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Examining the Social and Mental Health Benefits of Ethnic Studies and DEI among BIPOCs and Whites

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Abstract
A promising approach to buffer the negative mental health effects of racism among BIPOCs and build allies among Whites is ethnic studies (ES). The purpose of this study was to assess (1) whether exposure to ES moderates the relationship between ethnic identity (EI) and mental health among BIPOCs; (2) whether EI buffers the negative mental health effects of internalized racism; and (3) whether exposure to ES or Diversity, Equity, and Inclusion (DEI) training among Whites has a negative correlation with White supremacist attitudes and negative attitudes toward racial diversity and equity. The study involved a cross-sectional online survey of individuals 18 years old and above in the USA conducted between January and December 2023. A total of 2423 participants participated in the study, with an average age of 31.2 years. Regression analyses showed that controlling for demographic factors, exposure to ES moderates the positive correlation between EI and mental health among BIPOCs who have experienced racism and that EI mitigates the negative mental health effects of racism. As for Whites, exposure to ES but not DEI was negatively correlated with White supremacist attitudes and negative attitudes toward racial diversity and equity. Findings suggest that exposure to ES can indirectly help buffer the negative mental health effects of internalized racism through its interaction with ethnic identity. Additionally, exposure to ES can help build allies among Whites, given its association with decreased White supremacist attitudes and greater appreciation of racial diversity and equity.

Keywords Mental health · BIPOC · Ethnic identity · Ethnic studies · DEI

Introduction

Black, Indigenous, and Persons of Color (BIPOCs) in general tend to have poorer mental health compared to their White counterparts [1, 2]. In understanding the mental health disparities among BIPOCs, Meyer's Minority Stress Model [3] is helpful. Briefly, Meyer's Minority Stress Model work suggests that BIPOCs' mental health is influenced by how much they are affected by minority-specific (or more appropriately BIPOC-specific) stress processes, both at the proximal (e.g., internalized racial oppression, expectations of rejection) and at the distal (e.g., prejudicial events, racial discrimination) levels. These stresses in life are shaped by their status and identity, as well as their environmental contexts and factors. As a result of these proximal and distal stressors in life, BIPOCs' mental health outcome, in turn, influences their quality of life.

Much work has been done on the connection between minority stress processes, mental health, and quality of life. Although everyone experiences stress, members of oppressed groups face additional stressors that members of dominant groups do not face. Specifically, racism is one chronic stressor that leads to countless daily hassles (e.g., being constantly suspected of wrongdoing) and even traumatic events (e.g., being physically harmed/threatened) for BIPOCs. Racism is a type of oppression based on race or ethnicity, where racial or ethnic groups have unequal access to power and privilege, and how various factors (e.g., policies, cultural practices, interpersonal behaviors) maintain or perpetuate such inequalities [4]. Roberts and Rizzo [5] defined racism as "a system of advantage based on race that is created and maintained by an interplay between

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psychological factors (i.e., biased thoughts, feelings, and actions) and sociopolitical factors (i.e., biased laws, policies, and actions)" (p. 476). Racism has been an important global issue for centuries. Particularly in the USA, it is undeniable that racism—perpetuated by racialized White communities and the culture of White supremacy—is a major component—if not the foundation—of the country's creation, development, and rise as a world power. Racism may be expressed blatantly or subtly, intentionally or unintentionally, and interpersonally or institutionally [4]. Research suggests that additional sources of stress like racism may put BIPOCs at higher risk for various mental and physical health concerns [6–9]. For instance, in a study among African American adults, racial discrimination, a form of chronic stressor, is related to higher allostatic load (i.e., physiological dysregulations such as high blood pressure, high cortisol levels, and increased heart rate), which in turn have been linked to various mental (e.g., depression, anxiety) and physical (e.g., hypertension, diabetes, heart disease) health issues [10].

Furthermore, racism has evolved in such a way that it is now often expressed subtly as microaggressions. Such modern forms of oppression are much more confusing and potentially more mentally, emotionally, or psychologically taxing. Indeed, BIPOCs who encounter subtle forms of racism often go through a chain of internal dilemmas because of such microaggressions. According to Sue's Microaggression Process Model, modern forms of racism are more subtle, unclear, and confusing making it more difficult for people of color to determine if what they experienced was indeed racism (i.e., *attributional ambiguity*) [11]. The lack of clarity necessarily calls for more mental, physical, and emotional resources to be devoted to and used up on processing the encounter in order to better understand it and respond to it emotionally and behaviorally—if such cognitive, emotional, and behavioral clarities even arrive at all. Indeed, many times, microaggression experiences are left unresolved, continuing to linger for long periods of time and, consequently, continuing to use up people's physical, mental, and emotional resources. These experiences may lead people of color to become hypervigilant, angry, mistrusting, fearful, fatigued, and hopeless. Such constantly heightened stress levels are associated with adverse health outcomes such as depression, anxiety, acute stress disorder, and posttraumatic stress disorder [11].

Another potential negative effect of racial microaggressions is that their subtlety and ambiguity put people of color at risk for questioning, disregarding, and minimizing their experiences of racism. Further, when people of color cannot identify and confront the source of one's experience of racism that created the cognitive, emotional, and behavioral dilemmas, then their frustrations may be directed inwardly toward themselves. In such cases, they become vulnerable to developing internalized racial oppression, which is a condition that has been linked to various mental health concerns such as low self-esteem, depression, anxiety, and low life satisfaction [12]. Internalized racial oppression may be defined as "the individual inculcation of the racist stereotypes, values, images, and ideologies perpetuated by the White dominant society about one's racial group, leading to feelings of self-doubt, disgust, and disrespect for one's race and/or oneself" (p. 553) [13]. Recent research has linked internalized racism to shorter telomeres [14]. Telomeres are repetitive DNA sequences at the end of chromosomes that help maintain genomic integrity; as the cell divides, telomeres become shorter. Shorter telomeres have been associated with shorter life expectancy [14].

In terms of protective factors to minority stress processes, Meyer suggests that social support and coping may both play a major role [3]. However, the literature on social support has been mixed—some studies show that social support has a buffering role in experiences of discrimination [15], but several others do not [12, 16]. Thus, in this current study, the focus is on the concept of ethnic identity, which Meyer suggests may be a source of strength when it is associated with opportunities for affiliation, social support, and coping thereby minimizing the negative mental health impacts of stress-related prejudicial events encountered by BIPOCs (i.e., racial discrimination, internalized racial oppression, etc.) [3]. Phinney defines ethnic identity as an individual's acquisition and retention of cultural characteristics that are incorporated into their self-concept as it develops within a context of belonging to a minority racial/ethnic group within the larger society [17]. Racial/ethnic identity involves an individual's feelings of belongingness, attitudes toward, and evaluations of one's racial/ethnic group, knowledge about their group's history and current experiences, and involvement in their group's traditions and activities. Numerous studies suggest that racial/ethnic identity can be beneficial to one's well-being as it can protect individuals from the mental health risks associated with racism [18–21]. Additionally, studies suggest that ethnic identity reduces the negative mental health effects of internalized racial oppression [22]. Taken together, these findings suggest that programs or interventions that are aimed toward strengthening racial/ethnic identity may be a more accessible and less stigmatizing approach to help BIPOCs combat the negative health effects of internalized racism and, consequently, improve their mental well-being.

To buffer the effects of stress brought about by internalized racial oppression, it is important to identify an approach that can promote a strong sense of ethnic identity among BIPOCs. One potential approach that may be related to strengthening racial/ethnic identity among BIPOCs is exposure to ethnic studies. Ethnic studies is an interdisciplinary study of the history and culture of a

certain racial/ethnic minority group in their own terms and perspective that challenges Western imperialism and Eurocentrism [23]. Examples of ethnic studies include African American Studies, Asian American Studies, Alaska Native Studies, Chicano/a Studies, and the like. Exposure to these types of courses has the potential to empower BIPOCs through a greater understanding of their ethnic identity, which can then serve as a protective factor for the harmful effects of racial injustice and oppression. Ethnic studies courses are currently being offered in many colleges and universities (and even in some K-12 schools) throughout the country in some form. Although there is research suggesting that ethnic studies courses are related to academic success [24, 25] and greater sense of empowerment [26], none currently have attempted to empirically test the potential of ethnic studies to indirectly protect BIPOCs from the negative mental health effects of internalized racism by strengthening their ethnic identity. Additionally, it is possible that ethnic studies not only benefits BIPOCs, but their White counterparts as well. Research by ethnic studies scholars suggests that Whites who are exposed to ethnic studies may have a greater sense of consciousness about White privilege and White supremacy, as well as have a more positive attitude toward racial diversity and equity [27, 28]. These, in turn, can potentially lead to Whites being active allies of BIPOCs and potentially becoming change agents for addressing the problem of racism.

Another approach that can potentially impact the attitudes and beliefs of Whites toward people of color is exposure to Diversity, Equity, and Inclusion (DEI) training in the workplace. DEI training is a structured program that helps employees and organizations create a more inclusive and equitable workplace. It aims to build awareness of inequity and bias, influence how employees behave toward each other, support marginalized employees, and foster a safe, compassionate, and equitable workplace culture [29]. A recent study has shown that intensive two-session DEI training can increase knowledge about race and racism and increase understanding of implicit bias among its participants [30].

Figure 1 is a conceptual framework we developed that summarizes our understanding of the relationship between ethnic studies, racial discrimination, internalized racial oppression, ethnic identity, and mental well-being among BIPOCs. It was largely based on Meyer's Minority Stress Model [3], and it also takes into account our conceptualization of the relationship of ethnic studies and DEI training with the attitudes and beliefs related to racial/ethnic diversity and equity among Whites. Briefly, our proposed framework suggests that BIPOC distal stress factors like racial discrimination and proximal stress factors like internalized racial oppression impact BIPOC's mental health and thereby their overall health and well-being. Our framework also suggests that having a strong sense of ethnic identity among BIPOCs buffers the negative mental health

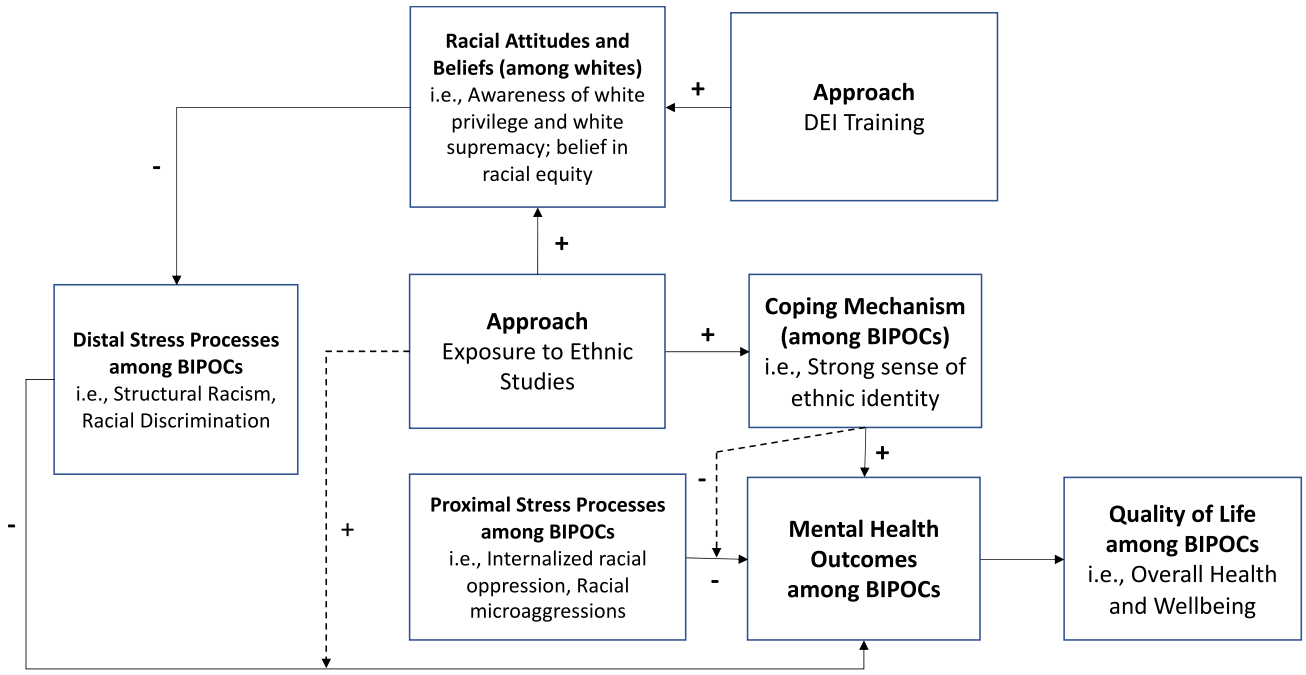

Fig. 1 The study's conceptual framework based on the work of Meyer's Minority Stress Model [3]. Note that DEI stands for Diversity, Equity, and Inclusion Training. The symbol "+" means promoter (a positive correlation)

effects of their proximal stress factors; and through ethnic studies, their ethnic identity can be enhanced. Given that one of the purposes of ethnic studies is to be conscious of the struggles of BIPOCs, it has the potential to also heighten BIPOCs' awareness of the distal stresses in their lives including structural racism and racial discrimination. On the other hand, as the framework suggests, ethnic studies can potentially impact White people in terms of having a more negative attitude toward White supremacy and a more positive attitude toward racial/ethnic diversity. In addition to ethnic studies, DEI training was also added to our framework because such training typically covers the topic of racism and equity, which we hypothesize to affect White people's attitudes the way ethnic studies does. These attitudinal changes related to White supremacy and racial/ethnic equity can potentially lead White people to engage in efforts that can address racism. In introducing this framework, an important context should be considered. Currently, there are efforts nationwide attacking ethnic studies in academic institutions [31] and DEI training in workplaces [32, 33]. These efforts may themselves perpetuate racism and trigger environmental racial microaggressions.

Our study has three aims. First, we assessed whether there is a positive correlation between ethnic identity and mental well-being among BIPOCs and whether this correlation is moderated by their exposure to ethnic studies. Second, we assessed whether ethnic identity buffers the negative mental health effects of internalized racial oppression among BIPOCs. Finally, we explored whether exposure to ethnic studies and/or DEI training among Whites has a negative correlation with White supremacist attitudes and positive attitudes toward racial diversity and equity. Note that we recognize that "race" and "ethnicity" are two concepts that are theoretically different. However, given the complexity of separating these concepts in empirical research and that both have highly overlapping constructs, we made a conscious decision to interchange the terms "race" and "ethnicity" or sometimes use the term "race/ethnicity" in parts of the paper.

Methods

Study Design and Sampling

This study used a cross-sectional study design, and its sampling was done via convenience sampling. Data was collected via an online survey, using the Qualtrics platform. Those who self-identified as BIPOC or White and who were at least 18 years of age were eligible to participate in this study.

Procedure

Data collection began in the first week of January 2023 and ended in the first week of November 2023. The study announcement, which included the link to the survey, was disseminated via student and faculty Listservs in the investigators' institution, as well as to their community partners in their home state whom they have worked with in past projects. Additionally, we also reached out to colleagues from other institutions across the USA to announce this study to their networks. When individuals interested in the study clicked the survey's online link, they were guided through a series of questions that determined their eligibility to participate in the study. If they met the eligibility criteria (at least 18 years of age and identified as BIPOC or White) and willingly consented to the study, then they were allowed to continue with the survey; if they did not, they were automatically screened out of the study. Those who participated in the study had an opportunity to receive a $40 gift card as an incentive via random drawing.

Measures

The study's survey questionnaire was in English, and it included several key measures that have been psychometrically developed and validated. The study's outcome of interest, particularly among BIPOC respondents, was mental health status, and it was measured using the Mental Health Inventory-5 scale (MHI-5). This measure captures major depression, affective disorders, and anxiety disorders [34]. The mental health status score ranges from 5 to 30, with the lowest score indicating poor mental health.

Several predictor variables were tested for their correlation with mental health status among BIPOC participants. First was the participants' level of exposure to ethnic studies (ES). Respondents were asked if they had completed an ethnic studies class at any time during their formal education; examples of what an ethnic studies class was were provided in the instructions, including Alaska Native Studies, Asian American Studies, and African-American Studies. Those who answered that they have never taken an ES course, or are currently taking an ES course, or have taken a course with ES content, were categorized as No/Low ES exposure and were given a score of 0. On the other hand, those who had completed at least one ES course were classified as having full ES exposure and were given a score of 1. Another dependent variable tested was ethnic identity (EI). This was measured using the 17-item ethnic identity scale [35]. This scale's score ranges from 17 to 68, with higher scores indicating a stronger sense of ethnic identity.

Two BIPOC-specific stress factors (one distal and one proximal stress factor) related to the experience of racism were also included as predictor variables. The distal

stress factor we included was racial/ethnic discrimination, which was measured using Williams' Discrimination Scale (DIS) [36]. As for the proximal stress factor, we included internalized racial oppression (IRO), using the Social Dominance Orientation Scale (SDOS) [37] as a proxy measure. DIS has five items, with scores ranging from 5 to 25, with the highest score indicating experiencing high levels of discrimination. After the five discrimination level questions, respondents were asked whether the cause of their perceived discrimination was related to race/ethnicity or other. As for SDOS, it has 16 items, with scores ranging from 16 to 112. Given that high social dominance orientation is characterized by a stronger preference for hierarchy within any social system, a belief in dominating lower-status groups, and a predisposition toward anti-egalitarianism, high SDOS scores among BIPOCs were used to suggest higher levels of internalized racial oppression.

For White participants, there were two outcome variables of interest. The first was attitudes related to White supremacy and privilege; and the second was attitudes related to racial diversity and equity. The former was measured using SDOS (mentioned previously), with higher scores used to suggest having higher levels of White supremacist attitudes. In measuring attitudes related to racial diversity and equity, the Colorblind Racial Attitudes Scale (CRAS) was used [38]. It has 20 items, with scores ranging from 20 to 120. A high CRAS score was an indicator of more negative attitudes toward racial diversity and equity.

The predictor variables examined for White participants included exposure to ES and how much Diversity, Equity, and Inclusion (DEI) training they have had. The definition of DEI training was left for the respondents to interpret. This variable was scored on a Likert scale (0 = None at all; 1 = A little; 2 = A moderate amount; 3 = A lot; 4 = A great deal).

Demographic characteristics of the participants were collected to use as control variables in the regression analyses. Demographic variables included age (continuous), gender (categorized as male, female, or non-binary), education (categorized as < college or ≤ college), annual household income (categorized as < $40,000 or ≥ $40,000), and social ideology (5-point scale from 1 = very conservative, 2 = conservative, 3 = moderate, 4 = liberal, and 5 = very liberal). Regarding ethnicity, respondents were asked whether they identified as African American/Black, Alaska Native/American Indian, Asian, Latino/a/x, Native Hawaiian/Pacific Islander, White/Caucasian, or Multi-ethnic. While we recognize that each of these ethnicities haves different histories, contexts, and life situations, we aggregated them as BIPOCs in our primary analyses given their collective experience of racism.

Analysis

Univariate analyses were conducted with all variables of interest. Percentages were determined for all categorical variables, while means and standard deviations were assessed for all continuous variables. Additionally, univariate analysis also involved assessing the proportion of missing values for each variable of interest. Demographic variables with missing values were considered missing. However, for other key variables, including MHI-5, EI, SDOS, CRAS, and DIS, missing values were imputed with mean values calculated for each of the series. Imputation was also applied for ethnic studies exposure and DEI training. For these variables, missing values were assigned a value of 0, making the assumption that if the respondents did not report these, they were likely to not have been exposed or to not have knowledge of these. Note that we only applied data imputation if missing values were less than 10% for each of the said variables.

Bivariate analyses were also conducted. We first compared the experience of racial discrimination and internalized racial oppression between African Americans/Blacks, Alaska Natives/American Indians, Asians and Native Hawaiians/Pacific Islanders, and Latinos/as/x and other persons of color to provide some information on the extent of racism encountered by each of these groups. We then aggregated BIPOCs and compared BIPOCs and Whites in terms of their demographic characteristics, exposure to ethnic studies and DEI training, SDOS, CRAS, and DIS. Significant differences between these two groups were determined by performing an independent samples *t*-test when comparing means and performing chi-square tests when comparing proportions. In addition, we ran bivariate correlation analysis between ES, EI, IRO, DIS, and MHI-5 for BIPOCs who have reported experiencing racial discrimination. We chose this segment of our sample because we were interested in understanding the relationship of these aforementioned variables within the context of the experience of racism. As for the White respondents, we determined the correlation between ES, DEI, SDOS, and CRAS.

We performed three linear regression analyses to test the relationships we hypothesized in our proposed framework. The first regression model was specific for the BIPOC respondents who reported experiencing racial discrimination, with the outcome variable being mental health status. For this regression model, interaction effects were tested, specifically ES and EI, EI and IRO, and ES and DIS. As for the second and third regression models, they were specific for White respondents, with the outcome variable being SDOS and CRAS, respectively.

The significance level for this study was set at $p < 0.05$. All analyses were conducted using IBM SPSS Version 29.

Results

Sample Characteristics

A total of 2423 participants participated in the study, representing 45 states in the nation, including Washington, D.C. Most of the survey participants were male (66%), had some college education (53%), and had an annual household income of $40,000 or more (62%). Approximately 20% identified as White and 78% of respondents self-identified as BIPOC, of which 78% were African American/Black, 8% Alaska Native/American Indian, 7% Asian or Native Hawaiian or Other Pacific Islander, and 7% Other (which included Latinx and multiracial individuals). The participants' mean age was 31.2 years. In terms of the participants' ideology on social issues, they rated themselves, on average, to be moderate (3.0).

When comparing BIPOC and White participants, they were not significantly different in terms of education. However, significantly greater proportions of BIPOCs than Whites were males (BIPOC = 70% vs. Whites = 58%) and had an annual household income of less than $40,000 (BIPOC = 37% vs. Whites = 25%). On the other hand, White participants compared to BIPOCs had significantly higher mean age (BIPOC = 30.8 years vs. Whites = 32.5 years). Regarding exposure to ethnic studies, a significantly greater proportion of BIPOCs than Whites have been fully exposed to at least one ethnic studies course (BIPOC = 27% vs. Whites = 14%). Also, BIPOCs had significantly higher mean levels of DEI training exposure compared to their White counterparts (BIPOC = 2.0 vs. Whites = 1.8). Regarding mental health, White participants had significantly better mental health status, on average, than BIPOC participants (BIPOC = 18.3 vs. Whites = 20.4). For more details on the sample characteristics, please see Table 1.

Missing Values for Outcome and Predictor Variables

Missing values for each of the study's outcome and predictor variables were low. Approximately 4.7% was missing on

Table 1 Sample characteristics

Variables	BIPOC[1] (*N* = 1889) Percent or mean (*SD*)	White (*N* = 526) Percent or mean (*SD*)	Total (*N* = 2423) Percent or mean (*SD*)
Age	30.8 (5.9)***	32.5 (9.3)***	31.2 (6.8)
Gender			
Male	70.2%***	58.0%***	66.2%
Female	27.8%	39.7%	29.7%
Non-binary	2.0%	2.3%	2.0%
		(*N*) Percent Missing	(51) 2.1%
Education			
< College	45.5%	48.8%	45.3%
≥ College	54.5%	51.2%	52.7%
		(*N*) Percent Missing	(48) 2.0%
Annual household income			
< $40,000	37.3%***	25.2%	33.1%
≥ $40,000	62.7%	74.8%	62.1%
		(*N*) Percent Missing	(117) 4.8%
Social ideology (very conservative to very liberal)	3.0 (1.3)*	2.9 (1.2)*	3.0 (1.3)
		(*N*) Percent Missing	(141) 5.8%
Ethnic studies exposure			
No/low exposure	73.5%	85.6%	76.1%
Full exposure	26.5%***	14.4%***	23.9%
		(*N*) Percent Missing	(78) 3.2%
DEI training exposure	2.0 (1.0)***	1.8 (1.2)***	1.9 (1.0)
Mental health status	18.3 (3.5)***	20.4 (3.8)***	18.7 (3.7)

SD standard deviation

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

[1]BIPOC: Among BIPOCs, 78% were Black/African American, 8% Alaska Native/American Indian, 7% Asian or Native Hawaiian or Other Pacific Islander (NHOPI), and 7% Latinx or Other Persons of Color

average for each MHI-5 item. For EI items, 7.5% were missing on average, while for DIS items, 7.4% were missing. For ES and DEI items, 3.2% and 5.9%, respectively, were missing on average. As for SDOS items, 5.4% were missing; and for CRAS items, 5.7% were missing. Given that the missing values for these key variables did not exceed the 10% threshold set for this study, data imputation were performed for these variables.

Experience of Racism and Internalized Racial Oppression Among Different Racial Groups

Approximately 70% of BIPOCs reported being discriminated against due to race/ethnicity. However, when we disaggregated BIPOCs, we found differences in their rates of racial/ethnic discrimination. African Americans/Blacks reported the highest rate (75%) of racial/ethnic discrimination, followed by Latinos/as/x and other persons of color (63%). Over a third of Alaska Natives/American Indians and Asians and Native Hawaiian/Pacific Islanders reported experiencing racial/ethnic discrimination.

Different BIPOC groups also had different levels of internalized racial oppression. African Americans/Blacks had the highest mean level of internalized racial oppression, followed by Latinos/as/x and other persons of color, Alaska Natives/American Indians, and Asians and Native Hawaiian/Pacific Islanders. For more details, see Table 2.

Bivariate Correlations

Among BIPOCs who have experienced racial discrimination, there was a positive correlation between ES and EI ($r = 0.12$, $p < 0.01$), ES and DIS ($r = 0.17$, $p < 0.01$), and EI and MHI-5 ($r = 0.18$, $p < 0.01$). On the other hand, we found a negative correlation between EI and IRO ($r = -0.60$, $p < 0.01$), between IRO and MHI-5 ($r = -0.16$, $p < 0.01$), and between DIS and MHI-5 ($r = -0.12$, $p < 0.01$). Among Whites, there was a negative correlation between ES and SDOS ($r = -0.28$, $p < 0.01$) and between ES and CRAS ($r = -0.33$, $p < 0.05$). However, DEI had a negative correlation with SDOS ($r = -0.13$, $p < 0.01$), but not CRAS. Finally, for Whites, both CRAS and SDOS were positively correlated ($r = 0.49$, $p < 0.01$). For more details, see Table 3.

Table 2 Experience of racism and level of internalized racial oppression among BIPOC groups

Variables	African Americans/Blacks	Alaska Natives/American Indians	Asians and Native Hawaiians/Pacific Islanders	Latinos/as/x and Other Persons of Color	Total
	(*N* = 1457) Percent or mean (*SD*)	(*N* = 152) Percent or mean (*SD*)	(*N* = 124) Percent or mean (*SD*)	(*N* = 154) Percent or mean (*SD*)	(*N* = 1887) percent or mean (*SD*)
Racial Discrimination					
Yes	75.0%	33.6%	38.7%	62.3%	65.1%
No	25.0%	66.4%	61.3%	37.7%	34.9%
Internalized racial oppression	62.7 (7.9)	40.6 (10.7)	35.1 (15.2)	49.9 (18.9)	58.2 (13.4)

Table 3 Means, standard deviations (SD), and intercorrelations among select variables for BIPOCs and Whites

BIPOCs, $N = 1312$[1]							Whites, $N = 526$					
	M (SD)	ES	EI	IRO	DIS	MHI-5		M (SD)	ES	DEI	SDOS	CRAS
ES	0.3 (0.4)	–					ES	0.1 (0.4)	–			
EI	45.3 (6.0)	0.12**	–				DEI	1.8 (1.2)	−0.001	–		
IRO[2]	60.6 (11.8)	−0.09**	−0.60**	–			SDOS	48.0 (15.4)	−0.28***	−0.13**	–	
DIS	14.0 (3.3)	0.17**	−0.01	−0.02	–		CRAS	65.9 (11.6)	−0.33***	0.99	0.49***	–
MHI-5	18.2 (3.2)	0.01	0.18**	−0.16**	−0.12**	–						

ES Ethnic Studies, *EI* Ethnic Identity, *DIS* level of discrimination, *MHI-5* Mental Health Inventory Scale, *SDOS* Social Dominance Scale, *CRAS* Colorbline Racial Attitudes Scale, and *DEI* Diversity Equity and Inclusion training

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

[1]Among the 1889 BIPOCs, 1312 (69.5%) reported being discriminated against due to race/ethnicity

[2]IRO: Internalized Racial Oppression used the Social Dominance Scale (SDOS) as a proxy measure

Predicting Mental Well-being of BIPOCs

Linear regression was conducted to determine predictors of good mental health among BIPOCs who have experienced racial/ethnic discrimination. Controlling for demographic factors, there was a significant negative relationship between DIS and MHI-5 (Std. $\beta = -0.17$, $p < 0.001$). As the level of discrimination increases, mental health status decreases. Additionally, there was a significant interaction effect between ES and EI (Std. $\beta = -0.12$, $p < 0.05$), as well as EI and IRO (Std. $\beta = 0.58$, $p < 0.001$). However, we did not find a significant interaction between ES and DIS. For this model, the proportion of variance of the dependent variable explained by the independent variables was 0.10. For more details, see Table 4.

We plotted the interaction terms to determine the nature of their relationships. With mental health status on the *y*-axis, EI on the *x*-axis, and ES as the marker (0 = No/Low Exposure and 1 = Full exposure), we found a positive correlation between EI and mental health status for BIPOCs with no/low ES exposure and full ES exposure. Additionally, the relationship between EI and mental health status was stronger among those with no/low ES exposure compared to those with full ES exposure (see Fig. 2 for details).

In understanding how the interaction of EI and IRO relates to mental health status, we plotted the three variables as follows. We put mental health status on the *y*-axis, IRO on the *x*-axis, and EI as the marker (0 = Low EI [at or below the median] and 1 = High EI [above the median]). From this graph, we found a negative correlation between IRO and mental health status regardless of EI levels. Additionally, those with high levels of EI had much better mental health status with increasing levels of IRO. At the highest level of IRO, mental health was poor regardless of EI levels (see Fig. 3).

Predicting White Supremacist Attitudes and Attitudes Toward Racial Diversity and Equity Among Whites

Linear regression was conducted to determine predictors of White supremacist attitudes among White participants. Controlling for demographic variables, there was a negative correlation between exposure to ES and White supremacist attitudes (Std. $\beta = -0.28$, $p < 0.001$). However, exposure to DEI training did not have a significant correlation with decreased levels of White supremacist attitudes. For this model, the proportion of variance of the dependent variable explained by the independent variables was 0.24.

Table 4 Linear regression analysis predicting mental health status among BIPOC respondents, $N = 1250$

Variables	β	SE	Std. β	95% CI LL-UL
Constant	28.78	3.23		22.45 to 35.12
Control variables (demographics)				
Age	0.04	0.02	0.06	−0.001 to 0.07
Gender (male = 1; female = 2)[1]	0.07	0.21	0.01	−0.34 to 0.47
Education (< College = 1; ≥ College = 2)	−0.97	0.22	−0.15***	−1.40 to −0.54
Income (< $40,000 = 1; ≥ $40,000 = 2)	0.63	0.22	0.10**	0.21 to 1.06
Social ideology (very conservative to very liberal)	−0.17	0.08	−0.07*	−0.32 to −0.01
Predictor variables				
Ethnic identity (EI)	−0.11	0.06	−0.20*	−0.23 to −0.002
Ethnic studies exposure (ES) (no/low exposure = 1; full exposure = 2)	−0.62	1.01	−0.09	−2.60 to 1.35
Level of racial/ethnic discrimination (DIS)	−0.17	0.04	−0.17***	−0.23 to −0.10
Internalized racial oppression (IRO)[2]	−0.23	0.06	−0.77***	−0.33 to −0.12
Interaction terms				
ES × EI	−0.01	0.01	−0.12*	−0.03 to 0.00
EI × IRO	0.004	0.001	0.58***	0.002 to 0.006
ES × DIS	0.10	0.06	0.21	−0.03 to 0.23
$R^2 = 0.10$ F for change in $R^2 = 10.53^{***}$				

CI confidence interval, *LL* lower level, *UL* upper level

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

[1]Non-binary gender was removed from the analysis due to a small sample size

[2]Measured using the Social Dominance Scale (SDOS)

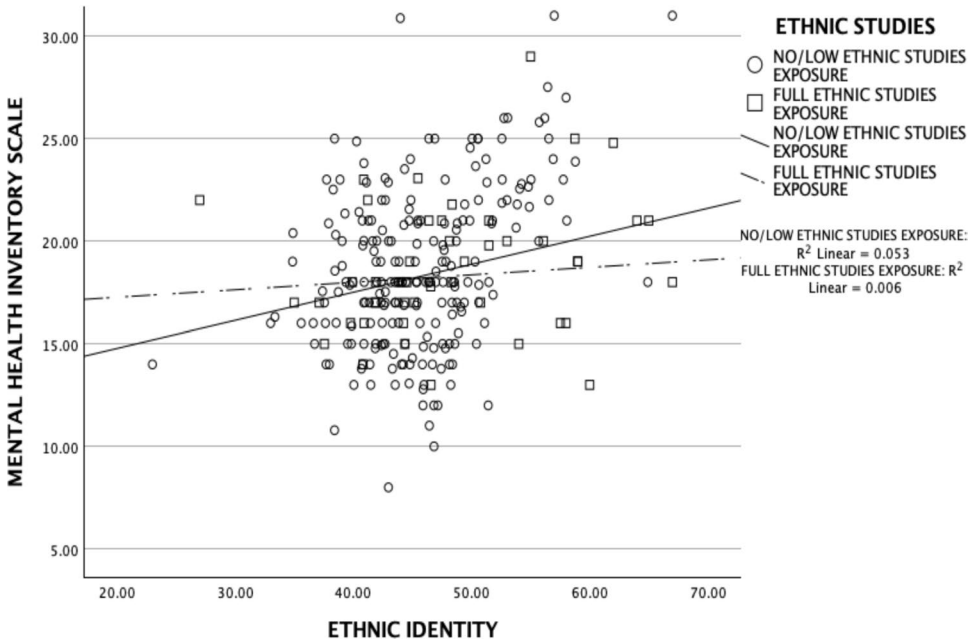

Fig. 2 Interaction between ethnic identity and ethnic studies exposure plotted against mental health condition among BIPOCs who have been discriminated against due to race/ethnicity (N = 1,181)

With regard to predictors of negative attitudes toward racial diversity and equity among White participants, we also found a negative correlation between exposure to ES and negative attitudes toward racial diversity and equity (Std. $\beta = -0.30$, $p < 0.001$). However, we also found that exposure to DEI training did not have a significant correlation with attitudes toward diversity and equity. For this model, 27% of the variance of the dependent variable was explained by the independent variables. For more details, see Table 5.

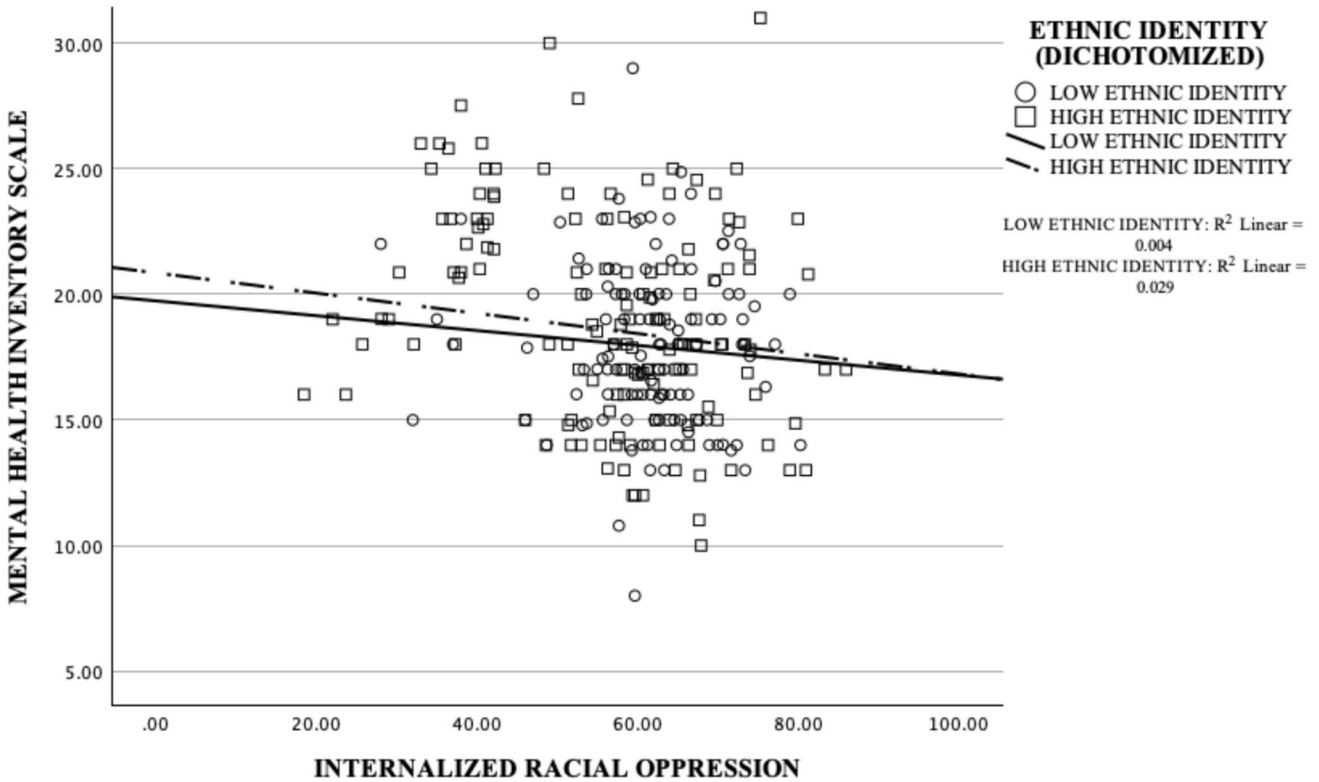

Fig. 3 Interaction between internalized racial oppression and ethnic identity against mental health condition among BIPOCs who have been discriminated against due to race/ethnicity (N = 1,181)

Table 5 Linear regression analysis predicting white supremacist attitudes[1] negative attitude towards racial diversity and equity[1] among white respondents, $N = 450$

Variables	Predicting White Supremacist Attitudes[1]				Predicting Negative Attitude Towards Racial Diversity & Equity[2]			
	β	SE	Std. β	95% CI LL - UL	β	SE	Std. β	95% CI LL - UL
Constant	78.01	4.28		69.61 – 86.42	89.24	3.10		83.16 – 95.32
Control Variables (Demographics)								
Age	–0.35	0.07	–0.22***	–0.49 to –0.21	–0.03	0.05	–0.03	–0.13 – 0.08
Gender (Male = 1; Female = 2)	–9.47	1.28	0.33***	–11.98 to –6.96	–5.49	0.93	–0.26***	–7.30 to –3.67
Education (< College = 1; >/= College = 2)	–3.15	1.34	–0.11*	–5.783 to –0.52	–3.46	0.97	–0.16***	–5.37 to –1.56
Income (< $40,000 = 1; >/= $40,000 = 2)	0.94	1.67	0.03	–2.35 – 4.22	–1.26	1.27	–0.05	–3.63 – 1.12
Social Ideology (Very Conservative to Very Liberal)	0.43	0.54	0.04	–0.63 – 1.49	–2.11	0.39	–0.23***	–2.88 to –1.34
Predictor Variables								
Ethnic Studies Exposure (No/low exposure = 0; Full exposure =1)	–11.83	1.81	–0.28***	–15.38 to –8.27	–9.36	1.31	–0.30***	–11.93 to –6.79
Diversity Equity & Inclusion Training	–0.68	0.52	–0.06	–1.70 – 0.34	0.43	0.38	0.05	–0.31 – 1.17
$R^2 = 0.24$					$R^2 = 0.27$			
F for change in $R^2 = 13.10^{***}$					F for change in $R^2 = 23.23^{***}$			

CI, Confidence Interval; *LL*, Lower Level, *UL*, Upper Level

$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

[1]Measured using the Social Dominance Scale

[2]Measured using the Colorblind Racial Attitudes Scale

Discussion

Key Findings

The first aim of this study was to assess whether there is a positive correlation between ethnic identity and mental well-being among BIPOCs and whether this correlation is moderated by their exposure to ethnic studies. Our findings show that the positive correlation between ethnic identity and mental health status among BIPOCs was indeed moderated by ethnic studies. However, this moderation effect was weaker than we expected. We found that ethnic identity appears to be a stronger predictor of mental health status among those with no/low ethnic studies exposure compared to those with full exposure to ethnic studies. In other words, when BIPOCs are exposed more to ethnic studies, ethnic identity is not as impactful to their mental health as compared to those with no/low ethnic studies exposure. On the other hand, our data also shows that, at low levels of ethnic identity, BIPOCs who had full exposure to ethnic studies had better mental health status as compared with those who had no or low ethnic studies exposure. This suggests that ethnic studies may be particularly beneficial in terms of building resilience and impacting mental health in the early stages of ethnic identity development among BIPOCs. Interestingly, at high levels of ethnic identity, our data shows that those with no/low ethnic studies exposure had better mental health status than those with full ethnic studies exposure. We speculate that the lower mental health status of those with high ethnic identity and full ethnic studies exposure may be attributed to increased awareness of the racism they experience. As our data shows, there is a positive correlation between ethnic studies exposure and discrimination, and there is also a negative correlation between racial discrimination and mental health. Thus, if those with high ethnic identity and full ethnic studies exposure are more aware of racial discrimination, they will most likely exhibit lower levels of mental health status as compared to those with high ethnic identity but no/low ethnic studies exposure who may not be thoroughly aware of the racial discrimination they are being subject to. As for those with no/low exposure to ethnic studies, we need to find ways to enhance or strengthen their ethnic identity because ethnic identity is directly related to mental health. Our data suggests that ethnic studies exposure can be a factor in one's ethnic identity. However, the data that we collected was limited in that we were not able to tease out whether completing one ethnic studies class or multiple ethnic studies classes is sufficient to significantly increase ethnic identity whereby BIPOCs can reap its positive mental health effect. In the absence of ethnic studies exposure, BIPOCs may be exposed to family, peer, and/or community environments that promote the value and relevance of their race/

ethnicity. This type of exposure can also strengthen racial identity, as shown in one study among African American adolescents [39]. But, in the case where BIPOCs do not have these types of resources and social support, being exposed to ethnic studies is a worthwhile approach.

Our study's second aim was to assess whether ethnic identity mitigates the negative mental health effects of internalized racial oppression among BIPOCs. As expected, our findings show that as internalized racial oppression increases, mental health status decreases. Additionally, those with high levels of ethnic identity tend to have better mental health status at almost all levels of internalized racial oppression, suggesting that ethnic identity may have a buffering effect on the negative mental health effects of internalized racism. Given that our data shows ethnic studies is positively correlated with ethnic identity, we speculate that being exposed to ethnic studies can indirectly help BIPOCs temper the negative mental health effects of internalized racism. At the highest levels of internalized racial oppression, mental health status is poor regardless of the level of ethnic identity. This may be the case because, at high levels of internalized racial oppression, ethnic identity may be at its lowest level as well.

Our study's third aim was to explore whether exposure to ethnic studies and/or DEI training among Whites has a negative correlation with White supremacist attitudes and positive attitudes toward racial diversity and equity. Indeed, we found that Whites who were fully exposed to ethnic studies had lower levels of White supremacist attitudes and more positive attitudes toward racial diversity and equity. These findings suggest that ethnic studies exposure among Whites can potentially increase their consciousness toward the struggles and plight of the BIPOC community, which, in turn, may lead to anti-racist behaviors and increased social support and advocacy for equity and justice of this marginalized community. Interestingly, DEI training did not show any significant, independent correlation with decreased White supremacist attitudes and decreased negative attitudes toward racial diversity and equity. Unfortunately, this study's survey did not ask about the content of the DEI training the survey respondents took. Not all DEI training offered across the nation and various places of employment are alike. Attitudes related to White supremacy and racial diversity and equity may be affected differently depending on the types of topics covered, learning objectives, and method of delivery in the training. Additionally, changing attitudes takes time. There is a greater opportunity to change attitudes when taking ethnic studies course because it typically spans between 10 and 15 weeks, and it involves reading various articles and books, writing assignments, discussion, and out-of-classroom or community engagement activities, while DEI trainings offered in places of employment, educational setting, or community are not as comprehensive, typically spanning a few hours or a full day. The one study in the current literature where DEI training was shown to significantly increase knowledge about race and racism and understanding of implicit bias among its participants, which included Whites, was a comprehensive two-session training that involved skill-building activities on the topic of intersectional identities, racialized inferiority/superiority, and addressing microaggressions [30]. This type of comprehensive training, however, may not be typical in workplaces nationwide.

Limitations

This study has several limitations. First, given that the participants of this study were recruited via convenience sampling, our sample was not representative of the general US population. Indeed, a significant portion of our sample was African American/Black men. We are unsure why this was the case because we did not intentionally oversample this group. However, it is possible that this group was more interested in participating in our survey than other groups or that this group was more active in widely sharing our survey with their African American/Black peers. Related to this is the possibility that Whites who were drawn to participating in our study were those who perhaps were more amenable to issues of racial equity and justice, and thus were more likely to have lower levels of White supremacist attitudes and have greater appreciation of diversity regardless of whether they have taken ethnic studies and/or have participated in DEI training. Another limitation of our study was that, although we grouped various non-White racial/ethnic groups under the category of BIPOCs and non-BIPOCs as Whites in both our bivariate and multivariate analyses, their socio-historical contexts are not homogeneous. Indeed, when we compared experiences of racism between BIPOC groups, their rates varied. We acknowledge that there are differences within and between these racial/ethnic subgroups in terms of life context and situation, as well as their intersectionalities with gender, citizenship, socioeconomic status, geographic location, and others. Unfortunately, our research study is limited in that it does not tease out these differences. Perhaps future research can investigate this further. Related to this, we also acknowledge that there is diversity among Whites. Unfortunately, our study, like many other health or social science research investigating racial/ethnic disparities, portrays the racial/ethnic category of Whites as a monolith. We are aware, however, that there is an emerging literature on White racialization, and there is an argument to be made toward contextualizing and the avoidance of overgeneralizing White identity [40, 41]. We were not able to consider this in our study because this was beyond the scope of our research and the limitations of the data we collected. Another limitation of our study is its cross-sectional study design. The significant correlations found in

this study do not necessarily imply causal relationships. A more rigorous study design is required to establish this. Additionally, because of this study design, we cannot establish for certain when and how ethnic identity developed (i.e., is it before or after ethnic studies exposure?) and when and how mental health benefits are reaped from increased ethnic identity. Fourth, the data collected in this study were based on self-reports. As such, survey responses have the potential for recall and social desirability bias. Finally, regression models in this study had generally low goodness-of-fit values (R^2), indicating that the percentage of the variance in the study's outcome variables explained collectively by the independent variables in the models was low. Despite the low R^2 value of the regression models, however, it does not negate the significant variables predictive of the dependent variables. Studies that aim to explain human behavior typically have R^2 values less than 50%, given the difficulty in predicting this as compared to physical processes [42].

Conclusion

Racism is considered a major public health threat in the USA [43, 44]. Literature shows that developing ethnic identity among BIPOCs is important in building resilience from the harmful effects of racism on their mental health. Findings from this study suggest that ethnic studies is a promising approach to helping develop ethnic identity among BIPOCs, as well as in mitigating the negative mental health effects of internalized racism. Moreover, this educational approach can potentially help White people develop attitudes towards greater appreciation of racial justice and equity which is a helpful precursor to being allies of and advocates for the BIPOC community and a step toward addressing racism in the country.

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Author contribution All authors contributed to the study conception and design. Material preparation, data collection, and analysis were performed by Dr. Gabriel M. Garcia, with assistance from Dr. EJ David. The first draft of the manuscript was written by Dr. Garcia, while Dr. EJ David commented and provided edits to the succeeding versions of the manuscript. All authors read and approved the final manuscript.

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Data Availability Data related to this study is available upon request to the principal investigator.

Declarations

Financial interests All authors have no relevant financial or non-financial interests to disclose.

Ethics approval Approval of this study was granted by the University of Alaska Anchorage Institutional Review Board (IRB #: 1875707).

Informed consent Was obtained from all individual participants included in the study.

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