


Racial discrimination and posttraumatic stress: examining emotion dysregulation as a mediator in an African American community sample

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ABSTRACT

Background: African Americans experience more severe and chronic posttraumatic stress disorder (PTSD) symptoms compared to other racial groups, and thus it is important to examine factors that are relevant for the aetiology of PTSD in this population. Although racial discrimination has been implicated as an exacerbating factor in the development and maintenance of PTSD, relatively less is known about mechanisms through which this process may occur.

Objective: The purpose of this study was to examine one such mechanism, emotion dysregulation, in two independent samples of African American adults.

Method: Trauma-exposed participants were recruited in a large, urban community hospital setting (initial sample $n = 1,841$; replication sample $n = 294$). In the initial sample, participants completed a unidimensional measure of emotion dysregulation and self-reported PTSD symptoms based on the DSM-IV. In the replication sample, participants completed a multidimensional measure of emotion dysregulation and a diagnostic interview of PTSD symptoms based on the DSM-5. Mediation analyses were used to test our hypotheses.

Results: Across both samples, results indicated that racial discrimination was indirectly associated with PTSD symptoms through emotion dysregulation (even when trauma load was added as a covariate).

Conclusions: Taken together, these results provide strong evidence that the association between racial discrimination and PTSD symptoms may be partially explained by the association between racial discrimination and worse emotion dysregulation. These findings elucidate the impact of racist incidents on mental health and identify modifiable emotion regulatory processes that can be intervened upon to enhance the psychological and social wellbeing of African Americans.

Discriminación racial y estrés postraumático: examinando la desregulación emocional como mediador en una muestra de la comunidad afroamericana

Antecedentes: Los afroamericanos experimentan síntomas de trastorno de estrés postraumático (TEPT) en forma más severa y crónica en comparación con otros grupos raciales y, por lo tanto, es importante examinar los factores que son relevantes para la etiología del TEPT en esta población. Aunque la discriminación racial ha sido implicada como un factor agravante en el desarrollo y mantenimiento del TEPT, se sabe relativamente poco acerca de los mecanismos por los cuales este proceso puede ocurrir.

Objetivo: El propósito de este estudio fue examinar uno de tales mecanismos, la desregulación emocional, en dos muestras independientes de adultos afroamericanos.

Método: Los participantes expuestos a trauma fueron reclutados en un gran hospital comunitario urbano (Muestra 1 $n = 1,841$; Muestra 2 $n = 294$). Todos los participantes completaron una medida de discriminación racial, pero para la muestra 1, los participantes completaron una medida unidimensional de desregulación emocional y síntomas de TEPT auto-informados y para la Muestra 2, los participantes completaron una medida multidimensional de desregulación emocional y una entrevista diagnóstica de síntomas de TEPT. Para probar nuestra hipótesis se utilizaron análisis de mediación.

Resultados: En ambas muestras, los resultados indicaron que la discriminación racial estuvo asociada indirectamente con síntomas de TEPT a través de la desregulación emocional (incluso cuando la carga del trauma se agregó como una covariable).

Conclusiones: En conjunto, estos resultados proveen una fuerte evidencia que la asociación entre discriminación racial y síntomas de TEPT puede explicarse en parte por la asociación entre discriminación racial y una peor desregulación emocional. Estos hallazgos dilucidan el impacto de los incidentes racistas en la salud mental e identifican procesos reguladores de emociones modificables que pueden intervenir para mejorar el bienestar psicológico y social de los afroamericanos.

ARTICLE HISTORY

Received 28 May 2020
Revised 21 July 2020
Accepted 31 August 2020

KEYWORDS

Racial discrimination; diversity; racial/ethnic minority mental health; trauma; posttraumatic stress disorder; emotion dysregulation; mediation; replication

PALABRAS CLAVE

Discriminación racial; Diversidad; salud mental de minorías raciales/étnicas; trauma; trastorno de estrés postraumático; Desregulación emocional; Mediación; Replicación.

关键词

种族歧视;多样性;种族/少数民族的心理健康;创伤;创伤后应激障碍;情绪失调;中介;复制

HIGHLIGHTS

- Experiencing more racial discrimination may negatively impact how African Americans are able to regulate emotions;
- Difficulty regulating emotions may partly explain the link between racial discrimination and PTSD symptoms among African Americans.

种族歧视和创伤后应激:在一个非裔美国人社区样本中考查情绪失调的中介作用

背景:非裔美国人相较其他种族群体经历了更严重和慢性的创伤后应激障碍 (PTSD) 症状,因此, 考查此人群中PTSD病因相关因素很重要。尽管种族歧视已成为PTSD发展和维持的加剧因素,但对这一过程可能的发生机制知之甚少。

目的:本研究旨在考查两个独立非裔美国成年人样本中情绪失调这一机制。

方法:在一个大型的城市社区医院环境中招募创伤暴露的参与者 (样本1 n= 1,841;样本2 n= 294)。所有参与者均完成了种族歧视的评估,但对于样本1,参与者完成了情绪失调的单一维度测量和自我报告PTSD症状,而对于样本2,参与者完成了情绪失调的多维评估和对PTSD症状的诊断性访谈。使用中介分析来检验我们的假设。

结果:两个样本的结果均表明,种族歧视通过情绪失调间接与PTSD症状相关 (即使将创伤载荷作为协变量添加)。

结论:综上所述,这些结果为种族歧视与PTSD症状之间的联系可能部分由种族歧视与不良情绪失调之间的联系解释提供了有力的证据。这些发现阐明了种族主义事件对心理健康的影响,并确定了可干预的情绪调节过程,可以干预这些过程来提高非裔美国人的心理和社会福祉。

Posttraumatic stress disorder (PTSD) is a chronic and impairing disorder that contributes to the national public health burden. (Magruder, McLaughlin, & Elmore Borbon, 2017) Examining PTSD in African Americans is particularly important because they face greater risk of developing PTSD compared to their White counterparts. (Himle, Baser, Taylor, Campbell, & Jackson, 2009) These disparate outcomes are not accounted for by socioeconomic background or psychiatric history, highlighting the importance of examining sociocultural factors particularly relevant for understanding PTSD among African Americans. (Himle et al., 2009) One such factor is racial discrimination, defined as the behavioural manifestation of racism that occurs via discriminatory encounters. (Forrest-Bank & Jenson, 2015; Helms, Nicolas, & Green, 2012; Jones et al., 2020) Various theoretical models suggest that racial discrimination elicits stress reactions that mirror posttraumatic symptoms, and consequently, researchers have posited that it should be considered a form of trauma. (Bryant-Davis & Ocampo, 2005; Carter, 2007) In line with this theoretical work, a recent systematic review revealed strong, positive associations between racial discrimination and a range of PTSD measures. (Kirkinis, Pieterse, Martin, Agiliga, & Brownell, 2018) Importantly, there is also longitudinal evidence showing that experiences of racial discrimination uniquely predict worse PTSD outcomes for African Americans. (Sibrava et al., 2019) Thus, it is imperative to examine the pathways through which this link occurs.

One such mechanism in the link between racial discrimination and PTSD symptoms may be emotion dysregulation. The process of emotion regulation refers to either conscious or unconscious attempts to alter an emotion's likelihood, intensity, or duration (Gross, 2002), and emotion dysregulation is characterized by difficulties effectively regulating emotional responses. (Gratz & Roemer, 2003) In particular, emotion dysregulation can include problems across

aspects of one's emotional experience, such as identifying and understanding emotions, accepting unpleasant emotions, accessing adaptive emotion regulation strategies, and continuing goal-directed behaviour when experiencing unpleasant emotions. (Gratz & Roemer, 2003) To date, empirical and meta-analytic findings have supported the link between emotion dysregulation and trauma across samples and trauma types (Pencea et al., 2020; Powers, Cross, Fani, & Bradley, 2015; Seligowski, Rogers, & Orcutt, 2016), and emotion regulation difficulties have been associated with greater PTSD symptom severity. (Chang, Kaczurkin, McLean, & Foa, 2018; Pencea et al., 2020)

There are several reasons why emotion dysregulation may at least partly explain the relation between racial discrimination and PTSD symptoms. First, akin to traumatic events, discriminatory experiences can be humiliating, shaming, and can threaten harm and injury. (Carter, 2007) Both exposure to traumatic events and racial discrimination can lead to disturbances in emotional responses including dysregulated guilt, shame, and emotional numbing. (Amstadter, Nugent, & Koenen, 2009; Carter, 2007; Carter & Reynolds, 2011) This heightened emotional distress may place increased demands on emotion regulatory efforts, (Brondolo, Brady Ver Halen, Pencille, Beatty, & Contrada, 2009) which could compromise individuals' ability to access adaptive regulation strategies and persist in goal-directed behaviour. This may help to explain why African Americans use more emotion-focused coping strategies (e.g., rumination, avoidant coping) during racially stressful events compared to nonracially stressful situations. (Hoggard, Byrd, & Sellers, 2012) Second, experiences of discrimination are routinely invalidated by White-dominant society. (Neville, Awad, Brooks, Flores, & Bluemel, 2013; Sue, Capodilupo, & Holder, 2008) Therefore, both discriminatory encounters and the dismissal of such encounters create environments in which African

Americans' experiences and emotions are disregarded and dismissed. Such invalidation can result in challenges with emotion reactivity and regulation (Shenk & Fruzzetti, 2011), such as difficulty acknowledging and accepting one's emotional experience. Consistent with previous work documenting the exacerbating role of emotion dysregulation on anxious arousal (Graham, Calloway, & Roemer, 2015), it is possible that racial discrimination may prompt emotion dysregulation processes and subsequently increase risk of PTSD symptoms. Taken together, there is theoretical support for the potential connections between racial discrimination, emotion dysregulation, and PTSD, but the empirical work substantiating these connections in African Americans is scant.

1. The current study

Despite the clear relevance of emotion dysregulation to the development and maintenance of PTSD, its association to racial discrimination is less clear. To date, no investigations have empirically examined the mediating role of emotion dysregulation in the racial discrimination-PTSD link for African Americans. Thus, this study uses mediational analyses to address these gaps in the literature by examining the indirect effect of racial discrimination on PTSD through the effect of emotion dysregulation in an exclusively African American civilian sample. Given growing concern about issues of replicability in clinical psychology (Tackett, Brandes, King, & Markon, 2019), we strengthened our investigation of these links by evaluating emotion dysregulation and PTSD symptoms in two independent samples. In Sample 1 (initial sample), emotion dysregulation was measured using a brief, unidimensional questionnaire and PTSD symptoms based on the DSM-IV were evaluated using a survey. In Sample 2 (replication sample), we aimed to replicate and extend the findings from Sample 1 by using more sophisticated and updated assessments of emotion dysregulation and PTSD symptoms. Specifically, in the replication sample, emotion dysregulation was measured with a comprehensive, multidimensional measure assessing (a) lack of emotional awareness; (b) lack of emotional clarity; (c) difficulty regulating behaviour when distressed (d) difficulty engaging in goal-directed cognition and behaviour when distressed (e) unwillingness to accept certain emotional responses; and (f) lack of access to strategies for feeling better when distressed. In addition, PTSD symptoms based on the DSM-5 were evaluated via a clinician-rated diagnostic instrument. We had four main hypotheses:

- a. In both the initial and replication samples, racial discrimination would be positively associated with more severe PTSD symptoms;
- b. In both the initial and replication samples, racial discrimination would be positively associated with worse emotion dysregulation;
- c. In both the initial and replication samples, racial discrimination would be indirectly associated with more severe PTSD symptoms through the mediating effect of worse emotion dysregulation; and
- d. In the replication sample, which included multi-dimensional assessment of emotion dysregulation, those emotion dysregulation facets characterized by non-acceptance of emotions and difficulty persisting in goal directed action would be particularly strong mediators.

Examining these associations advances the literature on African Americans' mental health by quantifying the degree to which socioculturally relevant factors such as racial discrimination are associated with PTSD symptoms as well as one potential process through which this association may occur.

2. Sample 1 (Initial sample)

2.1. Method

2.1.1. Procedures

Data were collected from 2008 to 2013 as part of a large NIMH-funded study examining risk and resilience for PTSD. Participants were recruited from waiting rooms in gynaecology, primary care, and diabetes medical (non-psychiatric) clinics at a publicly funded, non-profit hospital serving a mostly low-income population. Participants were approached at random. To be eligible, participants had to be at least 18 years-old, not actively psychotic, and able to give informed consent. If willing to participate, individuals signed the informed consent approved by the university IRB and the Research Oversight Committee of [Hospital Name Redacted], and an initial interview was administered with questionnaires regarding trauma history and other psychological variables. Trained research assistants administered this interview (approximately 45–75 minutes) in private areas of the waiting rooms of the hospital. Participants were compensated 15 USD for their time.

2.1.2. Participants

Sample 1 included 1,841 African American adults (77.2% women) who ranged from 18 to 76 years-old ($M = 41.10$, $SD = 13.52$). Most participants (94%) reported experiencing at least one traumatic event such as sexual or physical assault ($M = 3.10$, $SD = 2.24$) and most participants (70%) reported experiencing at least one type of racial discrimination ($M = 2.53$, $SD = 2.52$). See Table 1 for detailed demographic information about education, income, and previous psychiatric treatment.

Table 1. Demographics for total sample, Sample 1, and Sample 2.

	Total Sample (<i>n</i> = 2,135)	Sample 1 (<i>n</i> = 1,841)	Sample 2 (<i>n</i> = 294)
Age			
Range	18–76	18–76	18–65
Mean (<i>SD</i>)	41.06 (13.33)	41.10 (13.52)	40.65 (12.07)
Gender (%)			
Men	19.6	22.7	0
Women	80.4	77.2	100
Education (%)			
Less than high school	19.9	19.9	20.2
Highschool or GED	39.2	40.1	34
More than high school	40.9	40.1	45.8
Monthly Household Income (%)			
\$0 – 249	19.3	20.2	10.4
\$250 – 499	8.7	8.7	7.5
\$500 – 999	25.4	24.7	26.7
\$1,000–1,999	28.4	26.9	33.6
\$2,000 or more	18.3	17.3	21.6
Overall Number of Traumas			
Range	0–14	0–14	0–14
Mean (<i>SD</i>)	3.15 (2.24)	3.10 (2.24)	3.45 (2.26)
Previous Mental Health Treatment (% Yes)	31.9	31.6	36.4
Attempted Suicide (% Yes)	14.3	14.2	14.6
Currently Employed (%)	31.2	30	39.5

2.1.3. Measures

2.1.3.1. Experiences of discrimination (EOD).

(Krieger, Smith, Naishadham, Hartman, & Barbeau, 2005) The EOD is a psychometrically validated measure of experiences of discrimination originally developed in the context of a large, public health study examining a racially diverse community sample of adults. Participants were first asked, ‘Have you ever experienced discrimination, been prevented from doing something, or been hassled or made to feel inferior in any of the following situations because of your race, ethnicity, or color?’ and then instructed to respond about nine different situations (e.g., school, work) using a dichotomous scale. Scores were summed to create a total score ($\alpha = .82$).

2.1.3.2. Modified posttraumatic stress disorder symptom scale (mPSS).

(Falsetti, Resnick, Resick, & Kilpatrick, 1993) The mPSS is a reliable and well-validated 17-item measure used to assess PTSD symptoms based on DSM–IV–TR (American Psychiatric Association, 2000) criteria. Participants indicated the degree to which they experienced symptoms such as ‘persistently been making efforts to avoid thoughts or feelings associated’ regarding traumatic experiences on a scale of 0 (not at all) to 3 (five or more times a week). Scores were summed to create a total score ($\alpha = .92$).

2.1.3.3. Emotion Dysregulation Scale, short version (EDS-short).

(Powers, Stevens, Fani, & Bradley, 2015) The EDS-short is a psychometrically validated, 12-item self-report measure of emotion dysregulation. Items assess domains of emotional experience (e.g. ‘Emotions overwhelm me’), cognition (e.g., ‘When I’m upset, everything feels like a disaster or crisis’), and behaviour (e.g., ‘When my emotions are strong, I often make bad

decisions’). Participants indicate the extent to which these items describe them using a scale of 1 (not true) to 7 (very true). Scores were summed to create a total score, with higher scores indicating greater emotion dysregulation ($\alpha = .95$).

2.1.3.4. Traumatic events questionnaire (TEI).

(Gillespie et al., 2009) The TEI is a screening measure that assesses history of trauma exposure. Items assessing adult trauma, including physical assault, sexual assault, natural disasters, etc., were included. For each traumatic event, participants indicated frequency on a scale of 0 (1 time) to 8 (greater than 20 times). A summed score was used for covariate analyses.

2.1.4. Data analytic plan

We used mediation analyses to test our hypotheses regarding racial discrimination’s effect on PTSD symptoms through emotion dysregulation using PROCESS in SPSS. Examining indirect effects allow researchers to test hypotheses about how one variable (*X*; racial discrimination) transmits its effect on an outcome variable (*Y*; PTSD) through an intervening variable (*M*; emotion dysregulation). Consistent with traditional testing of indirect effects, *a* represents the effect of racial discrimination (*X*) on emotion dysregulation (*M*), and *b* represents the effect of emotion dysregulation (*M*) on PTSD symptoms (*Y*) controlling for racial discrimination (*X*). The indirect effect, calculated by multiplying the *a* and *b* path coefficients (i.e., *ab*), quantifies the difference in PTSD (*Y*) resulting from the effect of discrimination on PTSD through its effect on emotion regulation. For completeness, we report both the raw and standardized indirect effects. As per Hayes (Hayes, 2018) recommendation, the indirect effect of racial discrimination on PTSD symptoms through emotion dysregulation is

considered significant if zero is not in the bootstrapped confidence interval.

2.1.5. Results

As depicted in Table 2, racial discrimination was positively associated with more severe emotion dysregulation ($r = .14, p < .01$) and PTSD symptoms ($r = .21, p < .01$). Thus, more frequent experiences of racial discrimination were associated with more severe emotion dysregulation and PTSD symptoms.

As depicted in the top panel of Table 3 and in Figure 1, we found that as predicted, racial discrimination was indirectly associated with PTSD symptoms through racial discrimination's effect on emotion dysregulation ($ab = .35, 95\%CI[.23, .47]$). These results remained significant even when demographic variables (age, income, gender) and adult trauma frequency were included in the models (see top panels of Supplemental Tables 1 and 2).

3. Sample 2 (Replication sample)

3.1. Method

3.1.1. Procedure

Participants were recruited as per the procedures described in Sample 1 from 2014 to 2019 (and thus, were non-overlapping). Participants in the replication sample completed a follow-up clinical interview as part of other ongoing research studies in the laboratory which averaged 2–3 hours to complete. These studies were focused on understanding risk factors for PTSD among women in particular, and thus only women were eligible to participate. For this portion, participants were compensated 60USD.

3.1.2. Participants

The replication sample included 294 African American adults (100% women), ranging between 18 and 65 years-old ($M = 40.65, SD = 12.07$). Most participants (98%) reported experiencing at least one traumatic event ($M = 3.45, SD = 2.26$) and most participants (65%) reported experiencing at least one type of racial discrimination ($M = 2.34, SD = 2.42$). See Table 1 for detailed information.

3.1.3. Measures

3.1.3.1. EOD. Participants were administered the same EOD measure as in Sample 1.

3.1.3.2. Difficulties in emotion regulation scale (DERS). (Gratz & Roemer, 2003) The DERS is a psychometrically valid 36-item measure assessing emotion regulation problems. It captures six dimensions of emotion regulation, including (a) attention to and awareness of emotions; (b) acceptance of one's emotions; (c) ability to execute goal-directed

Table 2. Correlations among main study variables.

	M	SD	Range	α	Sample 1			Sample 2		
					EOD	mPSS	EDS	CAPS-5	EDS	DERS
Racial Discrimination (EOD)	2.50	2.51	0–9	.82	–	–	–	–	–	–
PTSD Symptoms (mPSS)	12.54	12.15	0–51	.92	.21*	–	–	–	–	–
PTSD Symptoms (CAPS-5)	17.37	13.22	0–62	.92	.33*	–	–	–	–	.61*
Emotion Dysregulation (EDS)	37.89	21.24	12–84	.95	.14*	–	–	–	–	–
Emotion Dysregulation (DERS)	71.50	24.04	36–70	.94, .87, .86, .87, .72, .85, .76	.20*, .21*, .17*, .10, .17*, .13*, .16*	–	–	–	–	–
Acceptance (DERS)	11.10	5.30	6–30			–	–	–	–	–
Goals (DERS)	11.61	5.14	5–25			–	–	–	–	–
Impulse (DERS)	11.07	5.37	6–29			–	–	–	–	–
Awareness (DERS)	13.07	4.93	6–27			–	–	–	–	–
Strategies (DERS)	15.01	6.33	8–37			–	–	–	–	–
Clarity (DERS)	9.63	4.05	5–21			–	–	–	–	–

* $p < .05$; Mean and SD of the EOD reflect the combined sample data. For sample 1, EOD $M = 2.53$ and $SD = 2.52$, for sample 2, $M = 2.34$ and $SD = 2.42$. EOD = Experiences of Discrimination; mPSS = Modified PTSD Symptom Scale; CAPS-5 = Clinician Administered PTSD Scale DSM-5; EDS = Emotion Dysregulation Scale – Short; DERS = Difficulties in Emotion Regulation Scale.

Table 3. Model summary information for mediation analyses.

Sample 1											
Y (mPSS)			M (EDS)			Y (mPSS)			Indirect Effects [95%CI]		
Coeff	SE	95% CI	Coeff	SE	95% CI	Coeff	SE	95% CI	Unstandardized	Standardized	
RD	1.00	[.78, 1.21]	1.20	0.19	[.82, 1.58]	0.64	0.10	[.46,.83]	0.35	0.35	[.23,.47]
ED	0.11	/	/	/	/	0.29	0.01	[.27,.32]	0.07	0.07	[.05,.10]
	$R^2 = .04$	$F(1,1839) = 81.8,$ $p < .01$	$R^2 = .02$	$F(1,1839) = 38.1,$ $p < .01$	$R^2 = .30$	$F(2, 1838) = 394.3,$ $p < .01$					
Sample 2											
Y (CAPS-5)			M (DERS: Total)			Y (CAPS-5)			Indirect Effects [95%CI]		
Coeff	SE	95% CI	Coeff	SE	95% CI	Coeff	SE	95% CI	Unstandardized	Standardized	
RD	1.79	[1.20, 2.38]	1.98	0.57	[.87, 3.10]	1.17	0.25	[.68, 1.65]	0.62	0.62	[.26, 1.02]
ED	0.3	/	/	/	/	0.31	0.03	[.26,.36]	0.11	0.11	[.05,.18]
	$R^2 = .11$	$F(1,295) = 35.5,$ $p < .01$	$R^2 = .04$	$F(1,295) = 12.3,$ $p < .01$	$R^2 = .42$	$F(1,294) = 105.7,$ $p < .01$					

CAPS = Clinician Administered PTSD Scale; ED = Emotion Dysregulation; DERS = Difficulties in Emotion Regulation Scale; EDS = Emotion Dysregulation Scale; mPSS = Modified Posttraumatic Symptoms Scale; RD = Racial Discrimination.

behaviour; (d) ability to inhibit impulsive behavioural urges; (e) access to contextually appropriate regulation strategies; and (f) clarity into one's emotional state (Awareness, Acceptance, Goals, Impulse, Strategies, and Clarity, respectively). Items are rated on a Likert-type scale of 1 (almost never, 0–10%) to 5 (almost always, 91–100%) and are averaged to yield a total score and subscale scores, with higher scores indicating greater emotion regulation difficulties (α for total score = .94).

3.1.3.3. Clinician-administered PTSD scale for DSM-5 (CAPS-5). (Weathers et al., 2018) The CAPS-5 is a psychometrically valid and standardized interviewer-administered diagnostic instrument for current PTSD based on DSM-5 criteria. (Blake et al., 1995; Weathers et al., 2018) The CAPS-5 total severity score demonstrated high internal consistency ($\alpha = .92$) and interrater reliability (ICC = 0.91), as well as good test–retest reliability (ICC = 0.78) in previous work using this sample. (Powers et al., 2017)

3.2. Results

Consistent with the correlational results from the initial sample and as depicted in Table 2, racial discrimination was positively associated with higher scores on the DERS ($r = .20$) and PTSD symptoms ($r = .33$). In terms of specific subscales of the DERS, racial discrimination was significantly associated with nonacceptance ($r = .21$), goals ($r = .17$), awareness ($r = .17$), strategies ($r = .13$), and clarity ($r = .16$). It was not, however, associated with impulse ($r = .10$). As depicted in the bottom panel of Table 3 and in Figure 2, we found that as predicted, racial discrimination was indirectly associated with PTSD symptoms through racial discrimination's effect on emotion dysregulation ($ab = .62$, 95%CI[.26, 1.02]). These results remained significant even when demographic variables (age, income) and trauma frequency were included as covariates (see bottom panels of Supplemental Tables 1 and 2).

To follow up on these analyses, we ran a series of six models in which each DERS subscale was included as a mediator (see Table 4). Consistent with the pattern found for correlations, the indirect effect of racial discrimination on PTSD symptoms was significant via nonacceptance ($ab = .48$, 95%CI [.21, .78]), goals ($ab = .50$, 95%CI [.15, .86]), awareness ($ab = .23$, 95%CI [.06, .45]), strategies ($ab = .36$, 95%CI [.05, .69]), and clarity ($ab = .37$, 95%CI [.09, .68]), but not impulse ($ab = .22$, 95%CI [−.03, .50]). To identify which specific effects remained statistically significant when all of the other DERS subscales were controlled for, we included all six DERS subscales as mediators simultaneously (see Table 5). When all six subscales were included as mediators,

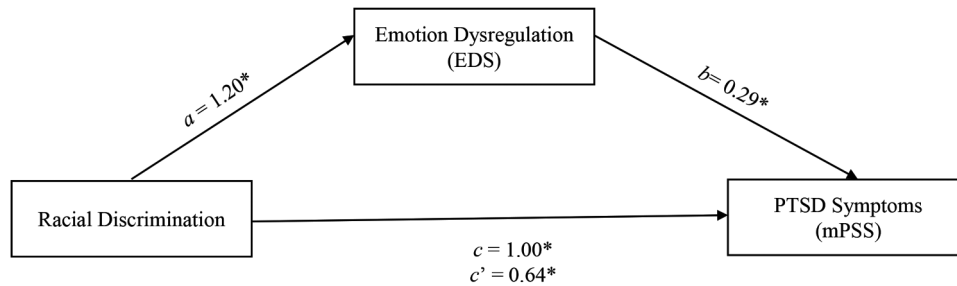


Figure 1. Direct effect of racial discrimination on PTSD in Sample 1.

* $p < .01$.

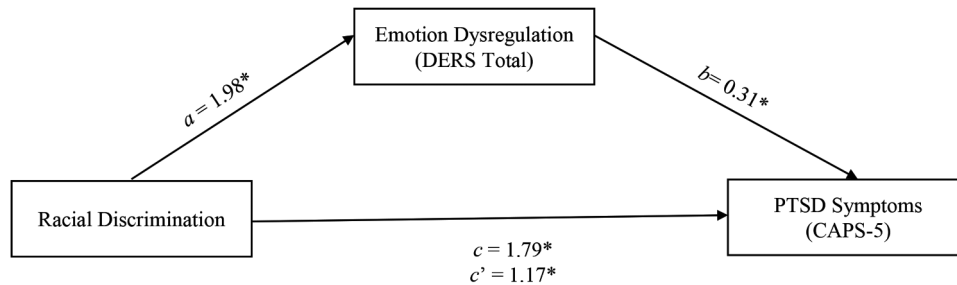


Figure 2. Indirect effect of racial discrimination on PTSD in Sample 2.

* $p < .01$.

only the indirect effect of racial discrimination on PTSD through goals remained significant ($ab = .29$, 95%CI[.08, .57]). Contrast tests indicated that the indirect effects were larger for goals compared to both impulse ($ab_{\text{difference}} = .30$, 95%CI[.07, .61]) and awareness ($ab_{\text{difference}} = .25$, 95%CI[.01, .54]).

4. Discussion

The goal of the current study was to extend the literature on racial discrimination and PTSD by (a) examining associations between racial discrimination, PTSD symptoms, and emotion dysregulation and (b) testing the potentially mediating role of emotion dysregulation in the association between racial discrimination and PTSD symptoms in two independent samples of trauma-exposed African American participants. Across both samples, we found support for our correlational hypotheses, such that racial discrimination was associated with worse PTSD symptoms and emotion dysregulation. We also found empirical support for our mediation hypothesis, such that the association between racial discrimination and PTSD was partially explained by worse emotion dysregulation. These results suggest that racial discrimination's deleterious association with PTSD symptoms can be explained, at least in part, by the effect of racial discrimination on emotion dysregulation. It is possible that the negative emotions elicited by racial discrimination, particularly in the context of invalidation about experiencing discrimination and social pressure to suppress emotions and demonstrate

strength (Watson-Singleton, 2017), may disrupt emotion regulation in ways that make individuals more susceptible to experiencing PTSD symptoms. Somewhat consistent with our fourth hypothesis, our finding implicating difficulties engaging in goal-directed action as a unique mediator when accounting for other aspects of emotion dysregulation suggests that racial discrimination may have a particularly pernicious effect on the ability to persist in desired goals when experiencing negative emotions. Racially discriminatory experiences may also create barriers to goals (e.g., exclusion from a particular opportunity), which could exacerbate difficulty with goal persistence in the context of negative emotions. Thus, racial discrimination may dually influence PTSD symptoms by creating both external and internal barriers to pursuing goals. Those symptoms may, in turn, exacerbate emotion dysregulation by further depleting resources and increasing vulnerability to negative emotionality.

These results have implications for case conceptualizations and psychotherapeutic interventions for African American clients experiencing PTSD symptoms. In terms of case conceptualizations, it may be important for clinicians to develop models incorporating the complex associations between racial discrimination, emotion dysregulation, and PTSD symptoms. Given that our findings remained significant even when accounting for non-race-based trauma exposure, it is incumbent upon clinicians to assess racial discrimination and racial trauma for African American clients, even when racial trauma is not identified as the presenting problem. (Bryant-

Table 4. Model summary information for mediation analyses by DERS subscale in Sample 2.

	DERS Acceptance											
	Y (PTSD Symptoms – CAPS-5)				M (DERS Acceptance)				Y (PTSD Symptoms- CAPS-5)			
	Coeff	SE	95% CI	p	Coeff	SE	95% CI	p	Coeff	SE	95% CI	p
Racial Discrimination	1.31	.28	[.76, 1.85]	<.01	.45	.12	[.21,.70]	<.01	1.79	.30	[1.20, 2.38]	<.01
DERS Acceptance	/	/	/	/	/	/	/	/	1.06	.13	[.81, 1.31]	<.01
	$R^2 = .28.$	$F(2, 294) = 57.21, p < .001$			$R^2 = .04.$	$F(1, 295) = 13.22, p < .001$			$R^2 = .11$	$F(1, 295) = 35.46, p < .01$		
DERS Goals												
	Y (PTSD Symptoms – CAPS-5)				M (DERS Goals)				Y (PTSD Symptoms- CAPS-5)			
Racial Discrimination	1.29	.26	[.79, 1.79]	<.01	.37	.12	[.13,.61]	<.01	1.79	.30	[1.20, 2.38]	<.01
DERS Goals	/	/	/	/	/	/	/	/	1.36	.12	[1.12, 1.59]	<.01
	$R^2 = .38.$	$F(2, 294) = 89.29, p < .001$			$R^2 = .03.$	$F(1, 295) = 9.12, p < .01$			$R^2 = .11$	$F(1, 295) = 35.46, p < .01$		
DERS Impulse												
	Y (PTSD Symptoms – CAPS-5)				M (DERS Impulse)				Y (PTSD Symptoms- CAPS-5)			
Racial Discrimination	1.56	.27	[1.03, 2.10]	<.01	.21	.13	[-.04,.47]	.10	1.79	.30	[1.20, 2.38]	<.01
DERS Impulse	/	/	/	/	/	/	/	/	1.05	.12	[.81, 1.29]	<.01
	$R^2 = .29.$	$F(2, 294) = 59.61, p < .001$			$R^2 = .01.$	$F(1, 295) = 2.75, p = .01$			$R^2 = .11$	$F(1, 295) = 35.46, p < .01$		
DERS Awareness												
	Y (PTSD Symptoms – CAPS-5)				M (DERS Awareness)				Y (PTSD Symptoms- CAPS-5)			
Racial Discrimination	1.56	.30	[.98, 2.14]	<.01	.35	.12	[.13,.58]	<.01	1.79	.30	[1.20, 2.38]	<.01
DERS Awareness	/	/	/	/	/	/	/	/	.64	.15	[.36,.93]	<.01
	$R^2 = .16.$	$F(2, 294) = 28.58, p < .001$			$R^2 = .03.$	$F(1, 295) = 9.25, p < .01$			$R^2 = .11$	$F(1, 295) = 35.46, p < .01$		
DERS Strategies												
	Y (PTSD Symptoms – CAPS-5)				M (DERS Strategies)				Y (PTSD Symptoms- CAPS-5)			
Racial Discrimination	1.42	.26	[.92, 1.93]	<.01	.34	.15	[.04,.64]	.03	1.79	.30	[1.20, 2.38]	<.01
DERS Strategies	/	/	/	/	/	/	/	/	1.07	.10	[.88, 1.27]	<.01
	$R^2 = .37.$	$F(2, 294) = 85.26, p < .001$			$R^2 = .02.$	$F(1, 295) = 5.06, p < .05$			$R^2 = .11$	$F(1, 295) = 35.46, p < .01$		
DERS Clarity												
	Y (PTSD Symptoms – CAPS-5)				M (DERS Clarity)				Y (PTSD Symptoms- CAPS-5)			
Racial Discrimination	1.42	.27	[.88, 1.95]	<.01	.26	.10	[.07,.45]	<.01	1.79	.30	[1.20, 2.38]	<.01
DERS Clarity	/	/	/	/	/	/	/	/	1.43	.16	[1.11, 1.75]	<.01
	$R^2 = .29.$	$F(2, 294) = 61.20, p < .001$			$R^2 = .02.$	$F(1, 295) = 7.29, p < .01$			$R^2 = .29$	$F(1, 295) = 61.20, p < .001$		

Indirect Effects [95%CI]

Unstandardized

Standardized

ab_s

Indirect Effects [95%CI]

Unstandardized

Standardized

ab_s

Indirect Effects [95%CI]

Unstandardized

Standardized

ab_s

Indirect Effects [95%CI]

Unstandardized

Standardized

ab_s

Table 5. Multiple mediation analyses with all DERS subscales in Sample 2.

	Path	Coeff	SE	95% CI	<i>p</i>
Total Effect	<i>c</i>	1.79	.30	[.14,.33]	<.01
Direct Effect (<i>c'</i>)	<i>c'</i>	1.13	.25	[.09,.21]	<.01
RD to Non-Acceptance	<i>a</i> ₁	.45	.12	[.21,.70]	<.01
RD to Goals	<i>a</i> ₂	.37	.11	[.13,.61]	<.01
RD to Impulse	<i>a</i> ₃	.21	.13	[-.04,.47]	0.10
RD to Awareness	<i>a</i> ₄	.35	.12	[.13,.58]	<.01
RD to Strategies	<i>a</i> ₅	.34	.15	[.04,.64]	0.03
RD to Clarity	<i>a</i> ₆	.26	.10	[.07,.45]	0.01
Non-Acceptance to PTSD	<i>b</i> ₁	.23	.15	[-.07,.53]	0.14
Goals to PTSD	<i>b</i> ₂	.80	.17	[.47, 1.13]	<.01
Impulse to PTSD	<i>b</i> ₃	-.01	.17	[-.33,.32]	0.96
Awareness to PTSD	<i>b</i> ₄	.13	.14	[-.15,.41]	0.37
Strategies to PTSD	<i>b</i> ₅	.32	.17	[-.01,.65]	0.06
Clarity to PTSD	<i>b</i> ₆	.39	.22	[-.04,.82]	0.08
<i>Indirect Effects (Unstandardized)</i>					
Total Indirect Effect	<i>ab</i>	.65	.21	[.25, 1.07]	
Non-Acceptance	<i>a</i> ₁ <i>b</i> ₁	.10	.09	[-.05,.29]	
Goals	<i>a</i> ₂ <i>b</i> ₂	.30	.12	[.08,.56]	
Impulse	<i>a</i> ₃ <i>b</i> ₃	.00	.04	[-.09,.08]	
Awareness	<i>a</i> ₄ <i>b</i> ₄	.05	.06	[-.06,.18]	
Strategies	<i>a</i> ₅ <i>b</i> ₅	.11	.09	[-.03,.31]	
Clarity	<i>a</i> ₆ <i>b</i> ₆	.10	.08	[-.01,.28]	
<i>Indirect Effects (Standardized)</i>					
Total Indirect Effect	<i>a</i> ₁ <i>b</i> ₁	.12	.04	[.05,.19]	
Non-Acceptance	<i>a</i> ₂ <i>b</i> ₂	.02	.02	[-.01,.05]	
Goals	<i>a</i> ₃ <i>b</i> ₃	.05	.02	[.02,.10]	
Impulse	<i>a</i> ₄ <i>b</i> ₄	.00	.01	[-.02,.02]	
Awareness	<i>a</i> ₅ <i>b</i> ₅	.01	.01	[-.01,.03]	
Strategies	<i>a</i> ₆ <i>b</i> ₆	.02	.02	[-.004,.06]	
Clarity	<i>a</i> ₁ <i>b</i> ₁	.02	.01	[-.003,.05]	

RD = Racial discrimination; PTSD = PTSD symptoms assessed by CAPS-5.

Davis & Ocampo, 2005, 2006) This may involve addressing the meaning and attribution of the events, the client's explanatory models related to the events, and perceived strengths that enhance coping behaviours. (Bryant-Davis & Ocampo, 2006) Unfortunately, many clinicians may be unaware of the effects of racism on their clients' psychological functioning due to lack of training in cultural competence and the tendency in society to deny or fail to acknowledge racism, which may negatively impact the therapeutic relationship. (Burkard, Edwards, & Adams, 2016; Burkard & Knox, 2004; Carter, 2007) For this reason, clinicians should acknowledge that racism exists (Case, 2015), and be particularly attentive to the multiple ways racial discrimination can play a functional role in the symptoms experienced by African American clients as well as how racial discrimination may play a role in the therapeutic relationships with clients (Comas-Díaz, 2016).

Our findings implicating emotion dysregulation as a mediator in the discrimination-PTSD symptoms link suggest it may be a vital target of intervention when treating PTSD symptoms in African Americans. While prolonged exposure (PE) therapy for PTSD has demonstrated efficacy in many studies (McLean & Foa, 2011), significant concerns persist regarding its acceptability in clinical care, and this is especially relevant for racial and ethnic minority clients. Difficulty tolerating arousal is a commonly identified barrier to retention (Najavits, 2015), and

for African Americans, insufficient cultural sensitivity in assessment and treatment may present additional barriers to treatment. (Gnautati, 2019; Gutner, Gallagher, Baker, Sloan, & Resick, 2016) Implementing the skills training in affect and interpersonal regulation (STAIR) protocol, designed for individuals who have experienced chronic trauma, prior to PE may enhance overall treatment effects. (Cloitre et al., 2010) In addition, cultural adaptations of PE for treating PTSD symptoms in African Americans that explicitly incorporate in vivo and imaginal exposures to racial discrimination may reduce drop out (Ennis et al., 2020; Williams et al., 2014) and are essential to the efficacy of the intervention for populations disproportionately affected by trauma and racial discrimination (Owen, Tao, Leach, & Rodolfa, 2011; Turner et al., 2016).

Although the current findings advance the literature, several limitations must be considered. First, data used were cross-sectional, which obfuscates our understanding of temporal or causal dynamics in the associations between racial discrimination, emotion dysregulation, and PTSD. Although it is possible that PTSD may cause deficits in emotion regulation, prospective studies suggest that emotion dysregulation is more likely to precede these symptoms. (Pencea et al., 2020) Nevertheless, it is important to replicate these findings using longitudinal and experimental methodology to identify if racial discrimination's effect on emotion dysregulation is causal. Second, the relatively small associations between racial discrimination and emotion dysregulation suggests that investigation of additional mediators is warranted. Furthermore, given evidence that African Americans may respond in distinct ways to race-relevant stressors (Hoggard et al., 2012), it may be useful to develop measures that specifically capture race-relevant emotion regulation processes (e.g., managing negative emotions in reaction to racial discrimination). Third, the demographics of our samples and our methods for assessing social demographics preclude generalizability to other populations experiencing identity-based marginalization. While it is important to prioritize African American women due to their experiences at the intersection of racism and sexism (Bryant-Davis, 2019; Cole, 2009), the wording of our demographics questions did not allow us to test whether these results differed for individuals with other gender identities. We also did not assess sexual orientation, which limits our ability to understand how multiple systems of oppression may impact PTSD symptoms. (Bostwick et al., 2014; Keating & Muller, 2020) For example, Black members of the LGBTQ+ community who, in addition to racial discrimination, experience other identity-based violence and discrimination (e.g., transphobia, homophobia)(Whitfield, Walls, Langenderfer-Magruder, & Clark, 2014) in

ways that may increase PTSD symptoms should be prioritized in future work. (Reisner et al., 2016) Fourth, although using more sophisticated assessments of emotion dysregulation and PTSD symptoms in the second sample was a strength and served as a conceptual replication, it precluded our ability to conduct a direct replication. (Simons, 2014) Finally, our racial discrimination frequency assessment did not contain nuanced assessments of other types of racial discrimination (e.g., microaggressions)(Sue et al., 2008) or discrimination that occurs at different levels (e.g., cultural, institutional)(Williams, 2018) which limits our understanding of how different types of racial discrimination may confer risk for mental health symptoms.

The current study is the first to demonstrate that racial discrimination is associated with PTSD symptoms through emotion dysregulation among African Americans. These findings are particularly useful in that they identify modifiable emotion regulatory processes that can be intervened upon to enhance the psychological and social wellbeing of African Americans. Moreover, these findings add to a growing body of work that elucidates potential mechanisms through which racial discrimination may negatively impact the mental health of African Americans.

Acknowledgments

We would like to thank the entire Grady Trauma Project team for their assistance in data collection and management for this project and the Grady Trauma Project participants for their willingness to be involved in our research.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This work was supported by the National Institute of Mental Health (MH071537; MH100122; MH102890; MH115174), National Institute of Child Health and Human Development (HD071982), National Center for Complementary and Integrative Health (K23AT009713), and National Institute of Aging (AG062334).

Disclaimer

The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health. Additionally, the contents of this report do not represent the views of the Department of Veterans Affairs or the USA Government. There are no disclosures to report.

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Data availability

The data supporting the findings of this study are available here: <https://osf.io/23yke/>

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