stress appraisal scales with the total sample ($N = 1,506$). Overall, the GRMS frequency model with the total sample showed acceptable fit, $X^2(224) = 2,018.935$, $p < .001$, RMSEA = 0.072, 90% CI [0.069, 0.075], CFI = 0.946, SRMR = 0.029. Similarly, the GRMS stress appraisal model with the total sample showed acceptable fit, $X^2(269) = 2,021.253$, $p < .001$, RMSEA = 0.065, 90% CI [0.062, 0.068], CFI = 0.943, SRMR = 0.029.

Single Group CFAs. Next, we conducted single group CFAs of the GRMS frequency scale with the heterosexual sample ($n = 1,147$) and the LGB sample ($n = 359$), as well as a sensitivity analysis with the bisexual sample ($n = 259$). Overall, the model for GRMS frequency showed acceptable fit among heterosexual participants, $X^2(224) = 1,582.690$, $p < .001$, RMSEA = 0.072, 90% CI [0.069, 0.075], CFI = 0.948, SRMR = 0.029; LGB participants, $X^2(224) = 799.095$, $p < .001$, RMSEA = 0.084, 90% CI [0.078, 0.090], CFI = 0.920, SRMR = 0.038; and bisexual participants, $X^2(224) = 665.545$, $p < .001$, RMSEA = 0.086, 90% CI [0.078, 0.093], CFI = 0.914, SRMR = 0.039.

We then conducted single group CFAs of the GRMS stress appraisal scale with the heterosexual ($n = 1,147$) and LGB ($n = 359$) samples, as well as a sensitivity analysis with the bisexual sample ($n = 259$). Overall, the GRMS stress appraisal model showed acceptable fit among heterosexual participants, $X^2(269) = 1,582.690$, $p < .001$, RMSEA = 0.068, 90% CI

[0.065, 0.071], CFI = 0.937, SRMR = 0.031; LGB participants, $X^2(269) = 824.147$, $p < .001$, RMSEA = 0.075, 90% CI [0.069, 0.081], CFI = 0.923, SRMR = 0.036; and bisexual participants, $X^2(269) = 759.312$, $p < .001$, RMSEA = 0.082, 90% CI [0.075, 0.089], CFI = 0.905, SRMR = 0.042.

For the CFAs of both the GRMS frequency and stress appraisal scales, sensitivity analyses using the bisexual sample suggested comparable model fit with the LGB sample. While some of the RMSEA scores were above the recommended threshold value of 0.08 (Hu & Bentler, 1999) with the LGB and bisexual samples, the lower limits of the 90% CIs and the CFI results were in acceptable range, and the SRMR results indicated good fit. Lai and Green (2016) have suggested that inconsistencies in model fit results with RMSEA and CFI should be evaluated as a whole and are not necessarily indicative of problems in model specification.

Measurement Invariance

Table 2 presents a comparison of the fit indices for the configural, metric, scalar, and strict invariance models for the GRMS frequency and stress appraisal scales.

GRMS Frequency Scale

Configural Invariance. The GRMS frequency configural invariance model for Black heterosexual women and LGB women showed acceptable fit, $X^2(448) = 2{,}370.119$, $p < .001$, RMSEA = 0.075, 90% CI [0.073, 0.078], CFI = 0.941, SRMR = 0.031. Sensitivity analysis testing a GRMS frequency configural invariance model for Black heterosexual and bisexual women showed acceptable and comparable fit, $X^2(448) = 2{,}248.235$, $p < .001$, RMSEA = 0.075, 90% CI [0.072, 0.078], CFI = 0.943, SRMR = 0.031.

Metric Invariance. The GRMS frequency metric invariance model for Black heterosexual and LGB women showed acceptable fit, $X^2(467) = 2{,}382.305$, $p < .001$, RMSEA = 0.074, 90% CI [0.071, 0.077], CFI = 0.942, SRMR = 0.033. When compared to the configural invariance model, metric invariance was demonstrated by a nonsignificant chi-square difference, $X^2(19) = 12.186$, $p = .88$, and changes in RMSEA and CFI below the recommended thresholds (Chen, 2007; Cheung & Rensvold, 2000), ΔRMSEA = 0.001, ΔCFI = 0.001. Sensitivity analysis testing a GRMS frequency metric invariance model for Black heterosexual and bisexual women showed acceptable fit, $X^2(467) = 2{,}260.729$, $p < .001$, RMSEA = 0.073, 90% CI [0.070, 0.076], CFI = 0.943, SRMR = 0.033. When compared to a configural invariance model, metric invariance was demonstrated by a nonsignificant chi-square difference, $X^2(19) = 12.494$, $p = .86$, and changes in RMSEA and CFI below the recommended thresholds (Chen, 2007; Cheung & Rensvold, 2000), ΔRMSEA = 0.002, ΔCFI = 0.002.

Scalar Invariance. The GRMS frequency scalar invariance model for Black heterosexual and LGB women showed acceptable fit, $X^2(486) = 2{,}411.743$, $p < .001$, RMSEA = 0.073, 90% CI [0.070, 0.075], CFI = 0.941, SRMR = 0.033. When compared to the metric invariance model, scalar invariance was demonstrated by a nonsignificant chi-square difference, $X^2(19) = 29.348$, $p = .06$, and changes in RMSEA and CFI below the recommended thresholds (Chen, 2007; Cheung & Rensvold, 2000), ΔRMSEA = 0.001, ΔCFI = 0.001. Sensitivity analysis testing a GRMS frequency scalar invariance model for Black heterosexual and bisexual women showed acceptable fit, $X^2(486) = 2{,}283.003$, $p < .001$, RMSEA = .072, 90% CI [0.069–0.075], CFI = 0.943, SRMR = 0.033. When compared to the metric invariance model, scalar invariance was demonstrated by a nonsignificant chi-square difference, $X^2(19) = 22.274$, $p = .27$, and changes in RMSEA and CFI below the recommended thresholds (Chen, 2007; Cheung & Rensvold, 2000), ΔRMSEA = 0.001, ΔCFI = 0.000.

Mean Score Difference Analysis. Upon confirmation of scalar invariance, we examined the latent factor mean score differences in the GRMS frequency scale by sexual orientation (heterosexual vs. LGB). There were no significant differences in latent factor mean scores in the GRMS frequency scale by sexual orientation. All standardized factor loadings were strong across all four factors of the GRMS frequency scale for both heterosexual and LGB samples. For Beauty and Sexual Objectification, standardized factor loadings ranged from 0.769 to 0.850 for heterosexual participants and 0.732 to 0.842 for LGB participants. For Silenced and Marginalized, factor loadings ranged from 0.772 to 0.863 for heterosexual participants and 0.764 to 0.830 for LGB participants. For Strong Black Woman, factor loadings ranged from 0.686 to 0.861 for heterosexual participants and 0.649 to 0.816 for LGB participants. For Angry Black Woman, factor loadings ranged from 0.666 to 0.865 for heterosexual participants and 0.575 to 0.828 for LGB participants. Factor loadings were higher for heterosexual participants compared to LGB participants on all factors.

Strict Invariance. The GRMS frequency strict invariance model for Black heterosexual and LGB women showed acceptable fit, $X^2(526) = 2{,}827.597$, $p < .001$, RMSEA = 0.076, 90% CI [0.073, 0.079], CFI = 0.930, SRMR = 0.049. Strict invariance was not supported based on a significant chi-square difference when compared to the scalar invariance model, $X^2(40) = 415.854$, $p < .001$. Sensitivity analysis testing a GRMS frequency strict invariance model for Black heterosexual and bisexual women showed acceptable fit, $X^2(526) = 2{,}696.743$, $p < .001$, RMSEA = 0.076, 90% CI [0.073, 0.078], CFI = 0.931, SRMR = 0.049. Strict invariance was not supported based on a significant chi-square difference when compared to the scalar invariance model, $X^2(40) = 413.740$, $p < .001$.

Table 2. Results of Measurement Invariance Analyses Across Sexual Orientation Groups With the GRMS Frequency and Stress Appraisal Models.

	GRMS frequency						GRMS stress appraisal					
	X^2	ΔX^2	CFI	ΔCFI	RMSEA	ΔRMSEA	X^2	ΔX^2	CFI	ΔCFI	RMSEA	ΔRMSEA
Config—Hetero + LGB	2,370.12*		0.941		0.075		2,531.06*		0.934		0.070	
Config—Hetero + Bi	2,248.24*		0.943		0.075		2,490.87*		0.931		0.068	
Metric—Hetero + LGB	2,382.31*	12.19	0.942	|0.001|	0.074	|0.001|	2,553.86*	22.80	0.934	|0|	0.069	|0.001|
Metric—Hetero + Bi	2,260.73*	12.49	0.943	|0|	0.073	|0.002|	2,510.31*	19.44	0.931	|0|	0.070	|0.002|
Scalar—Hetero + LGB	2,411.74*	29.35	0.941	|0.001|	0.073	|0.001|	2,576.51*	22.65	0.934	|0|	0.068	|0.001|
Scalar—Hetero + Bi	2,283.00*	22.27	0.943	|0|	0.072	|0.001|	2,529.41*	19.10	0.931	|0|	0.068	|0.002|
Strict—Hetero + LGB	2,827.60*	415.85*	0.930	|0.011|	0.076	|0.003|	2,785.60*	209.09*	0.928	|0.006|	0.068	|0|
Strict—Hetero + Bi	2,696.74*	413.74*	0.931	|0.012|	0.076	|0.004|	2,735.483*	207.07*	0.926	|0.005|	0.068	|0|

Note. $N = 1{,}506$. n(heterosexual) = 1,147. n(LGB) = 359. n(bisexual) = 269.
GRMS = Gendered Racial Microaggressions Scale; Hetero = heterosexual; LGB = lesbian, gay, or bisexual; Bi = bisexual; Hetero + LGB = heterosexual and LGB samples; Hetero + Bi = heterosexual and bisexual samples; CFI = comparative fit index; RMSEA = root mean square error of approximation; Config = configural invariance; Metric = metric invariance; Scalar = scalar invariance; Strict = strict invariance. *$p < .001$.

GRMS Stress Appraisal Scale

Configural Invariance. The GRMS stress appraisal configural invariance model for Black heterosexual and LGB women showed acceptable fit, $X^2(538) = 2{,}531.060$, $p < .001$, RMSEA = 0.070, 90% CI [0.067, 0.073], CFI = 0.934, SRMR = 0.032. Sensitivity analysis testing a GRMS frequency configural invariance model for Black heterosexual and bisexual women showed acceptable and comparable fit, $X^2(538) = 2{,}490.870$, $p < .001$, RMSEA = 0.068, 90% CI [0.068, 0.074], CFI = 0.931, SRMR = 0.033.

Metric Invariance. The GRMS stress appraisal metric invariance model for the heterosexual and LGB samples showed acceptable fit, $X^2(559) = 2{,}553.860$, $p < .001$, RMSEA = 0.069, 90% CI [0.066, 0.072], CFI = 0.934, SRMR = 0.033. When compared to the configural invariance model, metric invariance was demonstrated by a nonsignificant chi-square difference, $X^2(21) = 22.801$, $p = .36$, and changes in RMSEA and CFI below the recommended thresholds (Chen, 2007; Cheung & Rensvold, 2000), ΔRMSEA = 0.001, ΔCFI = 0.000. Sensitivity analysis testing a GRMS stress appraisal metric invariance model for Black heterosexual and bisexual women showed acceptable fit, $X^2(559) = 2{,}510.314$, $p < .001$, RMSEA = 0.070, 90% CI [0.067, 0.072], CFI = 0.931, SRMR = 0.034. When compared to the configural invariance model, metric invariance was demonstrated by a nonsignificant chi-square difference, $X^2(21) = 19.444$, $p = .56$, and changes in RMSEA and CFI below the recommended thresholds (Chen, 2007; Cheung & Rensvold, 2000), ΔRMSEA = 0.002, ΔCFI = 0.000.

Scalar Invariance. The GRMS stress appraisal scalar invariance model for Black heterosexual women and LGB women showed acceptable fit, $X^2(580) = 2{,}576.509$, $p < .001$, RMSEA = 0.068, 90% CI [0.065, 0.070], CFI = 0.934, SRMR = 0.033. When compared to the metric invariance model, scalar invariance was demonstrated by a nonsignificant chi-square difference, $X^2(21) = 22.649$, $p = .36$, and changes in RMSEA and CFI below the recommended thresholds (Chen, 2007; Cheung & Rensvold, 2000), ΔRMSEA = 0.000, ΔCFI = 0.000. Sensitivity analysis testing a GRMS stress appraisal scalar invariance model for Black heterosexual and bisexual women showed acceptable fit, $X^2(580) = 2{,}529.413$, $p < .001$, RMSEA = 0.068, 90% CI [0.065, 0.071], CFI = 0.931, SRMR = 0.034. When compared to the metric model in sensitivity analysis, scalar invariance was demonstrated by a nonsignificant chi-square difference, $X^2(21) = 19.099$, $p = .58$, and changes in RMSEA and CFI below the recommended thresholds (Chen, 2007; Cheung & Rensvold, 2000), ΔRMSEA = 0.002, ΔCFI = 0.000.

Mean Score Difference Analysis. Upon confirmation of scalar invariance, we examined the latent factor mean score differences in the GRMS stress appraisal scale by sexual orientation (heterosexual vs. LGB). Black LGB women's mean scores on the Beauty and Sexual Objectification factor were 0.139 points higher than those of Black heterosexual women, $p = .03$. For Beauty and Sexual Objectification, standardized factor loadings ranged from 0.753 to 0.809 for heterosexual participants and 0.726 to 0.821 for LGB participants. For Silenced and Marginalized, factor loadings ranged from 0.752 to 0.804 for heterosexual participants and 0.729 to 0.803 for LGB participants. For Strong Black Woman, factor loadings ranged from 0.755 to 0.813 for heterosexual participants and 0.761 to 0.796 for LGB participants. For Angry Black Woman, factor loadings ranged from 0.711 to 0.805 for heterosexual participants and 0.692 to 0.792 for LGB participants. Factor loadings were higher for heterosexual participants compared to LGB participants across all factors. Factor loadings were higher for all factors on the GRMS frequency scale compared to the GRMS stress appraisal scale.

Strict Invariance. The GRMS stress appraisal strict invariance model for the heterosexual and LGB samples showed acceptable fit, $X^2(624) = 2{,}785.601$, $p < .001$, RMSEA = 0.068, 90% CI [0.065, 0.070], CFI = 0.928, SRMR = 0.041. Strict invariance was not supported based on a significant chi-square difference when compared to the scalar invariance model, $X^2(44) = 209.092$, $p < .001$. Sensitivity analysis testing a GRMS appraisal strict invariance model for Black heterosexual and bisexual women showed acceptable fit, $X^2(624) = 2{,}735.483$, $p < .001$, RMSEA = 0.068, 90% CI [0.066, 0.071], CFI = 0.926, SRMR = 0.043. Strict invariance was not supported based on a significant chi-square difference when compared to the scalar invariance model, $X^2(44) = 207.072$, $p < .001$.

Discussion

In the current study, we evaluated the factor structure and measurement invariance of the GRMS across sexual orientation in a sample of 1,506 Black women. Our results confirmed the four-factor structure across our total sample and heterosexual, LGB, and bisexual sub-samples. We found evidence of the GRMS frequency and stress appraisal scales as having configural, metric, and scalar invariance across sexual orientation groups. To our knowledge, this study is the first to investigate the GRMS for measurement invariance across sexual orientation groups.

Our findings indicated that the GRMS frequency and stress appraisal scales had superior fit with the heterosexual subsample, which is unsurprising considering the GRMS was originally validated with a majority heterosexual (93%) sample of Black women. Differences in model fit by sexual orientation might be accounted for by the subtle variations in how Black LGB participants interpreted items. For example, literature discusses masculine-of-center Black sexual minority women as embodying characteristics that

have similarities with the Strong Black Women stereotype, including exhibitions of strength and assertiveness (Everett et al., 2019). Prior research has shown that masculine-of-center Black sexual minority women may have lower stigma consciousness and greater confidence being visible about their sexual orientation compared to their feminine counterparts (Everett et al., 2019). Therefore, it is unclear if there are differences in how a Black heterosexual woman, compared to a masculine-of-center Black sexual minority woman, might interpret an item such as, "I have been told that I am too assertive," including whether this statement would even be perceived as a microaggression. For a masculine-of-center Black sexual minority woman, such an item might not be interpreted from the lens of the Strong Black Woman, but rather, as a (possibly non-stigmatizing) reflection of their assertiveness as a stud, aggressive/AG, or butch lesbian.

Our findings suggest that the frequency and stress appraisal of gendered racial microaggressions appears to measure the same constructs across heterosexual and LGB sub-samples. While strict invariance across sexual orientation groups was not found, this level of invariance has been discussed as excessively restrictive and rarely achieved in practice (Little, 2013). As measurement invariance involves the hierarchical testing of nested models from levels of least (i.e., configural) to greatest (i.e., strict) restriction, attainment of scalar variance is sufficient for demonstrating strong invariance across groups and is considered a requisite for comparing latent factor mean scores (Vandenberg & Lance, 2000).

We found evidence of a mean score difference by sexual orientation in the GRMS stress appraisal scale for the Beauty and Sexual Objectification factor. Specifically, our finding that Black heterosexual women had a lower mean score within this factor points to a need to investigate why Black sexual minority women may experience greater stress appraisal related to sexual objectification. Research demonstrates that the gendered racial stereotype of Black women as hypersexual Jezebels functions to justify Black women's sexual exploitation and victimization (Cheeseborough et al., 2020; Jerald et al., 2017). Prior research on Black women's experiences with sexual objectification, however, has assumed a largely heteronormative perspective, with Black sexual minority women's experiences with the Jezebel stereotype yet to be illuminated. For instance, literature indicates that bisexual women are stereotyped as hypersexual and performing lesbianism (Matsick & Conley, 2016). Given that the majority of our LGB sample in this study identified as bisexual (74.9%), it is possible that an item such as, "Made a sexually inappropriate comment," might be interpreted with increased stress appraisal for Black bisexual women at the intersections of binegativity and gendered racial stereotypes (Lewis & Neville, 2015; Matsick & Conley, 2016).

A multigroup mean score difference in the Beauty and Sexual Objectification factor was not found for the GRMS frequency scale. As perpetrators of gendered racial microaggressions act based on assumptions about a target's social identities, it is important to consider that indicators of sexual orientation (e.g., attraction, relational behaviors) may be less visible than socially constructed markers of race (e.g., skin tone, hair texture). Without the visibility of sexual minority status, participants may have experienced sexual objectification based solely on assumptions of gendered racial identity. Additionally, we did not find any significant mean score differences within the Strong Black Woman or Angry Black Woman factors. Compared to the Beauty and Sexual Objectification or Silenced and Marginalized factors which are experienced by more broad populations, the Strong Black Women and Angry Black Women constructs are more specifically applicable towards Black women (Thomas et al., 2004). Thus, participants' interpretations of these specific factors may have centered on their identities as Black women.

On the other hand, we were somewhat surprised that there were no mean score differences within the Silenced and Marginalized factor. Research indicates that SGM of color experience disproportionately high rates of microaggressions and discrimination in professional environments compared to their White counterparts (Sears et al., 2021). Given this data, we expected that Black LGB participants might experience higher mean scores of being silenced and marginalized compared to Black heterosexual women. Research indicates Black women engage in identity shifting, involving code switching (i.e., modifying language or being silent) and behavioral shifting (i.e., altering appearance or behaviors) as an anticipatory coping strategy to avoid microaggressions within professional environments (Shorter-Gooden, 2004). Thus, it is possible that there may have been variations in the extent to which the Black LGB participants concealed their sexual orientations within various socio-institutional contexts.

Intersectional microaggression remains a crucial topic for investigation among Black sexual minority women who navigate stigma both from within the dominant SGM community as well as from within Black communities (Page et al., 2021). To accurately measure intersectional microaggressions among Black sexual minority women, proper consideration must be given to the methodological instrumentation needed to accurately capture experiences at the intersections of gendered racism and heterosexism. In the absence of such a published instrument, findings from this study support the GRMS as an appropriate instrument for measuring gendered racial microaggressions among Black sexual minority women.

Limitations and Future Research

This study has several limitations that should be considered when interpreting the results. First, as this study used cross-sectional data, we did not examine changes in gendered racial microaggressions at different time points. Longitudinal studies are needed to better understand if and how changes in individual status (e.g., age, socioeconomic) and socio-structural

context (e.g., political administration, anti-discrimination policies) impact experiences of gendered racial microaggressions among diverse groups of Black women. Second, there were numerous sampling considerations that would have strengthened this study. For instance, a-priori power analysis for sample size estimation indicated a minimum sample size of 282 per group. As both our lesbian/gay and bisexual subsamples had sample sizes less than 282, we were unable to conduct separate measurement model or measurement invariance test comparisons by specific sexual orientation groups, leading us to use lesbian/gay and bisexual as an aggregate subsample (i.e., LGB). Additionally, data for this study relied on self-report information collected online and may have been subject to response bias. Finally, the generalizability of our findings is limited by our sample being comprised exclusively of Black heterosexual and LGB cisgender women between the ages of 18 and 30. Thus, the results cannot be generalized to other age groups or queer, transgender, and gender non-conforming Black feminine people.

Findings from this study illuminate multiple areas for further inquiry. Studies should examine measurement invariance across more diverse groups, such as by gender identity and age. In particular, more research is needed to uncover the unique manifestations of gendered racial microaggressions among Black transgender women at the intersections of racism and trans-misogyny. Based on results indicating that the GRMS had superior fit with the heterosexual sub-sample, item response theory might be used to assess the relations between gendered racial microaggressions as a construct and its subscale item responses by sexual orientation. Given our study's findings related to mean score differences in the Beauty and Sexual Objectification factor, further research is needed to examine possible differences in how Black heterosexual and sexual minority women experience sexual objectification. For example, future studies should explore how the Jezebel stereotype intersects with hypersexual stereotypes about bisexual women and how this impacts Black bisexual women's safety and well-being. Finally, the development of instruments measuring intersectional microaggressions is recommended to inform policy and practice considerations as related to intersectional microaggressions experienced by SGM women of color.

Practice Implications

Findings from our study reinforce the importance of research-informed practice with marginalized groups, with particular emphasis on the heterogeneity within groups. Sue (2010) discussed microaggressions as experienced in five phases: (1) experiencing the actual microaggression incident; (2) questioning the incident; (3) reacting to the incident; (4) interpreting the incident; and (5) experiencing the consequences of the incident. Practitioners can apply this framework as part of the assessment and treatment process with Black heterosexual and SGM women and femmes who navigate intersectional microaggressions. For example, practitioners can use a client-centered approach that views the client as the expert on their experiences and equal stakeholders in the decision-making process related to their care (Institute of Medicine, 2001). With a non-judgmental and empathetic approach, the practitioner can use open-ended questions to elicit details about the role of intersectional microaggressions in the client's lived experience, including what they perceive as causing it, how and where they experience it, how they internally and externally react to it, and what effects it might have.

Prior research demonstrates the harmful effects of gendered racial microaggressions on Black women's mental health (Dale & Safren, 2020; Thompson & Dale, 2021) and SGM microaggressions on the mental health of SGM people (Robinson & Rubin, 2015). While fewer studies have examined the effects of intersectional microaggressions on Black SGM women and femmes, a mixed method study found that intersectional microaggressions were significantly associated with higher levels of depression and anxiety among bisexual women of color (Bostwick et al., 2021). In applying minority stress theory, it is essential that practitioners adopt a de-pathologizing approach to care, acknowledging mental health disparities among marginalized groups as a derivative of structural contexts of oppression (Collins, 2000; Meyer, 2003). Some core strategies for treatment with SGM of color include assessing for and validating the client's experiences with oppression and increasing the client's use of culturally-specific resilience strategies (Hall & Ibaraki, 2016). In working with Black women, knowledge about the stereotypical beliefs about Black women is particularly essential for culturally-sensitive care (Hall & Ibaraki, 2016). Finally, as research demonstrates inequities in health care experiences among SGM patients, particularly transgender and SGM of color (Romanelli & Lindsey, 2020), it is crucial that practitioners reflect on and address their biases that might produce harmful microaggressive encounters in treatment settings.

Conclusion

In the current study, we contributed evidence of the GRMS scale as a valid and reliable four-factor measure of the frequency and stress appraisal of GRMs among Black heterosexual and LGB women. Our results indicate the configural, metric, and scalar invariance of the GRMS stress appraisal and frequency scales across sexual orientation groups, permitting meaningful latent factor mean score comparisons across sexual orientation groups. Our findings indicate that Black heterosexual women had lower mean factor scores in the Beauty and Sexual Objectification factor in the GRMS stress appraisal than Black LGB women. Further studies are needed to clarify Black SGM people's unique experiences with intersectional microaggressions. Practitioners and policy makers should seek to intervene on the deleterious effects of intersectional microaggressions on

Black SGM people's physical health, mental health, and socioeconomic well-being.

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