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Article in *Journal of Psychoactive Drugs* - January 2022

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To cite this article: Terence H. W. Ching, Alan K. Davis, Yitong Xin & Monnica T. Williams (2022): Effects of Psychedelic Use on Racial Trauma Symptoms and Ethnic Identity among Asians in North America, Journal of Psychoactive Drugs, DOI: [10.1080/02791072.2022.2025960](https://doi.org/10.1080/02791072.2022.2025960)

To link to this article: <https://doi.org/10.1080/02791072.2022.2025960>



Published online: 11 Jan 2022.



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Effects of Psychedelic Use on Racial Trauma Symptoms and Ethnic Identity among Asians in North America

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ABSTRACT

There is a need to understand ways in which Asians in North America attempt to heal from racial trauma, given their well-documented high risk of exposure and associated adverse mental health outcomes. We conducted a secondary analysis of Asians from a survey of people of color in North America who have consumed psychedelics in response to racial discrimination. Ninety-two Asian participants ($M_{\text{age}} = 30.25$, $SD = 6.83$) completed online questions assessing demographics, racial discrimination frequency, characteristics and acute effects of their most meaningful psychedelic experience, change in racial trauma symptoms 30 days before and after their psychedelic experience, and current ethnic identity. Participants reported improvements in racial trauma symptoms ($d = 0.52$). Bootstrapped mediation analyses controlling for racial discrimination frequency and psychedelic dose and duration indicated complete mediation of the link between higher intensity of insightful experiences and stronger ethnic identity, via improvements in racial trauma symptoms (indirect effect = .08, 95% CI = [.004, .19]). There was partial mediation for the independent variable of lower intensity of challenging experiences (indirect effect = -.08, 95% CI = [-.18, -.005]). This study highlights the central role of higher-intensity insightful experiences and both higher- and lower-intensity challenging experiences in alleviating racial trauma symptoms and promoting ethnic identity among Asians in North America who have experienced racial discrimination. Future research should attune to culturally relevant outcomes of psychedelic use in response to racial discrimination among Asians.

ARTICLE HISTORY

Received 16 June 2021
Revised 22 October 2021
Accepted 15 November 2021

KEYWORDS

Psychedelics; trauma; discrimination; ethnic identity; Asians

Introduction

Asians (or, individuals of Asian continental descent, excluding multiracial but including Asian multiethnic individuals) are one of the fastest-growing demographic groups in North America (Statistics Canada 2017; U.S. Census Bureau 2019). Like other peoples of color, Asians tend to be at high risk for racialized victimization, which can be experienced as traumatic (Carter 2007; Williams et al. 2018). In fact, anti-Asian racism and violence has increased amidst the COVID-19 pandemic (Darling-Hammond et al. 2020; Lee and Waters 2021). At the interpersonal level, racial trauma can be overt (e.g., explicit racially motivated discrimination or violence; Williams et al. 2018) or covert (e.g., racial microaggressions; Sue et al. 2009). Racial trauma has been associated with various adverse mental health outcomes among Asians (Kim, Kendall, and Cheon 2017), including post-traumatic stress disorder (PTSD) symptoms (Khaylis, Waelde, and Bruce 2007; Pieterse et al. 2010), as well as depression, anxiety, and somatic symptoms (Bernstein et al. 2011; Gee et al. 2007; Huynh 2012; Liu and Suyemoto 2016).

Gold-standard treatments such as prolonged exposure (PE) or cognitive processing therapy (CPT) tend to be effective in ameliorating PTSD symptoms (Asmundson et al. 2019; Powers et al. 2010). However, existing studies tend to under-recruit participants of color (particularly Latinx and Asian participants; Benuto, Bennett, and Casas 2020), and do not focus on the treatment of symptoms stemming specifically from racial trauma. At the same time, there is some evidence that participants of color in clinical trials drop out at higher rates than their non-Hispanic White counterparts (Cloitre 2009; Lester et al. 2010; Schottenbauer et al. 2008). In fact, perceived everyday racial discrimination predicts lower use of formal services for mental health problems among Asians (Spencer et al. 2010). These issues point to the need to understand alternative approaches which Asians in North America may be taking to heal from racial trauma.

In the current era, there has been a resurgence of research on psychedelics as catalysts of therapeutic change for people diagnosed with difficult-to-treat

mental disorders. Psilocybin-assisted psychotherapy has been shown to be efficacious in reducing depressive and anxiety symptoms among cancer patients (Griffiths et al. 2016; Ross et al. 2016), as well as alleviating difficult-to-treat depression (Carhart-Harris et al. 2016; Davis et al. 2021a). Further, 3,4-methylenedioxymethamphetamine (MDMA)-assisted psychotherapy has been shown to be efficacious in reducing chronic PTSD symptoms in several randomized controlled trials (Mithoefer et al. 2019). In naturalistic settings, psychedelic use has also been associated with lessened psychological distress, with many people reporting long-term benefits (Davis, Barrett, and Griffiths 2020; Johansen and Krebs 2015).

In certain contexts, psychedelic use tends to be fairly prevalent among younger Asians. For example, in a national survey of substance use among an ethnically representative sample of Asian respondents in the United States (U.S.), Ahmmad and Adkins (2020) found that Korean respondents endorsed higher past-month illicit substance use (including psychedelics) at younger rather than at older ages (e.g., average of 1.70 vs. 1.00 times for individuals 28 vs. 40 years of age). Asian American youth also commonly consume ecstasy and psilocybin in club or rave settings (Hunt et al. 2005; Moloney and Hunt 2012; Moloney, Hunt, and Evans 2008). Outside of the club setting, psychedelic use remains considerable among Asian American college students (Boyd, McCabe, and d'Arcy 2003). Limited research also indicated that substance use may be a means of coping with racial discrimination among individuals of color (Gerrard et al. 2012; Hurd et al. 2014). In fact, Asians were overrepresented among the subsample of participants of color for an open-label trial of MDMA-assisted psychotherapy for chronic PTSD (Ching 2020b). Therefore, more research should focus on the effects of psychedelic use on recovery from racial trauma symptoms among Asians, given the reality of and interest in psychedelic use among this population.

To date, only one study has documented the effects of naturalistic use of psychedelics to address racial trauma among individuals of color in North America. Williams et al. (2021) conducted a cross-sectional survey of the effects of psychedelic use on racial trauma symptoms among ethnoracially diverse participants from the U.S. and Canada who have experienced racial discrimination. Results indicated significant decreases in racial trauma symptoms (e.g., hyperarousal, feeling alienated/isolated, concerns about future racially salient negative events) and psychological distress from 30 days before to 30 days after the psychedelic experience, with moderate effect sizes. Greater acute mystical (e.g., experiences of unity/oneness, sacredness, ineffability) and insightful experiences (e.g., in regards to current or past beliefs,

behaviors, relationship patterns) and lower challenging experiences (e.g., intense fear, feelings of uncontrollability or loss of one's sanity, physiological distress) also uniquely correlated with greater reductions in racial trauma symptoms and psychological distress. Although pioneering, these findings were collapsed across heterogeneous ethnoracial identities. Thus, there remains a need to examine the impact of psychedelic use on sequelae of racial discrimination specifically among Asians.

Another extension of this seminal study is to explore the effect of psychedelic use on ethnic identity. Ethnic identity refers to "one's identity or sense of self as a member of an ethnic group (Phinney 2003, 63)." Facets of ethnic identity include feelings of belongingness with one's ethnic group, and exploration of the group's traditions/customs (Phinney 1992). The role of psychedelic use in ethnic identity is pertinent, because improvements in racial trauma symptoms after a meaningful psychedelic experience may be associated with stronger ethnic identity, akin to posttraumatic growth (PTG; Calhoun and Tedeschi 1999; Roepke 2015; Tedeschi and Calhoun 2004). In fact, a recent study found significant PTG alongside symptom recovery during MDMA-assisted psychotherapy for PTSD (Gorman et al. 2020). However, no empirical research exists on the effects of psychedelic use on ethnic identity among Asians, as mediated by changes in racial trauma symptoms. This is an important area of investigation, given evidence that bolstering ethnic identity may help buffer against the negative mental health effects of ongoing racial discrimination among Asians (Choi et al. 2017; Woo et al. 2019). In a way, the possibility of stronger ethnic identity as a form of PTG is also informed by the rejection-identification model (Branscombe, Schmitt, and Harvey 1999). While not specifically concerned with psychedelic use, the rejection-identification model posits that perceived discrimination may be associated with increased identification with one's group (e.g., one's ethnoracial community), which promotes psychological wellness in spite of ongoing and future societal devaluation (see Armenta and Hunt 2009; Ramos et al. 2012).

In the present study, we conducted a secondary analysis of data from the Asian participants in a large survey of people of color (Williams et al. 2021). We sought to characterize psychedelic use and its acute effects, as well as effects on racial trauma symptoms and ethnic identity among Asians. Specifically, in light of Williams et al.'s (2021) findings, we hypothesized that for Asian participants, racial trauma symptoms (based on retrospective recall) would significantly improve from before to after the psychedelic experience. Per prior research (Griffiths

et al. 2011), we also hypothesized that consumption of a higher dose of psychedelics (based on participants' estimation) would be correlated with acute psychedelic effects (i.e., mystical, insightful, and challenging effects). Additionally, based in part on Williams et al. (2021), we hypothesized that higher intensity of acute mystical and insightful effects and lower intensity of challenging effects would be correlated with greater improvements in racial trauma symptoms, and that change in racial trauma symptoms would be correlated with stronger current ethnic identity. Importantly, we hypothesized that the link between mystical, insightful, and challenging experiences on one hand, and current ethnic identity on the other, would be mediated by changes in racial trauma symptoms, after controlling for racial discrimination frequency and relevant psychedelic use characteristics (e.g., dose).

Method

Participants and procedure

This study represents a secondary analysis of data provided by Asian/Asian American/Asian Canadian participants from Williams et al. (2021). Inclusion/exclusion criteria, procedural details, and participant selection criteria are described in Williams et al. (2021). The final sample for the parent study comprised 313 participants, of whom there were 92 participants of Asian descent. Only data from these 92 Asian participants were included in this study. We focused on data for experiences with racial discrimination, psychedelic use and associated acute effects, racial trauma symptoms, and ethnic identity. This research study was approved by the Institutional Review Board of the second author's home institution.

Measures

General Ethnic Discrimination Scale (GEDS; Landrine et al. 2006)

The GEDS is a 17-item measure designed to evaluate the frequency of different discriminatory experiences in education, employment, legal, healthcare, or community settings based on one's race and/or ethnicity. Participants rated each item on a 6-point scale from 1 (never) to 6 (almost all the time) (frequency score range = 17 to 102). We modified the prompt for participants to report on how often each racially discriminatory experience occurred in their lifetime prior to their most meaningful psychedelic experience. Internal consistency of the full scale was excellent, Cronbach's $\alpha = .93$.

Mystical Experiences Questionnaire (MEQ; Barrett, Johnson, and Griffiths 2015)

The MEQ was used to assess acute, subjective mystical-type phenomena (i.e., unity, noetic quality, sacredness; positive mood; transcendence of time and space; and ineffability) that may have occurred during participants' most meaningful psychedelic experience. Participants rated the extent to which each of 30 statements applied at any point during their psychedelic experience on a five-point scale from 0 (none; not at all) to 5 (extreme [more than ever before in my life]). Based on scoring practices in previous research (Davis, Barrett, and Griffiths 2020), we calculated the mean score for each participant for our analyses. Internal consistency of the full scale was excellent, Cronbach's $\alpha = .97$.

Psychological Insight Questionnaire (PIQ; Davis et al. 2021a)

The PIQ was used to assess experiences of insights in regards to existing beliefs, emotional, behavioral, or relationship patterns, and past stressful or traumatic memories or experiences, during participants' most memorable psychedelic experience. Participants rated the intensity with which they experienced each of 23 insightful experiences at any point during their psychedelic experience on a 6-point scale from 0 (no; not at all) to 5 (extremely [more than ever before in my life]). The mean score for each participant was calculated for our analyses. Internal consistency of the full scale was excellent, Cronbach's $\alpha = .96$.

Challenging Experiences Questionnaire (CEQ; Barrett et al. 2016)

The CEQ was used to measure the intensity of challenging psychological and physiological experiences (i.e., fear, grief, feeling of losing one's sanity, feeling as though one is dying, feelings of isolation, physiological distress, and paranoia) that may have occurred during participants' most meaningful psychedelic experience. Participants rated each of 26 items on a 6-point scale from 0 (none; not at all) to 5 (extreme [more than ever before in my life]). The mean score for each participant was calculated for our analyses. Internal consistency of the full scale was excellent, Cronbach's $\alpha = .97$.

Trauma Symptoms of Discrimination Scale (TSDS; Williams, Printz, and DeLapp 2018)

The TSDS is a 21-item measure of symptomatic effects of discrimination (e.g., uncontrollable arousal, feelings of alienation, worries about future negative events, and perceptions of others as dangerous). Participants rated their frequency of each symptom on a 4-point scale from 0 (never) to 3 (often), for the 30 days before and the 30 days after their most meaningful psychedelic

experience. Item scores were summed for each time frame to produce a total score, with higher scores indicating more severe discrimination-related trauma symptoms. Change scores were then calculated by subtracting before-scores from after-scores. Thus, more negative changes scores indicated greater improvements in discrimination-related trauma symptoms. Internal consistency of before- and after scores were excellent, Cronbach's α s = .96 and .94, respectively.

Multigroup Ethnic Identification Measure (MEIM; Homma et al. 2014)

The six-item version of the MEIM (modified from Roberts et al. 1999) was used to assess the current extent of participants' exploration of, identification with, and commitment to their ethnic group. Participants rated each item on a five-point scale from 1 (strongly disagree) to 5 (strongly agree). Item scores were summed, with higher total scores indicating stronger current ethnic identity. In the present sample, Cronbach's alpha for the full sample was .82.

Data analysis

Descriptive statistics for the sample's psychedelic use characteristics, as well as other study variables (i.e., lifetime frequency of racial discrimination, acute psychedelic effects, changes in racial trauma symptoms, and current ethnic identity), were first obtained. Paired t -tests were then conducted to test for significant changes in racial trauma symptoms from 30 days before to 30 days after participants' most meaningful psychedelic experience. Next, bivariate correlations among all study variables were conducted. In these correlations, psychedelic use characteristics were binarized based on a median split where appropriate. Although we were interested in lifetime racial discrimination and psychedelic dose as covariates, we explored additional covarying psychedelic characteristics to control for in subsequent mediation models. Selection of these additional covariates was based on the presence of consistent significant correlations with all three independent variables or the mediator or outcome variable. Thereafter, in three bootstrapped mediation analyses (5,000 resamples) using the PROCESS v3.5 macro for SPSS (Hayes 2017), we entered MEQ, PIQ, and CEQ means as separate independent variables, change in TSDS scores as the mediator, and MEIM scores as the outcome variable. Selected covariates from above were included for all models. Statistical significance of the indirect effect via the mediator at the $\alpha = .05$ level is indicated by the

absence of zero in the 95% bias-corrected confidence interval (CI) for the respective standardized regression coefficient.

Results

Participant demographics and psychedelic use characteristics are displayed in Tables 1 and 2, respectively. From Table 2, 40.2% of participants consumed psilocybin or psilocybin mushrooms for their most meaningful psychedelic experience, while 27.2% consumed LSD, and 32.6% consumed MDMA. Participants reported consuming mostly moderate (45.7%) or moderately high (32.6%) doses of the indicated psychedelic.

Results of a paired t -test examining change in discrimination-related trauma symptoms showed that, as expected, participants on average reported moderate improvements in trauma symptoms from 30 days before ($M = 31.62$, $SD = 15.22$) to 30 days after their most meaningful psychedelic experience ($M = 23.78$, $SD = 12.28$), $t(91) = 5.00$, $p < .001$, 95% $CI_{diff} = [4.72, 10.95]$, Cohen's $d = 0.52$.

Table 3 presents the means, standard deviations, and correlations among study variables. Lifetime frequency of racial discrimination was moderately correlated with acute psychedelic effects (r s = .31 to .48, all p s < .01) and change in trauma symptoms ($r = -.22$, $p < .05$). As hypothesized, psychedelic dose was moderately correlated with all acute psychedelic effects (r s = .27 to .37, all

Table 1. Sample demographics.

$N = 92$		$M (SD)/n (%)$
Age		30.25 (6.83)
Gender	Cisgender male	44 (47.8%)
	Cisgender female	45 (48.9%)
	Genderqueer	3 (3.3%)
Country	United States	25 (27.2%)
	Canada	67 (72.8%)
Annual income	< \$25,000	4 (4.3%)
	\$25,000-\$34,999	2 (2.2%)
	\$35,000-\$49,999	9 (9.8%)
	\$50,000-\$74,999	31 (33.7%)
	\$75,000-\$99,999	17 (18.5%)
	\$100,000-\$124,999	10 (10.9%)
	\$125,000-\$150,000	8 (8.7%)
	> \$150,000	7 (7.6%)
Education	Prefer not to answer	4 (4.3%)
	High school diploma, GED, or equivalent	5 (5.4%)
	Part college	18 (19.6%)
	Graduated 2-year college	6 (6.5%)
	Graduated 3-/4-year college	44 (47.8%)
	Part graduate/professional school	6 (6.5%)
Marital status	Completed graduate/professional school	13 (14.1%)
	Married	31 (33.7%)
	Living with partner	21 (22.8%)
	Divorced/separated	4 (4.3%)
	Never married	36 (39.1%)

Note. M = mean; SD = standard deviation; GED = General Education Development certification. Genderqueer includes transgender and gender non-binary individuals.

Table 2. Sample characteristics of psychedelic use.

<i>N</i> = 92		<i>n</i> (%)
Psychedelic type	Psilocybin/psilocybin mushrooms	37 (40.2%)
	LSD	25 (27.2%)
Dose	MDMA	30 (32.6%)
	Low	7 (7.6%)
	Moderate	42 (45.7%)
	Moderately high	30 (32.6%)
Duration of experience	High	13 (14.1%)
	Less than 30 minutes	1 (1.1%)
	Approximately 45 minutes	5 (5.4%)
	1 hour	3 (3.3%)
	2 hours	8 (8.7%)
	3 hours	11 (12%)
	4 hours	20 (21.7%)
	5 hours	11 (12%)
	6 hours	11 (12%)
	7 hours	3 (3.3%)
	8 hours	8 (8.7%)
	9 hours	2 (2.2%)
	10 hours	3 (3.3%)
	12 hours	4 (4.3%)
	Time since experience	15 hours or more
Within the past 30 days		5 (5.4%)
1–2 months		6 (6.5%)
3–6 months		7 (7.6%)
7–11 months		10 (10.9%)
1–2 years		12 (13%)
3–4 years		15 (16.3%)
5–6 years		11 (12%)
7–10 years		13 (14.1%)
More than 10 years		13 (14.1%)
Other psychoactive substance	No	58 (63%)
	Yes	21 (22.8%)
	Unsure	13 (14.1%)

Note. LSD = lysergic acid diethylamide; MDMA = 3,4-methylenedioxymethamphetamine. Psychedelic type is described in regards to that which occasioned the most meaningful experience. All participants reported orally consuming the indicated psychedelic.

$p < .01$). Additionally, duration of psychedelic experience was positively correlated with insightful experiences ($r = .24, p < .05$) and negatively correlated with change in racial trauma symptoms ($r = -.23, p < .05$). Therefore, lifetime frequency of racial discrimination, psychedelic dose, and duration of psychedelic experience were included as covariates for subsequent mediation models. As hypothesized, mystical and insightful experiences correlated with change in racial trauma symptoms ($r_s = -.35$ and $-.37$, respectively, both $p_s < .001$), and change in racial trauma symptoms correlated with current ethnic identity ($r = -.33, p < .01$), suggestive of mediation. On the other hand, while challenging experiences did not correlate with change in racial trauma symptoms ($r = .14, p = .195$), there was a marginally significant correlation with ethnic identity ($r = -.23, p = .052$).

Results of mediation analyses indicated that the models for acute mystical (Figure 1A), insightful (Figure 1B), and challenging effects (Figure 1C) accounted for 16.3%, 15.1%, and 19.4% of the variance in current ethnic identity, respectively.¹ From Figure 1A, after controlling for lifetime frequency of racial discrimination, psychedelic dose, and duration of psychedelic experience,

higher-intensity mystical experiences were significantly associated with greater reductions in racial trauma symptoms ($\beta = -.27, p < .05$), and reductions in racial trauma symptoms were significantly associated with stronger current ethnic identity ($\beta = -.24, p < .05$). However, there was no evidence of mediation in this model (indirect effect = .06, 95% CI = $[-.003, .17]$), nor was there a direct effect of mystical experiences on ethnic identity ($\beta = .19, p > .05$).

From Figure 1B, after controlling for the same covariates, higher-intensity insightful experiences were significantly associated with greater reductions in racial trauma symptoms ($\beta = -.32, p < .01$), and reductions in racial trauma symptoms were significantly associated with stronger current ethnic identity ($\beta = -.24, p < .05$). As hypothesized, there was evidence of complete mediation in this model (indirect effect = .08, 95% CI = $[.004, .19]$), with the absence of a direct effect of insightful experiences on ethnic identity ($\beta = .13, p > .05$).

Lastly, from Figure 1C, after controlling for the same covariates, lower-intensity challenging experiences were significantly associated with greater reductions in racial trauma symptoms ($\beta = .24, p < .05$), and reductions in racial trauma symptoms were significantly associated

Table 3. Descriptives and bivariate correlations for study variables ($N = 92$).

	<i>M (SD)</i>	Dose	Duration	Time	Other	GEDS	MEQ	PIQ	CEQ	Δ TSDS	MEIM
Type ^a	-	-.05	-.16	.21*	-.004	-.23*	-.16	-.21*	.05	.08	-.09
Dose ^b	-	-	.11	-.04	-.13	.18	.37***	.37***	.27**	-.14	.13
Duration ^c	-	-	-	.11	.21*	.13	.24*	.17	-.09	-.23*	.20
Time ^d	-	-	-	-	.02	.02	.16	-.008	-.04	-.04	.03
Other ^e	-	-	-	-	-	.16	.03	.03	.15	-.05	.05
GEDS	26.39 (13.34)						.43***	.48***	.31**	-.22*	.18
MEQ	2.82 (1.04)							.72***	.09	-.35***	.31**
PIQ	2.51 (1.01)								.19	-.37***	.27**
CEQ	1.44 (1.05)									.14	.20
Δ TSDS	-7.84 (15.03)										-.33**
MEIM	23.64 (4.02)										

Notes. *M* = mean; *SD* = standard deviation; Type = type of psychedelic consumed for most meaningful experience; Dose = dose of psychedelic consumed for most meaningful experience; Duration = duration of most meaningful psychedelic experience; Time = time since most meaningful psychedelic experience; Other = consumption of other psychoactive substances or not; GEDS = lifetime frequency of racial discrimination on the General Ethnic Discrimination Scale; MEQ = Mystical Experiences Questionnaire; PIQ = Psychological Insight Questionnaire; CEQ = Challenging Experiences Questionnaire; Δ TSDS = change in Trauma Symptoms of Discrimination scores after most meaningful psychedelic experience (more negative = greater improvement in symptoms); MEIM = Multigroup Ethnic Identification Measure. * $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed).

^aPsychedelic type was binarized into "classic psychedelics (psilocybin/psilocybin mushrooms/LSD)" ($n = 62$) or "MDMA" ($n = 30$).

^bPsychedelic dose was binarized into "low to moderate" ($n = 49$) or "moderately high to high" ($n = 43$).

^cDuration of psychedelic experience was binarized into "4 hours or less" ($n = 48$) or "more than 4 hours" ($n = 44$).

^dTime since psychedelic experience was binarized into "4 years or less" ($n = 55$) or "more than 4 years" ($n = 37$).

^eConsumption of other psychoactive substances was binarized into "no" ($n = 58$) or "yes/unsure" ($n = 34$).

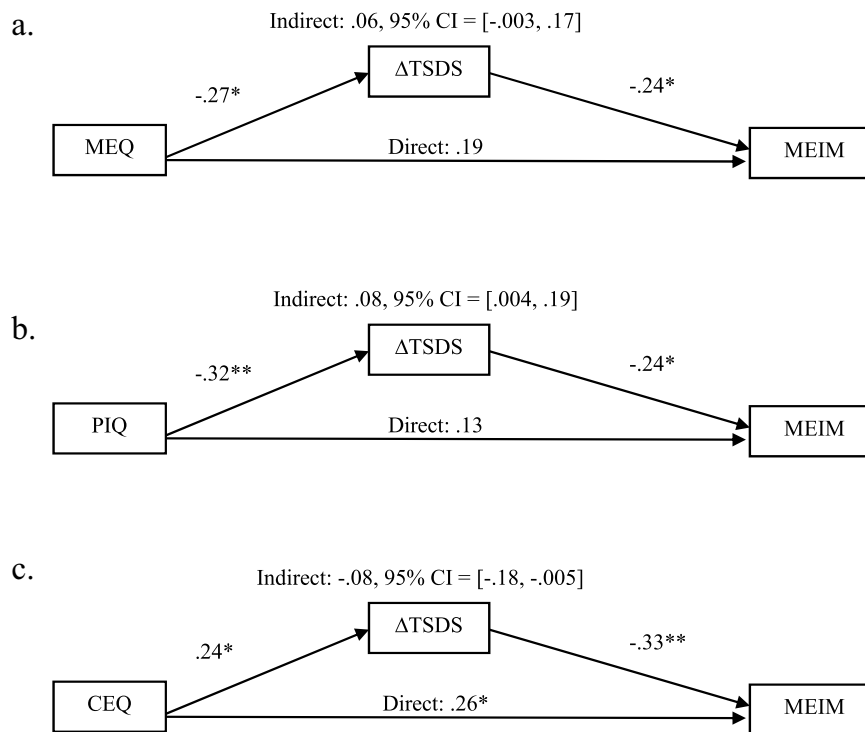


Figure 1. Results of mediation analyses with MEQ (A), PIQ (B), and CEQ means (C) as separate predictors, change in TSDS scores as the mediator, and MEIM scores as the outcome variable. Psychedelic dose, duration of psychedelic experience, and lifetime frequency of racial discrimination were included as covariates (not shown) for all models. MEQ = Mystical Experiences Questionnaire; PIQ = Psychological Insight Questionnaire; CEQ = Challenging Experiences Questionnaire; Δ TSDS = change in Trauma Symptoms of Discrimination scores after most meaningful psychedelic experience (more negative = greater improvement in symptoms); MEIM = Multigroup Ethnic Identification Measure. Standardized regression coefficients are shown throughout. Indirect effects are statistically significant if 95% bias-corrected CIs do not contain zero. * $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed).

with stronger current ethnic identity ($\beta = -.33$, $p < .01$). Similarly, as hypothesized, there was evidence of mediation in this model (indirect effect = $-.08$, 95% CI = $[-.18$,

$-.005]$). However, mediation was partial in this case, given the significant positive direct effect of challenging experiences on ethnic identity ($\beta = .26$, $p < .05$).

Discussion

In the present study, we conducted a secondary analysis of data from the Asian participants in Williams et al.'s (2021) study, which was the first study to directly examine the mental health benefits of psychedelic use on racial trauma symptoms among individuals of color in North America. Beyond characterizing the nature of psychedelic use and its effects on racial trauma symptoms, we also sought to examine effects on ethnic identity via a mediational approach, which has been previously untested. This is an important outcome, given how ethnic identity may protect against negative effects of ongoing racial discrimination among Asians (Choi et al. 2017; Woo et al. 2019). An important caveat to the following discussion is that the present study examined psychedelic use that may have occurred as long as 10 or more years ago, which introduced the possible confound of natural developmental changes in ethnic identity that was not accounted for.

Our sample comprised mostly young adults, consistent with studies on psychedelic use among young Asians (Ahmmad and Adkins 2020; Hunt et al. 2005; Moloney and Hunt 2012). A majority of our sample reported consuming psilocybin or psilocybin mushrooms for their most meaningful psychedelic experience, followed by MDMA, then LSD. Additionally, most participants consumed moderate to moderately high doses of their indicated psychedelic. Among other demographic characteristics, our participants also tended to be well-educated. These observations cohere with those of a recent demographically diverse study of naturalistic psychoactive drug use (Aixalá et al. 2019).

Consistent with Williams et al. (2021), participants in the present study reported moderate improvements in racial trauma symptoms from 30 days before to 30 days after their most meaningful psychedelic experience. This finding is the first of its kind to illuminate a potential benefit of naturalistic psychedelic use for reducing racial trauma symptoms among Asians specifically. This finding also builds upon qualitative research on the use of psychedelics as a means of coping with race-based stress among Asians in the dance/rave scene (Hunt, Moloney, and Evans 2011). There is a current paucity of knowledge on whether evidence-based trauma-focused psychotherapies can be equally efficacious for Asians compared with their non-Hispanic White counterparts (Powers et al. 2010). Although it remains possible that Asians can still benefit from such treatments, our finding highlights an additional approach to healing from racial trauma among Asians that deserves continued research attention.

As hypothesized, greater psychedelic dose correlated with greater acute mystical, insightful, and challenging experiences. This is consistent with prior research showing how the consumption of higher doses of psychedelics tend to be associated with more intense and highly personally and spiritually significant psychedelic experiences (Griffiths et al. 2011). Additionally, although prior research has not consistently indicated a clear relationship between psychedelic dose and challenging experiences (Barrett et al. 2016), our study provides support for a link between the two variables in an Asian sample.

Our correlational findings seemed to suggest a mediation effect for mystical and insightful experiences on current ethnic identity via racial trauma symptom improvement, but results of our bootstrapped mediation analyses indicated a slightly different picture. Specifically, after controlling for discrimination frequency and psychedelic dose and duration, the link between insightful experiences and ethnic identity was completely mediated by improvements in racial trauma symptoms. On the other hand, mystical experiences did not exhibit a direct or indirect effect on ethnic identity. These findings highlight the central role of insightful psychedelic experiences in promoting ethnic identity, either directly or indirectly by catalyzing trauma symptom change. For example, it is possible that some participants experienced acute awareness and adaptive reevaluations (Davis et al. 2021a) of their racialized experiences of discrimination during their psychedelic experience (e.g., realizing that the perpetrator and systemic racism are to blame for past discrimination, instead of themselves). In our study, these insights (as well as mystical experiences) were associated with subsequent racial trauma symptom reduction. Indeed, reductions in dysfunctional trauma-related cognitions have been shown to precede sudden gains in PTSD symptom improvement in psychotherapy for individuals with PTSD (Wiedemann et al. 2020).

Further, in our sample, the alleviation of racial trauma symptoms was associated with a stronger ethnic identity (i.e., a sense of self as a cultural being, and a sense of pride and commitment to one's ethnic group). This is consistent with qualitative reports of increased exploration, consolidation, and affirmation of ethnic identity among Asians who have consumed ecstasy/MDMA for the purpose of navigating race-based stress and trauma in naturalistic and therapeutic settings (Ching 2020a, 2020b; Hunt et al. 2005). This quantitative finding is the first of its kind in the psychedelic literature among Asians, and adds to the rejection-identification literature (Branscombe, Schmitt, and Harvey 1999) by highlighting a possible means by which Asians develop stronger ethnic identity amidst discrimination.

Our last findings indicated that challenging psychedelic experiences was partially indirectly associated with ethnic identity via improvements in racial trauma symptoms, albeit in a distinct manner. Specifically, experiencing fewer challenging effects during a psychedelic experience was associated with greater racial trauma symptom improvement. Challenging experiences during a psychedelic journey may resemble peritraumatic responses, which may distract from the meaning-making processes (Grinspoon and Doblin 2001) conducive for subsequent racial trauma symptom reduction. These interfering experiences may be particularly pronounced during naturalistic use in the absence of appropriate psychological support (Hartogsohn 2016). Regardless, challenging experiences was also associated with desirable outcomes, such as stronger ethnic identity in our sample. Thus, depending on the construct of interest, challenging experiences during psychedelic use may be associated with different outcomes.

Limitations mentioned in Williams et al. (2021) were also applicable here. Namely, participant responses were based on recall and estimation (e.g., for racial trauma symptoms and psychedelic dosage), self-selection bias may be present, and data were collected based on self-report, which may have contributed to potentially inaccurate and positively biased responses. However, the use of an anonymous survey may be more suitable for eliciting sensitive information about psychedelic use, given the stigma and lower perceived protection associated with illicit substance use among people of color (George et al. 2020). The data were nonetheless collected in a cross-sectional manner, which precludes claims about directionality of relationships observed. Additionally, information on the setting of participants' psychedelic experience (e.g., recreational use in a social setting vs. use in isolation vs. use in a therapeutic context) was not collected. This might have otherwise added some explanatory value to observed findings, due to the potential influence of extra-pharmacological factors on the psychedelic experience (Hartogsohn 2016). Further, TSDS items assessed for the effects of discrimination generally, instead of symptoms specifically attributable to racial discrimination. However, the scope and description of the survey likely primed participants to respond to TSDS items on the basis of racial discrimination.

Future suggestions for research may include assessing whether participants were accompanied or facilitated by a supportive figure during their psychedelic experience, akin to psychedelic-assisted psychotherapy. Additionally, it would be pertinent to assess whether ethnic matching of a supportive facilitator would be associated with incremental gains, given evidence of

a preference for using psychedelics with in-group peers among young Asians (Hunt et al. 2005). Future research should also assess longitudinal change in ethnic identity (instead of only current ethnic identity) and its associations with acute psychedelic effects and change in racial trauma symptoms. Other culturally relevant research questions may involve examining contextual factors that can moderate the effects of psychedelic use on ethnic identity among Asians, such as ethnic concentration of one's environment (Juang, Nguyen, and Lin 2006). It would also be important to replicate our findings with larger samples with predominantly older Asian participants. Lastly, this study can be extended with a retrospective survey of Asian psychedelic use in the wake of anti-Asian racism and violence in the COVID-19 pandemic era (Yellow Horse, Jeung, and Matriano 2021), to test for replicability of our findings.

As psychedelic research progresses, there is growing interest in issues of diversity, equity, and inclusion in psychedelic spaces (Michaels et al. 2018; Williams and Labate 2020). Our focus on the specific broad racial group of Asians stems from the desire to represent often-invisibilized voices in the psychedelic literature. We hope that this study would invigorate academic thought on the potential culturally relevant benefits of naturalistic psychedelic use among this group. We also hope that this study would inspire clinical trials to attune to how symptom recovery can be linked with strengthening of culturally relevant constructs including but not limited to ethnic identity (e.g., Asian cultural values, such as filial piety; Yuan and Wang 2011).

Note

1. Observed trends were not altered when mediation analyses were conducted with "other psychoactive use" during participants' psychedelic experience included as an additional covariate (not shown here).

Acknowledgements

The authors acknowledge the important contributions of Nathan D. Sepeda, Pamela Colón Grigas Sinead Sinnott, and Angela M. Haeny in survey construction, participant recruitment, and data management for the study.

Disclosure statement

Drs. Williams and Davis are board members of Source Research Foundation. This organization was not involved in the design/execution of this study or the interpretation or communication of findings.

Funding

Funding for the study was provided by the University of Ottawa and the Canada Research Chairs Program (MTW). Effort for AKD was provided from support from Tim Ferriss, Matt Mullenweg, Craig Nerenberg, Blake Mycoskie, and the Steven and Alexandra Cohen Foundation. This work is also supported by the National Institutes of Health grants T32DA019426, R25DA035163, and UL1TR001863. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

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Ethics statement

All procedures stipulated within this research complied with the principles of the Declaration of Helsinki.

Contributors

AKD and MTW designed and conducted the parent study from which the data for the current project were taken. THWC and AKD conceptualized the scope of this current research. THWC and YX conducted the literature review. THWC completed the data analysis and first draft of this manuscript. All authors contributed to the final version of this manuscript.

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