Behavioural and Cognitive Psychotherapy, 2023, **51**, 396–413
doi:10.1017/S1352465823000188

BABCP
www.babcp.com

MAIN

A pilot study of experiencing racial microaggressions, obsessive-compulsive symptoms, and the role of psychological flexibility

Morgan E. Browning, Elizabeth E. Lloyd-Richardson, Sidney L. Satterfield and Akshay V. Trisal

Department of Psychology, University of Massachusetts Dartmouth, North Dartmouth, MA 02747, USA
Corresponding author: Elizabeth E. Lloyd-Richardson, E-mail: elizabeth.richardson@umassd.edu

(Received 14 November 2022; revised 23 March 2023; accepted 30 March 2023; first published online 25 May 2023)

Abstract

Background: Experiencing racial microaggressions has clear effects on physical and psychological health, including obsessive-compulsive disorder symptoms (OCS). More research is needed to examine this link. Psychological flexibility is an important process to examine in this work.

Aims: This study aimed to examine if, while controlling for depression and anxiety, experiences of microaggressions and psychological flexibility helped explain OCD symptoms within a university-affiliated sample (undergraduate, graduate and law students). This was a pilot exploration of the relationships across themes.

Method: Initial baseline data from a longitudinal study of psychological flexibility, OCD symptoms, depression, anxiety and experience of microaggressions was utilized. Correlations and regressions were utilized to examine which OCD symptom dimensions were associated with experiencing racial microaggressions in addition to anxiety and depression, and the added role of psychological flexibility was examined.

Results: OCD symptoms, experiences of microaggressions and psychological flexibility were correlated. Experiences of racial microaggressions explained responsibility for harm and contamination OCD symptoms above and beyond psychological distress. Exploratory results support the relevance of psychological flexibility.

Conclusion: Results support other work that experiences of racial microaggressions help explain OCS and they add some support for psychological flexibility as a relevant risk or protective factor for mental health in marginalized populations. These topics should be studied longitudinally with continued consideration of all OCD themes, larger sample sizes, intersecting identities, clinical samples, and continued exploration of psychological flexibility and mindfulness and values-based treatments.

Keywords: Acceptance and commitment therapy; Microaggressions; Obsessive-compulsive symptoms; Psychological flexibility; Racism

Introduction

Racism, including experiencing racial microaggressions, and related stress, have become even more pronounced problems during the COVID-19 pandemic, and they are associated with later inflammation, chronic health conditions, suicidal ideation, externalizing and internalizing symptoms, and alcohol-related problems (Liu and Modir, 2020; Spanierman *et al.*, 2021; Williams, 2020; Williams *et al.*, 2023). Research needs to further examine the association between racial microaggressions and health/mental health problems to facilitate development

of culturally competent strengths-based prevention and intervention efforts (Sosoo *et al.*, 2020; Spanierman *et al.*, 2021; Williams, 2020).

Racial microaggressions are interactions of BIPOC (Black, Indigenous, and people of colour) with typically White perpetrators in a racialized social system that imply their inferiority or dismiss aspects of BIPOC identity or experience (Spanierman *et al.*, 2021; Sue *et al.*, 2007). Farahani *et al.* (2022) discuss how often intention to cause harm or perceived lack thereof can lead to difficulties aligning microaggressions as a form of defined aggression/violence, and they state that intention instead is not always part of a definition of violence/aggression, and that microaggressions can be understood as offensive, frustrating to victims, and acts that harm someone not willing to be harmed.

Of note, throughout this paper we used the term 'minoritized' to reflect someone who belongs to an under-represented racial or ethnic minority group in the United States (American Psychiatric Association, 2022; Flanagin *et al.*, 2021).

Experiencing racial microaggressions may relate to depletion of cognitive resources from related stress, other unhelpful cognitive appraisals about the meaning of these experiences, and subsequent reduced ability to manage intrusive thoughts (Williams *et al.*, 2017b; Willis and Neblett, 2018). Vigilance or racial battle fatigue may be implicated in this process (Williams *et al.*, 2017b). Vigilance, or monitoring and adjusting one's behaviour to protect oneself from discrimination has mediated the link between discrimination and stress (Himmelstein *et al.*, 2015). Racial battle fatigue encompasses social, psychological and physiological responses to experiencing racism and was associated with tension, fatigue, elevated heart beat and blood pressure, feelings of frustration, exhaustion, intrusive thoughts, avoidance and withdrawal, fighting back, or potential acceptance of racist ideas (Smith *et al.*, 2007). Martinez *et al.* (2022b) provide a literature review on other models of coping with race-related stress that illustrate how stress from racism may then lead to rumination, negative health behaviours, decreased cognitive flexibility, and unhelpful and rigid use of coping skills.

Obsessive-compulsive disorder

OCD involves obsessions and compulsions (American Psychiatric Association, 2013), and negatively influences quality of life in clinical and non-clinical populations across racial identities (Himle *et al.*, 2008; Macy *et al.*, 2013). This paper works from Abramowitz *et al.*'s (2010) dimensional model with four symptom categories: responsibility for harm, symmetry, unacceptable thoughts, and contamination. OCD is heterogenous and understanding presentations according to symptom dimensions can help inform treatment (Lochner and Stein, 2003; Pinciotti *et al.*, 2021). Additionally, we use an analogue sample of college students, relevant in research given the prevalence of obsessive-compulsive symptoms (OCS) across the population (Abramowitz *et al.*, 2014; Willis and Neblett, 2018).

Lifetime prevalence of OCD is similar across the whole population (1.6%) (Kessler *et al.*, 2005), African American and Caribbean Black people (1.6%), and other racially minoritized groups (Katz *et al.*, 2020). However, experience of OCS across racially minoritized groups and cultures, as well as use of treatments, differs, such as ethnic minority people accessing evidence-based treatments like exposure with response prevention and medication less than people who are not ethnically minoritized, or with potentially higher occurrences of panic disorder amongst Caribbean Black people (Himle *et al.*, 2008; Katz *et al.*, 2020). Furthermore, African Americans and European Americans had similar levels of OCS but different cognitive strategies for addressing them (Nota *et al.*, 2014). Similarly, among participants in intensive/residential treatment for OCD, having a higher composite marginalized identity score was associated with greater OCS severity, namely more severe contamination, responsibility for harm, and symmetry symptoms (Wadsworth *et al.*, 2020).

https://doi.org/10.1017/S1352465823000188 Published online by Cambridge University Press

The experience of racial microaggressions and obsessive-compulsive symptoms

It is clear that racism has associated mental health difficulties, and it has specific associations with OCS as well that need to be further studied. There is a need for a more thorough understanding of links between anxiety-related diagnoses and diagnoses that have anxiety as a symptom like OCD, and their links with racism (MacIntyre *et al.*, 2023). They summarize in their review that experiencing racial discrimination is associated with higher OCD symptom severity, with racial identity beliefs sometimes acting as vulnerability factors and sometimes acting as protective factors (MacIntyre *et al.,* 2023).

Among over 3000 African American participants, everyday racial discrimination was related to presence of contamination and unacceptable thoughts-themed obsessions, multiple types of compulsions, and amount of obsessions and compulsions (Williams *et al.*, 2017b). Symptoms of OCD are associated with distress from experiencing racial microaggressions (Willis and Neblett, 2018). A large study of Black Caribbean and African American adults found associations with racial discrimination and contamination, harm, washing, and repeating OCS (Williams *et al.*, 2021). As MacIntyre *et al.* (2023) state, much of the existing literature is on Black Americans, so more work is needed for other ethnic and racial groups of people. Furthermore, research designed to understand causal mechanisms and risk/protective factors in this relationship between racism and OCD is an additional important next step (Willis and Neblett, 2018).

Psychological flexibility and inflexibility

Psychological flexibility (ability to recognize, adapt, and respond to internal or external experiences while aware of one's values; Kashdan and Rottenberg, 2010) is an important construct. Psychological flexibility and inflexibility are at either end of a spectrum of responding to internal and external experiences in an open, aware, and valued way (Kashdan and Rottenberg, 2010). These ideas relate to the literature on the relevance of cognitive appraisals in the link between discrimination and stress (King, 2005; Williams *et al.*, 2017b) and the role of therapists in facilitating protective factors against racial trauma such as cultural identity, social support and sense of belonging (Liu and Modir, 2020).

Similarly, a recent review of how Black people cope with racism found that people flexibly use a variety of strategies, such as active coping and problem-solving for institutional racism, spirituality-based strategies for interpersonal racism, or collective coping, social support and problem-solving for cultural racism (Jacob *et al.*, 2022). Similar to Jacob *et al.*'s (2022) emphasis on future research and clinical work that focuses on functional and flexible use of coping strategies, psychological flexibility/inflexibility broadly can also be conceptualized as flexible and functional use of multiple processes including defusion, committed action, experiential avoidance, acceptance, self as context, and awareness of the present moment according to context and someone's values (Hayes *et al.*, 2006).

For instance, psychological flexibility measured broadly, or as specific processes such as experiential avoidance, is associated with mental health outcomes after experiencing racism and discrimination, such that more avoidance and inflexible coping leads to worsened mental health and avoidance, and more mindful awareness can buffer these negative impacts (Davis *et al.*, 2021; Martinez *et al.*, 2022a; Masuda *et al.*, 2022; Miller and Orsillo, 2020; Zvolensky *et al.*, 2022). These studies encompass participants from a variety of racial and ethnic backgrounds. Thus, psychological flexibility and acceptance and commitment therapy (ACT) align with Martinez *et al.*'s (2022b) review on how coping with racism can lead to rigid and inflexible coping, and how mindfulness and values-based interventions, components of psychological flexibility, can target those struggles. Evidence suggests that these treatments are acceptable to people from marginalized backgrounds (Fuchs *et al.*, 2016).

https://doi.org/10.1017/S1352465823000188 Published online by Cambridge University Press

In one of the first meta-analyses at the time, examining use of acceptance and mindfulness-based treatments for people from diverse backgrounds related to refugee status, race, forensic, and older adults, Fuchs *et al.* (2013) found small to large effect sizes depending on design and comparison condition, with overall small sample sizes, providing initial support but a need for future research. Other research and reviews have echoed that there is theoretical and research support for acceptance and mindfulness-based treatments for Black people and people of colour (POC), but overall there is a need for more studies with these treatments and populations (Dawson *et al.*, 2022; Dela Cruz *et al.*, 2022; Martinez *et al.*, 2022b; Trefethen, 2019). MacIntyre *et al.* (2023) reiterate the general need for new interventions to be validated to help people cope with anxiety disorders related to racism. Thus there is clear literature support for psychological flexibility-informed treatments, with additional research needed exploring their benefits to POC.

Psychological inflexibility and experiential avoidance are also associated with OCS and psychological distress (Angelakis and Pseftogianni, 2021; Bond *et al.*, 2011). ACT, of which psychological flexibility/inflexibility is a process of change, is effective for treating OCD, as are mindfulness-based interventions (Bluett *et al.*, 2014; Chien *et al.*, 2022; Twohig *et al.*, 2010). Also, psychological flexibility is a process of change in ACT and traditional exposure and response prevention (ERP) for OCD (Schubert *et al.*, 2022). Furthermore, it is important to understand contextual variables that lead to resilience from developing OCD symptoms in response to a stressor such as the COVID-19 pandemic or racism in order to inform clinical and public health strategies (Grant *et al.*, 2022).

Many recent measures of psychological flexibility do not take into account all six theoretical skill components (acceptance, present moment awareness, defusion, awareness of values, committed action, and self as context) or do not do so in a way that is sensitive to context and time variabilities (i.e. asking participants to answer broadly forcing an answer to speak to trait like differences instead of state differences) (Gloster *et al.*, 2021). Additionally, it is important that measures are validated for both clinical and non-clinical samples and are brief for ease of participation, and Gloster *et al.* (2021) provides one recent example with their Psy-Flex measure.

Aims and hypotheses

The current project is a cross-sectional pilot examination of university undergraduate, graduate and law students who endorse non-White racial identities. It aimed to provide initial research on cognitive mechanisms, specifically psychological flexibility, explaining OCS above and beyond the experience of racial microaggressions using the dimensional model of OCD with an exploration of symptom themes, and a recent conceptualization of psychological flexibility, to pave the way for future longitudinal studies.

Aim 1

Aim 1 was to examine whether or not experiences of racial microaggressions correlated with OCS, and whether or not psychological flexibility correlated with OCS. With baseline correlations we expected significant and moderate to strong relationships such that more experiences of racial microaggressions correlated with increased OCS, and higher psychological flexibility correlated with lower OCS.

Aim 2

Aim 2 was to examine how experiences of racial microaggressions explained OCS, and if psychological flexibility added to that explanation, while co-varying for psychological distress

https://doi.org/10.1017/S1352465823000188 Published online by Cambridge University Press

(depression and anxiety). Regression models to test this aim were only built if either total OCD symptoms or a specific symptom theme significantly correlated with experiences of racial microaggressions in Aim 1. Given we expected experiences of racial microaggressions to relate to all total/symptom themes for OCS, we expected this to be the case while co-varying for psychological distress, and we expected that psychological flexibility would significantly add to the models, such that both psychological distress and experiences of racial microaggressions would relate to more OCS, and psychological flexibility would have a negative influence on OCS.

Exploratory aims

Finally, the measure used in this study was a newer measure of psychological flexibility (Gloster *et al.*, 2021), with little research examining its use with OCD, let alone in conjunction with experiences of microaggression. Also, the measure has items that relate to specific components of psychological flexibility in addition to its total score. Therefore we examined correlations between components of the psychological flexibility measure and experiences of microaggressions and OCS.

Hypotheses

Generally, we expected (based on past research) that experiences of racial microaggressions would relate positively and strongly to total OCS and all subscales in addition to psychological distress (Angelakis and Pseftogianni, 2021; Williams *et al.*, 2017b). Additionally, we expected that psychological flexibility would also relate strongly, but negatively, to total OCS, all OCS subscales, and experiences of racial microaggressions, with specific contributions to explaining OCS (Angelakis and Pseftogianni, 2021; Wadsworth *et al.*, 2020; Williams *et al.*, 2017b).

Method

Procedure

All participants consented to participate in the study and were entered in a gift card raffle if they completed 75% of the survey. The survey took place on the Qualtrics platform (Qualtrics, Provo, UT) (Qualtrics, 2023).

The sample was recruited through dissemination over email to students who are 18 years or older in total at a mid-sized public northeastern university in the United States. The university has degrees/majors organized into colleges of business, engineering, nursing/health sciences, arts and sciences, online and continuing education, law, marine science, and an honours college. Students are accounted for by the university for communication and reporting purposes based on if they are in an undergraduate degree program or graduate degree program in any of the colleges besides law, or if they are a student at the law school. Thus to sample from the entire population of adult students, students were recruited through an email to 7327 students in total, including 5397 undergraduate, 1571 graduate, and 359 law level students.

Data in this manuscript are from participants who completed baseline data during October 2022 as part of a larger longitudinal study where they filled out questionnaires twice, one month a part. They received reminders about the study two weeks apart in October on the email list with encouragement to participate. All emails about the study were sent in messages from the research team that were facilitated by the coordinator for institutional enrolment. Of note, this study had originally planned to also collect data through social media recruitment but ran into many obstacles with data quality and bots; this sample is described in a manuscript in progress by the authors, as well as reflections on data integrity in internet research.

https://doi.org/10.1017/S1352465823000188 Published online by Cambridge University Press

Table 1. Sociodemographic characteristics of participants at baseline and descriptive statistics

Characteristic	*n*	%	*M*	*SD*	Characteristic	*n*	%
Highest educational level completed					Race		
High school	21	27.3%	—	—	American Indian/Alaska Native	3	3.9%
Some college	22	28.6%	—	—	Asian	31	40.3%
Associate's degree	6	7.8%	—	—	Bi-racial	9	11.7%
Bachelor's degree	13	16.9%	—	—	Black	31	40.3%
Some graduate courses	7	9.1%	—	—	Hawaiian/Pacific Islander		
Master's degree	7	9.1%	—	—	Multi-racial	8	10.4%
Doctoral/professional degree	1	1.3%			Middle Eastern/North African	6	7.8%
Gender					White	16	20.8%
Female	36	46.8%	—	—	Ethnicity		
Male	37	48.1%			Not Hispanic/Latino	60	77.9%
Trans	3	3.9%	—	—	Hispanic/Latino	17	22.1%
Gender not listed	1	1.3%	—	—	Most common first languages		
Sexual orientation					English	58	75.3%
Heterosexual	56	72.7%			Telegu	4	5.2%
Bisexual	15	20.8%	—	—	Tamil	2	2.6. %
Not listed	2	2.6%			Most common second languages		
Do you feel marginalized?					None	24	31.2%
Yes	44	57.1%	—	—	Spanish	11	14.3%
No	33	42.9%			English	20	26%
Experience with psychotherapy			—	—	Haitian Creole	4	6.5%
Brief experience (1–3 months)	12	15.6%	—	—	Psychology major[c]		
Moderate experience (3 months–1 year)	18	23.4%			Yes	17	30.4%
Much experience (1 year or more)	15	19.5%	—	—	No	39	69.6%
No experience	32	41.6%	—	—	Current therapy		
History of mental health diagnosis					Yes	15	19.5%
At least one psych diagnosis	24	68.8%	—	—	No	60	77.9%
Does not have any psych diagnoses	53	31.2%	—	—	Wish not to answer	2	2.6%
Age	—	—	24.78	8.26			
Overall obsessive compulsive symptoms[a]	—	—	18.88	13.90			
Unacceptable Thoughts OCS subscale[a]	—	—	4.73	4.74			
Responsibility for Harm OCS subscale[a]	—	—	5.32	4.61			
Contamination OCS subscale[a]	—	—	4.84	3.94			
Symmetry OCS subscale[a]	—	—	3.99	3.77			
Psychological flexibility	—	—	20.70	4.24			
Psychological distress	—	—	5.17	3.65			
Experiences of microaggressions[b]	—	—	29.36	20.51			

[a]Scores came from total and subscales of the DOCS.
[b]Microaggressions measured by the Daily Life Experience–Short Form.
[c]Psychology major statistics reflect out of those who reported some college and above.

Participants

Participants included 77 undergraduate, graduate and law students from one university. Participants were on average 24.78 years of age ($SD = 8.26$). In terms of education, students were asked to report the highest level of education they had completed, out of high school, some college, associate's degree, bachelor's degree, some graduate courses, master's degree, and doctoral/professional degree. Frequencies in each category are reported in Table 1. Overall, 49 participants (63.6%) of participants reported having completed high school, or some college courses, reflecting that most of the study participants were current undergraduate students spread across progress in their degree. Participants who reported some college or more education were asked if they studied psychology, and most were not a psychology major ($n = 39$, 69.6%).

https://doi.org/10.1017/S1352465823000188 Published online by Cambridge University Press

In total, 37 participants (48.1%) identified as male, 36 (46.8%) identified as female, and four (5.2%) identified as trans, gender non-conforming, genderfluid, non-binary, or did not answer. For sexual orientation, 56 (72.7%) identified as heterosexual, 15 (20.8%) as bisexual and two (2.6%) responded that their option was not listed. Participants could endorse more than one racial identity, but all had at least one identity other than White. Endorsed racial identities included: White ($n = 16$, 20.8%), Black ($n = 31$, 40.3%), American Indian/Alaska Native ($n = 3$, 3.9%), Asian ($n = 31$, 40.3%), Middle Eastern/North African ($n = 6$, 7.8%), multi-racial ($n = 8$, 10.4%), and bi-racial ($n = 9$, 11.7%). There was a diverse range of languages with the majority having a second language ($n = 53$, 68.8%). Overall, 17 participants (22.1%) identified as Hispanic/Latino, and roughly 20% felt marginalized in their community as a result of one or more of their identities ($n = 17$, 22.1%). Most participants were not currently in therapy ($n = 60$, 77.9%) but the majority had been diagnosed with at least one psychiatric diagnosis ($n = 24$, 68.8%).

The university student body has about 35% of students who are people of colour, 50% first-generation college students, and 75% of students who receive financial aid (UMass Dartmouth, n.d.).

Measures

Experience of racial microaggressions were measured using the Daily Life Experiences-Frequency Scale (DLEFS), an 18-question scale with a total sum score that assesses past frequency of occurrence of daily discrimination events (Harrell *et al.*, 1997; Lee *et al.*, 2021). Cronbach's α was .951.

OCS were measured using the Dimensional Obsessive-Compulsive Scale (DOCS), a 20-item dimensional measure that offers a total symptom score as well as assessment of four distinct themes: contamination, responsibility for harm and mistakes, incompleteness/asymmetry, and taboo thoughts (Abramowitz *et al.*, 2010). Cronbach's α for the Overall Obsessive Compulsive Symptoms (OCS) was .939, with individual Cronbach's α scores of Unacceptable Thoughts OCS being .981, Responsibility for Harm OCS Cronbach's α being .851, Contamination OCS being .851, and a Cronbach's α of .872 for Symmetry OCS.

To measure psychological flexibility, the Psy-Flex measure was used, a 6-item measure of the presence of psychological flexibility in the past week according to each of the six components (mindfulness, acceptance, cognitive defusion, self as context, awareness of values and committed action; Gloster *et al.*, 2021). We utilized the sum of all items, which is the validated way to score the measure (Gloster *et al.*, 2021) and examined item scores in exploratory analyses given their additional usefulness in treatment planning as per Gloster *et al.* (2021). Cronbach's α was .735.

For psychological distress, we utilized a combined measure of anxiety and depression, the Patient Health Questionnaire-4, (PHQ-4) (Kroenke *et al.*, 2009). This measure is a well-validated screener in clinical and non-clinical populations combining two other well-validated questionnaires for depression and anxiety that refers to the last two weeks with two items about depression and two items about anxiety assessing main overall criteria; there is a clinical cut-off of 3 on both anxiety and depression subscales (Kroenke *et al.*, 2009; Kroenke *et al.*, 2010; Löwe *et al.*, 2010). Cronbach's α was .893.

Data quality management plan

Steps outlined in this study were designed based on the study team's experience and consultations with colleagues, but after a retrospective literature review, many strategies did align with those recommended (Griffin *et al.*, 2022; Pozzar *et al.*, 2020). Age was asked twice, there were three attention-check multiple choice questions phrased in the language of the survey they were

https://doi.org/10.1017/S1352465823000188 Published online by Cambridge University Press

embedded in, participants were asked their favourite animal and color, they were asked to provide their emails, and to provide any feedback they had. Additionally, they had to be over 18 and endorse at least one non-White racial identity to be eligible for the study. Participants were told ahead of time that they needed to answer the multiple-choice attention check questions correctly and complete 75% of the questionnaire to be entered in the gift card raffle.

Overall, 178 people opened the survey. Nobody under age 18 opened the survey. In total, one person was screened as spam, two did not consent, and 41 people only endorsed a White identity. This left 134 participants eligible, and of those, 77 completed all three multiple choice data checks correctly (57%). They all entered their age the same at both points it was asked, and although some did not have a colour or animal in the validity check question, given that their answers related to standard English conventions and related to the question, and given that they passed other checks, their answers were kept.

Analytical plan

All analyses were completed with IBM SPSS, version 28 (IBM, 2021).

Aim 1

Aim 1 examined correlational analyses between experiences of racial microaggressions and OCD symptoms and subscales, and between psychological flexibility and total OCS and subscales. Additional correlations between psychological distress (combined depression and anxiety) and all variables, and between experiences of racial microaggressions and psychological flexibility were examined for additional descriptives, and to account for any multicollinearity.

Aim 2

Aim 2 used regression analyses with a combined anxiety and distress score in the first step, and then experience of microaggressions and psychological flexibility entered in steps two and three. Models were only built for that OCD subscale if experience of microaggressions correlated with it significantly.

Exploratory analyses

Exploratory correlations included relationships between psychological flexibility sub-processes and experience of microaggressions and OCD symptoms.

Power analysis

The largest possible cross-sectional model had three predictors (combined depression/anxiety, experiences of microaggressions, and psychological flexibility). We utilized G*Power (Faul *et al.*, 2007) to estimate sample size for desired power with an *a priori* power analysis for linear regression and F-tests, using a past effect size found by Willis and Neblett (2018), a medium effect size relationship between frequency of discrimination and OCD symptoms, and we used .8 for power and a .05 alpha level. These metrics and guidelines for power analysis align with Field (2013) and Kang (2021). To detect a medium effect size with three predictors, and .05 alpha level, and a .8/80% power which is often considered to be sufficient for a medium effect size (Cohen, 1988), this necessitated 77 participants. A .7 power necessitated 63 participants.

https://doi.org/10.1017/S1352465823000188 Published online by Cambridge University Press

Table 2. Correlational analyses between OCD symptoms, experience of racial microaggressions, and psychological flexibility

	1	2	3	4	5	6	7	8
1. Overall OCD symptoms[a]	—							
2. Experience of microaggressions[b]	.28*	—						
3. Psychological distress[c]	.60***	.26*	—					
4. Psychological flexibility[d]	−.28*	.17	−.47***	—				
5. Contamination[a]	.86***	.35**	.43***	−.14	—			
6. Responsibility for harm[a]	.86***	.33**	.55***	−.19	.72***	—		
7. Unacceptable thoughts[a]	.77***	.02	.52***	−.44***	.51***	.52***	—	
8. Symmetry[a]	.77***	.23*	.42***	−.10	.60***	.55***	.42***	—

[a]Scores came from total and subscales of the DOCS.
[b]Microaggressions measured by the Daily Life Experience–Short Form.
[c]Psychological distress measured by the PHQ-4.
[d]Psychological flexibility measured by the Psy-Flex.
*$p<.05$; **$p<.001$; ***$p<.001$.

Results

Descriptive characteristics

Psychological distress scores neared clinical cut-offs for depression and anxiety (Kroenke *et al.*, 2009). The sample's mean OCS score ($M = 18.88$, $SD = 13.90$) fell between that of patients with OCD and those with other anxiety disorders, and it was above the clinical cut-off score of 18 (Abramowitz *et al.*, 2010). Mean microaggression scores neared 30 ($M = 29.63$, $SD = 20.51$), suggesting that on average participants experienced each occurrence once to a few times (Harrell *et al.*, 1997). See Table 1 for more details on the sample.

Missing data

Within the sample included in analyses, there were no missing data.

Aim 1

According to Cohen's (1988) correlation guidelines (.1 = weak, .3 = moderate and .5 = strong), experience of racial microaggressions had significant positive near moderate to moderate correlations with responsibility for harm, contamination, symmetry, total OCS, and psychological distress. Experiences of racial microaggressions did not correlate with psychological flexibility. Psychological flexibility significantly, negatively, and near moderately correlated with total OCS, moderately with unacceptable thoughts symptoms, and significantly, negatively, and near strongly correlated with psychological distress. Psychological distress moderately to strongly positively correlated with total OCS and all symptom dimensions. See Table 2 for the correlations.

Aim 2

Experience of racial microaggressions significantly correlated with all OCD symptoms except for unacceptable thoughts, so four models were built.

For the total OCD model, psychological distress significantly explained 35.6% of the variance in OCS ($F_{1,75} = 41.38$, $p<.001$). Experiences of racial microaggressions and psychological flexibility did not significantly add to the model, nor were they significant.

For the responsibility for harm model, while co-varying for psychological distress, experience of racial microaggressions significantly explained 34.3% of the variance in OCS ($F_{2,74} = 19.34$,

https://doi.org/10.1017/S1352465823000188 Published online by Cambridge University Press

Table 3. Experience of racial microaggressions, psychological flexibility, and OCD symptoms

		OCD total[a]			Responsibility for harm[a]			Contamination[a]			Symmetry[a]		
		B	R^2	*F*	B	R^2	*F*	B	R^2	*F*	B	R^2	*F*
Step 1			.356	41.38***		.306	33.06***		.188	17.41***		.176	16.02***
	PHQ-4[d]	2.26***			.69***			.14**			.43***		
Step 2			.372	21.88***		.343	19.34***		.248	12.22***		.193	8.82***
	PHQ-4[d]	2.13***			.62***			.12**			.40***		
	DLEFS[b]	.09			.04*			.24			.02		
Step 3			.374	14.52***		.343	12.73***		.248	8.04***		.197	5.99***
	PHQ-4[d]	2.01***			.63***			.12**			.45**		
	DLEFS[b]	.10			.04			.24			.02		
	Psy-Flex[c]	−.18			.02						.08		

[a]OC symptoms and total measured by the DOCS.
[b]Experience of racial microaggressions measured by DLEFS scale.
[c]Psychological flexibility measured by the Psy-Flex.
[d]Psychological distress measured by the PHQ-4.
*$p<.05$; **$p<0.01$; ***$p<0.001$.

$p<.001$) and experience of racial microaggressions significantly added to the previous model with just psychological distress ($F_{1,74} = 4.21$, $p = .044$, $\Delta R^2 = .04$).

For the symmetry model, psychological distress explained 17.6% of the variance in OCS, ($F_{1,75} = 16.02$, $p<.001$). Adding experiences of racial microaggressions did not significantly add to the model and they were not significant, and the same was true for psychological flexibility.

For the contamination model, psychological distress explained 18.8% of the variance in OCS ($F_{1,75} = 17.41$, $p<.001$). Adding experiences of racial microaggressions significantly added to the model ($F_{1,74} = 5.99$, $p = .018$, $\Delta R^2 = .06$) so that both experiences of racial microaggressions and psychological distress significantly explained 24.8% of the variance in contamination OCS ($F_{2,74} = 12.2$, $p<.001$). Psychological flexibility did not significantly add to the model after that, and was not significant.

See Table 3 for regression results.

Exploratory analyses

Exploratory correlations demonstrated that experiences of racial microaggressions significantly and near moderately were positively correlated with cognitive defusion. For OCD symptoms, contamination symptoms and responsibility for harm symptoms did not correlate with any psychological flexibility items, but total OCS, unacceptable thoughts and symmetry symptoms had varied patterns of correlations with mindfulness, cognitive defusion, acceptance, and awareness of values. See Table 4 for the exploratory correlations.

Discussion

Aim 1

Our first aim involved baseline correlations to establish in this sample what OCS domains correlated with experiences of racial microaggressions and psychological flexibility. We expected more experiences of racial microaggressions to be correlated with increased OCS, and higher psychological flexibility correlated with lower OCS. We found that more experiences of racial microaggressions were correlated with higher responsibility for harm, contamination, symmetry, and total OCS, and not with unacceptable thoughts OCS. Study results demonstrate the link between OCS and experience of racial microaggressions, which may be due to racial battle fatigue, vigilance, or depleted cognitive resources as Williams *et al.*

https://doi.org/10.1017/S1352465823000188 Published online by Cambridge University Press

Table 4. Exploratory correlations between OCD symptoms, psychological distress, and psychological flexibility components

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Overall OCD symptoms[a]	—												
2. Experience of microaggressions[b]	.28*	—											
3. Psychological distress[c]	.60***	.26*	—										
4. Contamination[a]	.86***	.35**	.43***	—									
5. Responsibility for harm[a]	.86***	.33**	.55***	.72***	—								
6. Unacceptable thoughts[a]	.77***	.02	.52***	.51***	.52***	—							
7. Symmetry[a]	.77***	.23*	.42***	.60***	.55***	.42***	—						
8. Mindfulness	−.32**	.07	−.37**	−.21	−.20	−.38***	−.24*	—					
9. Acceptance	−.08	.21	−.17	.01	−.06	−.24*	.08	.31**	—				
10. Cognitive defusion	−.29*	.30**	−.35**	−.18	−.17	−.43***	−.14	.46***	.44***	—			
11. Self as context	−.20	.13	−.27*	−.15	−.11	−.26*	−.10	.56***	.22	.42***	—		
12. Awareness of values	−.13	−.03	−.35**	−.02	−.10	−.21	−.10	.40***	.06	.33**	.23**	—	
13. Committed action	−.08	−.06	−.37***	.02	−.13	−.21	.11	.35**	.10	.15	.23*	.53***	—

*$p<.05$; **$p<0.01$; ***$p<0.001$.

(2017b) suggest. This result generally aligns with research demonstrating variable patterns of symptom levels in various symptom themes within various racial and ethnic identities (Williams *et al.*, 2021).

Interestingly, while experiences of racial microaggressions did not correlate with unacceptable thoughts/taboo thoughts OCS, psychological flexibility did, so perhaps those symptoms, such as fears of thinking or carrying out harmful or socially taboo actions, might relate more to levels of acceptance and awareness of naturally occurring internal thoughts, versus more potentially external behaviours such as contamination or symmetry rituals that may develop from coping with the trauma of racism.

Aim 2

Aim 2 was to examine specifics of how or if experiences of racial microaggressions and psychological flexibility explain OCS while accounting for depression and anxiety. We expected both things to occur for all OCS symptoms. Results showed that for total OCS and for symmetry symptoms, experiences of racial microaggressions and psychological flexibility did not add to the explanation beyond depression and anxiety. For responsibility for harm symptoms, experiences of racial microaggressions added to the explanation beyond depression and anxiety. These symptoms relate to thoughts and actions surrounding preventing disasters or accidents and other harm (Abramowitz *et al.*, 2010). For contamination OCS, similarly experiences of racial microaggressions significantly added to the explanation of contamination OCS beyond depression and anxiety. These symptoms surround washing, cleaning, checking, and thoughts of illness or uncleanliness (Abramowitz *et al.*, 2010).

Exploratory analyses

Exploratory analyses sought to further examine components of psychological flexibility from the Psy-Flex measure given its novelty, and a need to better understand processes for mental health in racially minoritized young adults as they cope with racism. Correlational results with experiences of racial microaggressions and psychological flexibility sub-components demonstrated a positive

https://doi.org/10.1017/S1352465823000188 Published online by Cambridge University Press

relationship with cognitive defusion, being able to look at challenging thoughts from a distance. This may demonstrate that cognitive defusion is adaptive for people experiencing racism, and future work could examine the temporal nature of the relationship, and if added intervention and prevention can bolster the strategy. For total OCS, unacceptable thoughts, and symmetry OCS, there were some correlations with mindfulness, acceptance, and cognitive defusion, but consistent relationships with mindfulness. These were all negative. This suggests that specifically bolstering mindfulness skills (or being able to focus on what is important in the present moment in relation to the wording of the Psy-Flex mindfulness question), may be important for supporting the mental health of racially minoritized students. Martinez *et al.* (2022b) and their review adds support to this result and other future research directions.

Limitations and future directions

The authors would like to acknowledge our positionality, and that we bring our own experiences, privileges, potential biases, and potential gaps in understanding on the topic to this writing given our own experiences within our own gender and racial identities. One example is when a participant expressed concern that the study was being carried out to find a way to diagnose Black people instead of working on the large challenge of racism. In the future, the study team may adjust the advertisement to acknowledge that social and cultural change needs to occur alongside work to develop strengths-based support for people. Along these lines we want to explicitly state that while it is important to engage in research and clinical work to support individuals and their experiences, it is also essential to acknowledge that societal and structural changes must go hand-in-hand with research on individuals (Steele, 2020).

As sampling occurred through email dissemination to all 7327 students of one university, the university had a large audience but generalizability might be limited outside of similar contexts to the university (small, public, northeastern United States).

The sample in the current study was adequately powered to detect a medium effect size in a linear regression with three predictors. It is important to consider in this study that in reality, we were testing two hypotheses, about experience of racial microaggressions, and psychological flexibility, and there were other tests of correlations occurring in the study, so analyses could be under-powered or Type I error could have occurred. We attempted to alleviate some concerns of Type I error by separating main hypotheses and exploratory analyses, and by ensuring that our sample size was powered for our main hypothesis, testing the relationship between experiences of racial microaggressions and OCD symptoms. In the future, replications after this current pilot study should occur with lowered alpha levels according to the amount of tests, larger sample sizes, and further examination of effect sizes of relationships found. Current results should be interpreted with caution.

Upon reflection of racial data in the current study compared with the rest of the United States, it appears that the current study accurately represents Black participants, as well as Hispanic, and Native American/Alaska Indian (US Census Bureau, 2020). There were no Hawaian participants in the current study. The current study had an over-representation of Asian-identifying people, as well as middle eastern/north African, and multi-racial and bi-racial people (US Census Bureau, 2020). This could be due to recent findings that higher percentages of Asian students were enrolled in college compared with White students (NCES, 2019), reports that demographic data on Arab-American people is often undercounted in large surveys (AAI, 2021), and as we provided students an option to self-identify as multi-racial or bi-racial compared with just calculating that afterwards based on selections of other races. In terms of socioeconomic data, we did not collect relevant data for participants, but the university sampled from has high percentages of first-generation students and students who utilize financial aid. This means study results may best represent lower-income adults and young adults with less college education in their family background. Future research could assess participants and their families' immigrant status to assess the amount of time

https://doi.org/10.1017/S1352465823000188 Published online by Cambridge University Press

embedded in the culture of the United States related to experiences of racial microaggressions and their impacts.

The sample in this study included college students, who are a viable option for studying OCD (Abramowitz *et al.*, 2010); however, degree programs/subjects may be a confound, such as for students seeking law degrees, and the current study only assessed the amount of education completed, not specific subjects studied. Future research may recruit participants from a range of academic backgrounds, or focus on clinical samples to provide more specific conclusions about OCD rather than general psychological distress.

This study utilized a measurement of retrospective reported frequency of experiencing microaggressions. For some students, it may be that these events actually happen, and they are accurately reporting. For others, they may have a bias to perceive or notice such slights if they have had them occur in the past, or due to other challenges with being a racially minoritized person in US society or due to other aspects of their identity such as gender and sexual orientation. Therefore, further, more nuanced measurement and conceptualization is needed to best account for peoples' experiences and their impacts on mental health (Williams *et al.*, 2023).

Beyond just better accounting for cognitive and psychological components, other information from qualitative analysis and other ecological levels could support conceptualizing experiences of racism such as through examining other forms of racism, intersectionality, and the societal context such as COVID-19 (Neblett, 2019; Spanierman *et al.*, 2021). Anecdotally, in responses to text feedback questions, participants frequently reported appreciation of the survey topics, desiring to know study results, valuing self-reflection, and sharing other anecdotes of experiences of racism, supporting the usefulness of future qualitative research. Continued opportunities for mixed-methods research that is safe and provides space for peoples' voices to be heard is vital as this research area continues (Bybee *et al.*, 2021; Shelton *et al.*, 2021). Future research must meaningfully engage those with lived experience throughout all parts of the process including through use of qualitative measures (Neblett, 2019; Spanierman *et al.*, 2021). Doing so in a way that provides frameworks, is respectful of time, energy, and labour, but also is open enough to hear novel ideas is important.

The analyses utilized data that controlled for depression and anxiety as well. However, future studies should examine more co-variates such as age, gender, and specific racial identity, and should utilize modelling techniques that better account for the nature of the relationships and possible variation between and within groups across time. This study was composed of people with racially marginalized identities, but did not have enough participants to examine results according to specific identities.

Of note, this study's data were collected in the autumn of 2022, therefore is in the context of another part of coping with the COVID-19 pandemic, which might have brought internalizing symptoms to the forefront, but greater understanding of vulnerability factors that differentiate increases in OCS can bolster resilience and prevention efforts (Grant *et al.*, 2022; Wheaton *et al.*, 2011). This study focused on the role of experiencing racial microaggressions, so future work should explore the roles of other aspects of culture (Williams *et al.*, 2017a; Willis and Neblett, 2018). This work should continue in tandem with work exploring the relationship between trauma and aetiology and onset of OCS by examining not just right experiences, and directly compared to indirectly experienced trauma, and with future directions such as those described by Pinciotti and Fisher (2022). This trauma and OCD work can be conducted with populations with diverse racial identities, with specific examinations of racism as a trauma, or both.

Future work should examine the role of various conceptualizations of stigma in this OCD and microaggressions relationship given stigma's relationship to quality of life in people with OCD (Kılıç *et al.*, 2022<6>), the higher endorsements of stigma and shame were associated with family disapproval in ethnic minority people with OCD (Glazier *et al.*, 2015), and the

https://doi.org/10.1017/S1352465823000188 Published online by Cambridge University Press

potential relevance of Corrigan *et al.*'s (2009) 'Why try?' effect for stigma implications. Longitudinal studies or experiential sampling may support more accurate and timely recording of experiences.

Implications for clinical practice

This study did have null results for psychological flexibility to explain OCD in the context of experiences of racial microaggressions, but it might be that psychological flexibility acts more clearly on enhancing wellbeing compared with reducing distress/psychopathology (Williams *et al.*, 2022a). Additionally, OCD has a clear previously established impact on quality of life and functioning (Macy *et al.*, 2013) as does psychological flexibility (Kashdan and Rottenberg, 2010). There is strong support in the literature for mindfulness, values, and acceptance-based therapies, such as ACT, to support those experiencing microaggressions in a culturally humble way by strengthening psychological flexibility, reflective coping skills, and resilience (Martinez *et al.*, 2022b; Neblett, 2019; Spanierman *et al.*, 2021).

Recently, many therapists have developed and adapted clinical frameworks to support people experiencing racism. A framework such as that of ACT that can be incorporated as therapists work to help clients facilitate cultural identity and social support to protect against racial trauma (Liu and Modir, 2020) and emotion regulation strategies can be facilitated to help clients flexibly cope with experiences of racism (Graham *et al.*, 2015). There are numerous recent clinical guidelines and models for supporting people of colour with OCD that could be incorporated, adapted, and studied further (DeLapp and Gallo, 2022; Steele, 2020; Williams *et al.*, 2020; William *et al.*, 2022b). Future research should examine how to adapt such protocols and treatments for various settings and types of providers given the importance of finding multi-pronged solutions for mental health (Kazdin, 2022) and brief single session interventions delivered within community specific settings could be an option as well with frameworks such as those described by Schleider *et al.* (2020).

Conclusion

This project advances understanding of the links between experiencing racial microaggressions and OCD, as well as the influence of large-scale social stressors on OCD symptoms. It improves our understanding of racial microaggressions and their contribution to OCD symptomatology with tentative additional support for this relationship, and a need for larger sample sizes and replications. It also suggests a role that psychological flexibility may have in shaping future strengths-oriented interventions that strive to both improve well-being and reduce psychopathology through summarizing the literature and exploratory analyses. However, a lack of results in the current study from main analyses on psychological flexibility, and the potential analyses being under-powered suggest a need for future study on psychological flexibility, OCS, and racism.

Data availability statement. The data that support the findings of this study are available from the corresponding author, E.L.-R., upon reasonable request.

Acknowledgements. We would like to acknowledge Dr Andrew Guzick for his thoughtful feedback on a draft of the manuscript.

Author contributions. **Morgan Browning:** Conceptualization (lead), Data curation (lead), Formal analysis (lead), Investigation (lead), Methodology (lead), Project administration (lead), Writing – original draft (lead), Writing – review & editing (equal); **Elizabeth Lloyd Richardson:** Conceptualization (supporting), Formal analysis (supporting), Investigation (supporting), Methodology (supporting), Project administration (supporting), Supervision (lead), Writing – review & editing (lead); **Sidney Satterfield:** Data curation (supporting), Formal analysis (supporting), Writing – review &

editing (supporting); **Akshay Trisal:** Conceptualization (supporting), Methodology (supporting), Writing – original draft (supporting).

Financial support. This research received no specific grant from any funding agency, commercial or not-for-profit sectors.

Competing interests. The authors declare none.

Ethical standards. The authors have abided by the Ethical Principles of Psychologists and Code of Conduct as set out by the APA (http://www.apa.org/ethics/code/) which align with the Ethical Principles of Psychologists and Code of Conduct as set out by the BABCP and BPS. This study was approved by the university's Institutional Review Board (approval number 21.056).

References

AAI (2021). Demographics. Arab American Institute. Available at: https://www.aaiusa.org/demographics (accessed 13 February 2023).

Abramowitz, J. S., Deacon, B. J., Olatunji, B. O., Wheaton, M. G., Berman, N. C., Losardo, D., Timpano, K. R., McGrath, P. B., Riemann, B. C., Adams, T., Björgvinsson, T., Storch, E. A., & Hale, L. R. (2010). Assessment of obsessive-compulsive symptom dimensions: development and evaluation of the Dimensional Obsessive-Compulsive Scale. *Psychological Assessment*, *22*, 180–198. https://doi.org/10.1037/a0018260

Abramowitz, J. S., Fabricant, L. E., Taylor, S., Deacon, B. J., McKay, D., & Storch, E. A. (2014). The relevance of analogue studies for understanding obsessions and compulsions. *Clinical Psychology Review*, *34*, 206–217. https://doi.org/10.1016/j.cpr.2014.01.004

American Psychiatric Association (2013). *Diagnostic and Statistical Manual of Mental Disorders* (5th edn). American Psychiatric Publishing.

American Psychiatric Association (2022). *Diagnostic and Statistical Manual of Mental Disorders* (5th edn, Text Revision). American Psychiatric Publishing.

Angelakis, I., & Pseftogianni, F. (2021). Association between obsessive-compulsive and related disorders and experiential avoidance: a systematic review and meta-analysis. *Journal of Psychiatric Research*, *138*, 228–239. https://doi.org/10.1016/j.jpsychires.2021.03.062

Bluett, E. J., Homan, K. J., Morrison, K. L., Levin, M. E., & Twohig, M. P. (2014). Acceptance and commitment therapy for anxiety and OCD spectrum disorders: an empirical review. *Journal of Anxiety Disorders*, *28*, 612–624.

Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N., Orcutt, H. K., Waltz, T., & Zettle, R. D. (2011). Preliminary psychometric properties of the Acceptance and Action QuestionnaireII: a revised measure of psychological inflexibility and experiential avoidance. *Behavior Therapy*, *42*, 676–688. https://doi.org/10.1016/j.beth.2011.03.007

Bybee, S., Cloyes, K., Baucom, B., Supiano, K., Mooney, K., & Ellington, L. (2021). Bots and nots: safeguarding online survey research with underrepresented and diverse populations. *Psychology & Sexuality*, 1–11.

Chien, W. T., Tse, M. K., Chan, H. Y., Cheng, H. Y., & Chen, L. (2022). Is mindfulness-based intervention an effective treatment for people with obsessive-compulsive disorder? A systematic review and meta-analysis. *Journal of Obsessive-Compulsive and Related Disorders*, 100712.

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences* (2nd edn). Lawrence Erlbaum Associates.

Corrigan, P. W., Larson, J. E., & Rüsch, N. (2009). Self-stigma and the 'why try' effect: impact on life goals and evidence-based practices. *World Psychiatry*, *8*, 75–81. https://doi.org/10.1002/j.2051-5545.2009.tb00218.x

Davis, A. K., Xin, Y., Sepeda, N. D., Garcia-Romeu, A., & Williams, M. T. (2021). Increases in psychological flexibility mediate relationship between acute psychedelic effects and decreases in racial trauma symptoms among people of color. *Chronic Stress*, *5*, 24705470211035607.

Dawson, D. N., Jones, M. C., Fairbairn, C. E., & Laurent, H. K. (2022). Mindfulness and acceptance-based interventions with Black Americans: a meta-analysis of intervention efficacy for depressive symptoms. *Journal of Consulting and Clinical Psychology*, *90*, 123–136. https://doi.org/10.1037/ccp0000706

Dela Cruz, G. A., Johnstone, S., Kim, H. S., & Castle, D. J. (2022). Review of third-wave therapies for substance use disorders in people of color and collectivist cultures: current evidence and future directions. *Psychology of Addictive Behaviors*. Advance online publication. https://doi.org/10.1037/adb0000883

DeLapp, R. C., & Gallo, L. (2022). A flexible treatment planning model for racism-related stress in adolescents and young adults. *Journal of Health Service Psychology*, 1–13.

Farahani, H., Nepton, A., & Williams, M.T. (2022). Racial microaggressions. In Martin, C., Preedy, V.R., & Patel, V.B. (eds), *Handbook of Anger, Aggression, and Violence*. Springer, Cham. https://doi.org/10.1007/978-3-030-98711-4_10-1

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G*Power 3: a flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*, 175–191. https://doi.org/10.3758/bf03193146

Field, A. (2013). *Discovering Statistics Using IBM SPSS Statistics*. Sage.

Flanagin, A., Frey, T., & Christiansen, S. L. (2021). Updated guidance on the reporting of race and ethnicity in medical and science journals. *Journal of the American Medical Association*, *326*, 621–627. https://doi.org/10.1001/jama.2021.13304

Fuchs, C., Lee, J. K., Roemer, L., & Orsillo, S. M. (2013). Using mindfulness- and acceptance-based treatments with clients from nondominant cultural and/or marginalized backgrounds: clinical considerations, meta-analysis findings, and introduction to the special series. *Cognitive and Behavioral Practice*, *20*, 1–12. https://doi.org/10.1016/j.cbpra.2011.12.004

Fuchs, C. H., West, L. M., Graham, J. R., Kalill, K. S., Morgan, L. P.K., Hayes-Skelton, S. A., Orsillo, S. M., & Roemer, L. (2016). Reactions to an acceptance-based behavior therapy for GAD: giving voice to the experiences of clients from marginalized backgrounds. *Cognitive and Behavioral Practice*, *23*, 473–484. https://doi.org/10.1016/j.cbpra.2015.09.004

Glazier, K., Wetterneck, C., Singh, S., & Williams, M. (2015). Stigma and shame as barriers to treatment for obsessive-compulsive and related disorders. *Journal of Depression and Anxiety*, *4*, 191.

Gloster, A. T., Block, V. J., Klotsche, J., Villanueva, J., Rinner, M. T., Benoy, C., …, & Bader, K. (2021). Psy-Flex: A contextually sensitive measure of psychological flexibility. *Journal of Contextual Behavioral Science*, *22*, 13–23.

Graham, J. R., Calloway, A., & Roemer, L. (2015). The buffering effects of emotion regulation in the relationship between experiences of racism and anxiety in a Black American sample. *Cognitive Therapy and Research*, *39*, 553–563.

Grant, J. E., Drummond, L., Nicholson, T. R., Fagan, H., Baldwin, D. S., Fineberg, N. A., & Chamberlain, S. R. (2022). Obsessive-compulsive symptoms and the Covid-19 pandemic: a rapid scoping review. *Neuroscience and Biobehavioral Reviews*, *132*, 1086–1098. https://doi.org/10.1016/j.neubiorev.2021.10.039

Griffin, M., Martino, R. J., LoSchiavo, C., Comer-Carruthers, C., Krause, K. D., Stults, C. B., & Halkitis, P. N. (2022). Ensuring survey research data integrity in the era of internet bots. *Quality & Quantity*, *56*, 2841–2852.

Harrell, S. P., Merchant, A. M., & Young, S. A. (1997). Psychometric properties of the Racism and Life Experiences Scale (RaLES). Presented at the 1997 Annual Convention of the American Psychological Association, August 1997.

Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A., & Lillis, J. (2006). Acceptance and commitment therapy: model, processes and outcomes. *Behaviour Research and Therapy*, *44*, 1–25.

Himle, J. A., Muroff, J. R., Taylor, R. J., Baser, R. E., Abelson, J. M., Hanna, G. L., Abelson, J. L., & Jackson, J. S. (2008). Obsessive-compulsive disorder among African Americans and blacks of Caribbean descent: results from the national survey of American life. *Depression and Anxiety*, *4*, 993–1005. https://doi.org/10.1002/da.20434

Himmelstein, M. S., Young, D. M., Sanchez, D. T., & Jackson, J. S. (2015). Vigilance in the discrimination-stress model for Black Americans. *Psychology & Health*, *30*, 253–267. https://doi.org/10.1080/08870446.2014.966104

Jacob, G., Faber, S. C., Faber, N., Bartlett, A., Ouimet, A. J., & Williams, M. T. (2022). A systematic review of Black people coping with racism: approaches, analysis, and empowerment. *Perspectives on Psychological Science*, 17456916221100509.

Kang, H. (2021). Sample size determination and power analysis using the G*Power software. *Journal of Educational Evaluation for Health Professions*, *18*, 17. https://doi.org/10.3352/jeehp.2021.18.17

Kashdan, T. B., & Rottenberg, J. (2010). Psychological flexibility as a fundamental aspect of health. *Clinical Psychology Review*, *30*, 865–878. https://doi.org/10.1016/j.cpr.2010.03.001

Katz, J. A., Rufino, K. A., Werner, C., McIngvale, E., & Storch, E. (2020). OCD in ethnic minorities. *Clinical and Experimental Psychology*, *6*, 1–6.

Kazdin, A. E. (2022). Expanding the scope, reach, and impact of evidence-based psychological treatments. *Journal of Behavior Therapy and Experimental Psychiatry*, *76*, 101744.

Kessler, R. C., Berglund, P., Demler, O., Jin, R., Merikangas, K. R., & Walters, E. E. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, *62*, 593–602. https://doi.org/10.1001/archpsyc.62.6.593]

King, K. R. (2005). Why is discrimination stressful? The mediating role of cognitive appraisal. *Cultural Diversity & Ethnic Minority Psychology*, *11*, 202–212. https://doi.org/10.1037/1099-9809.11.3.202

Kılıç, A., Görmez, A., Elbay, R. Y., & Özer, B. U. (2022). Internalized stigma in obsessive compulsive disorder: correlates and associations with quality of life. *Archives of Psychiatric Nursing*, *39*, 37–45.

Kroenke, K., Spitzer, R. L., Williams, J. B., & Löwe, B. (2009). An ultra-brief screening scale for anxiety and depression: the PHQ-4. *Psychosomatics*, *50*, 613–621. https://doi.org/10.1176/appi.psy.50.6.613

Kroenke, K., Spitzer, R. L., Williams, J. B., & Löwe, B. (2010). The Patient Health Questionnaire Somatic, Anxiety, and Depressive symptom scales: a systematic review. *General Hospital Psychiatry*, *32*, 345–359.

Lee, D. B., Gaskin-Wasson, A. L., Jones, S. C. T., Harrell, S. P., Banks, K. H., Kohn-Wood, L., Sellers, R. M., & Neblett, E. W. (2021). The Daily Life Experiences Scale: factor structure, reliability, validity, and measurement invariance for African American males and females. *Measurement and Evaluation in Counseling and Development*, *54*, 206–218. https://doi.org/10.1080/07481756.2020.1827436

Liu, S. R., & Modir, S. (2020). The outbreak that was always here: racial trauma in the context of COVID-19 and implications for mental health providers. *Psychological Trauma*, *12*, 439–442. https://doi.org/10.1037/tra0000784

Lochner, C., & Stein, D. J. (2003). Heterogeneity of obsessive-compulsive disorder: a literature review. *Harvard Review of Psychiatry*, *11*, 113–132.

Löwe, B., Wahl, I., Rose, M., Spitzer, C., Glaesmer, H., Wingenfeld, K., . . . , & Brähler, E. (2010). A 4-item measure of depression and anxiety: validation and standardization of the Patient Health Questionnaire-4 (PHQ-4) in the general population. *Journal of Affective Disorders*, *122*, 86–95.

MacIntyre, M. M., Zare, M., & Williams, M. T. (2023). Anxiety-Related disorders in the context of racism. *Current Psychiatry Reports*, *25*, 31–43. https://doi.org/10.1007/s11920-022-01408-2

Macy, A., Theo, J. N., Kaufmann, S. C. V., Ghazzaoui, R. B., Pawlowski, P. A., Fakhry, H. I., Cassmassi, B. J., & IsHak, W. W. (2013). Quality of life in obsessive compulsive disorder. *CNS Spectrums*, *18*, 21–33. https://doi.org/10.1017/S1092852912000697

Martinez, J. H., Eustis, E. H., Arbid, N., Graham-LoPresti, J. R., & Roemer, L. (2022a). The role of experiential avoidance in the relation between racial discrimination and negative mental health outcomes. *Journal of American College health*, *70*, 461–468. https://doi.org/10.1080/07448481.2020.1754221

Martinez, J. H., Suyemoto, K. L., Abdullah, T., Burnett-Zeigler, I., & Roemer, L. (2022b). Mindfulness and valued living in the face of racism-related stress. *Mindfulness*, 1–14.

Masuda, A., Barile, J. P., Spencer, S. D., Juberg, M., Martin, T. J., & Vibell, J. (2022). Mindful awareness moderates the association between psychological inflexibility and distress variables: a cross-sectional investigation. *Journal of American College Health*, *70*, 607–614.

Miller, A. N., & Orsillo, S. M. (2020). Values, acceptance, and belongingess in graduate school: perspectives from underrepresented minority students. *Journal of Contextual Behavioral Science*, *15*, 197–206.

NCES (2019). Indicator 19 Snapshot: College Participation Rates for Racial/Ethnic Subgroups. Indicator 19 snapshot: College participation rates for racial/ethnic subgroups. Available at: https://nces.ed.gov/programs/raceindicators/indicator_reas.asp (accessed 27 April 2023).

Neblett, E. W. Jr (2019). Racism and health: challenges and future directions in behavioral and psychological research. *Cultural Diversity and Ethnic Minority Psychology*, *25*, 12–20. https://doi-org.libproxy.umassd.edu/10.1037/cdp0000253

Nota, J., Blakey, S. M., George-Denn, D. A., Jacoby, R. J., Schubert, J. R., Abramowitz, J. S., & Coles, M. E. (2014). The experience of OCD-related intrusive thoughts in African and European Americans: testing the generalizability of cognitive models of obsessive compulsive disorder. *Journal of Obsessive-Compulsive and Related Disorders*, *3*, 115–123. https://doi.org/10.1016/j.jocrd.2014.03.003

Pinciotti, C. M., & Fisher, E. K. (2022). Perceived traumatic and stressful etiology of obsessive-compulsive disorder. *Psychiatry Research Communications*, 100044. https://doi.org/10.1016/j.psycom.2022.100044

Pinciotti, C. M., Riemann, B. C., & Abramowitz, J. S. (2021). Intolerance of uncertainty and obsessive-compulsive disorder dimensions. *Journal of Anxiety Disorders*, *81*, 102417.

Pozzar, R., Hammer, M. J., Underhill-Blazey, M., Wright, A. A., Tulsky, J. A., Hong, F., . . . , & Berry, D. L. (2020). Threats of bots and other bad actors to data quality following research participant recruitment through social media: cross-sectional questionnaire. *Journal of Medical Internet Research*, *22*, e23021

Qualtrics (2023). Software, version X4 of Qualtrics. Copyright ©2023 Qualtrics. Qualtrics and all other Qualtrics product or service names are registered trademarks or trademarks of Qualtrics, Provo, UT, USA. https://www.qualtrics.com

Schleider, J. L., Dobias, M. L., Sung, J. Y., & Mullarkey, M. C. (2020). Future directions in single-session youth mental health interventions. *Journal of Clinical Child and Adolescent Psychology*, *49*, 264–278. https://doi.org/10.1080/15374416.2019.1683852

Schubert, C., Hilbert, S., Favreau, M., Wolstein, J., & Voderholzer, U. (2022). Psychological flexibility as a potential change factor in cognitive behavioural therapy of OCD. *Behavioural and Cognitive Psychotherapy*, *50*, 381–391.

Shelton, R. C., Adsul, P., & Oh, A. (2021). Recommendations for addressing structural racism in implementation science: a call to the field. *Ethnicity & Disease*, *31* (suppl 1), 357–364. https://doi.org/10.18865/ed.31.S1.357

Smith, W. A., Allen, W. R., & Danley, L. L. (2007). 'Assume the position . . . you fit the description' psychosocial experiences and racial battle fatigue among African American male college students. *American Behavioral Scientist*, *51*, 551–578. https://doi-org.libproxy.umassd.edu/10.1177/0002764207307742

Sosoo, E. E., Bernard, D. L., & Neblett, E. W. (2020). The influence of internalized racism on the relationship between discrimination and anxiety. *Cultural Diversity & Ethnic Minority Psychology*, *26*, 570–580. https://doi.org/10.1037/cdp0000320

Spanierman, L. B., Clark, D. A., & Kim, Y. (2021). Reviewing racial microaggressions research: documenting targets' experiences, harmful sequelae, and resistance strategies. *Perspectives on Psychological Science, 16*, 1037–1059. https://doi.org/10.1177/17456916211019944

Steele, J. M. (2020). A CBT approach to internalized racism among African Americans. *International Journal for the Advancement of Counselling*, *42*, 217–233.

Sue, D. W., Capodilupo, C. M., Torino, G. C., Bucceri, J. M., Holder, A., Nadal, K. L., & Esquilin, M. (2007). Racial microaggressions in everyday life: implications for clinical practice. *American Psychologist*, *62*, 271.

Trefethen, J. L. (2019). Representation of racial and ethnic minorities in acceptance and commitment therapy research: an examination of a recent meta-analysis (order no. 27540729). Ethnic NewsWatch; ProQuest Dissertations & Theses Global;

ProQuest One Academic (2384545759). Available at: https://www.proquest.com/dissertations-theses/representation-racial-ethnic-minorities/docview/2384545759/se-2

Twohig, M. P., Hayes, S. C., Plumb, J. C., Pruitt, L. D., Collins, A. B., Hazlett-Stevens, H., & Woidneck, M. R. (2010). A randomized clinical trial of acceptance and commitment therapy versus progressive relaxation training for obsessive-compulsive disorder. *Journal of Consulting and Clinical Psychology*, *78*, 705–716. https://doi-org.libproxy.umassd.edu/10.1037/a0020508

UMass Dartmouth (n.d.). Fast facts. Available at: https://www.umassd.edu/about/facts/ (accessed 27 April 2023).

US Census Bureau (2020). Quick Facts. Available at: https://www.census.gov/quickfacts/fact/table/MA,US/POP010220.

Wadsworth, L. P., Potluri, S., Schreck, M., & Hernandez-Vallant, A. (2020). Measurement and impacts of intersectionality on obsessive-compulsive disorder symptoms across intensive treatment. *American Journal of Orthopsychiatry, 90*, 445–457. https://doi.org/10.1037/ort0000447

Wheaton, M. G., Abramowitz, J. S., Berman, N. C., Fabricant, L. E., & Olatunji, B. O. (2011). Psychological predictors of anxiety in response to the H1N1 (swine flu) pandemic. *Cognitive Therapy and Research, 36*, 210–218. https://doi.org/10.1007/s10608-011-9353-3

Williams, A. J., Botanov, Y., Giovanetti, A. K., Perko, V. L., Sutherland, C. L., Youngren, W., & Sakaluk, J. K. (2022a). A metascientific review of the evidential value of acceptance and commitment therapy for depression. *Behavior Therapy*.

Williams, M., Osman, M., & Hyon, C. (2023). Understanding the psychological impact of oppression using the Trauma Symptoms of Discrimination Scale. *Chronic Stress, 7*, 24705470221149511.

Williams, M., Rouleau, T., La Torre, J., & Sharif, N. (2020). Cultural competency in the treatment of obsessive-compulsive disorder: practitioner guidelines. *the Cognitive Behaviour Therapist*, *13*, E48. doi: 10.1017/S1754470X20000501

Williams, M. T. (2020). Psychology cannot afford to ignore the many harms caused by microaggressions. *Perspectives on Psychological Science*, *15*, 38–43. https://doi-org.libproxy.umassd.edu/10.1177/1745691619893362

Williams, M. T., Chapman, L. K., Simms, J. V., & Tellawi, G. (2017a). Cross-cultural phenomenology of obsessive-compulsive disorder. In *The Wiley Handbook of Obsessive Compulsive Disorders* (pp. 56–74). John Wiley & Sons, Ltd. https://doi.org/10.1002/9781118890233.ch4

Williams, M. T., Holmes, S., Zare, M., Haeny, A., & Faber, S. (2022b). An evidence-based approach for treating stress and trauma due to racism. *Cognitive and Behavioral Practice*.

Williams, M. T., Taylor, R. J., George, J. R., Schlaudt, V. A., Ifatunji, M. A., & Chatters, L. M. (2021). Correlates of obsessive-compulsive symptoms among Black Caribbean Americans. *International Journal of Mental Health*, *50*, 53–77. https://doi.org/10.1080/00207411.2020.1826261

Williams, M. T., Taylor, R. J., Mouzon, D. M., Oshin, L. A., Himle, J. A., & Chatters, L. M. (2017b). Discrimination and symptoms of obsessive-compulsive disorder among African Americans. *American Journal of Orthopsychiatry, 87*, 636–645. https://doi.org/10.1037/ort0000285

Willis, H. A., & Neblett Jr., E. W. (2018). OC symptoms in African American young adults: the associations between racial discrimination, racial identity, and obsessive-compulsive symptoms. *Journal of Obsessive-Compulsive and Related Disorders*, *19*, 105–115. https://doi.org/10.1016/j.jocrd.2018.09.002

Zvolensky, M. J., Rogers, A. H., Mayorga, N. A., Shepherd, J. M., Bakhshaie, J., Garza, M., . . . **, & Peraza, N.** (2022). Perceived discrimination, experiential avoidance, and mental health among Hispanic adults in primary care. *Transcultural Psychiatry*, *59*, 337–348.

Cite this article: Browning ME, Lloyd-Richardson EE, Satterfield SL, and Trisal AV (2023). A pilot study of experiencing racial microaggressions, obsessive-compulsive symptoms, and the role of psychological flexibility. *Behavioural and Cognitive Psychotherapy* **51**, 396–413. https://doi.org/10.1017/S1352465823000188