

## Understanding the Role of Perceived Racial Discrimination on Adolescent Mental Health During the COVID-19 Pandemic

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### ABSTRACT

**Background:** Adolescent mental health declined during the COVID-19 pandemic. Racial discrimination, which may negatively affect adolescent mental health, has increased. This study sought to understand whether pre-pandemic reports of racial discrimination predicted changes in adolescent depression, anxiety, and self-esteem from before to during the COVID-19 pandemic.

**Methods:** Two online surveys were administered at two public high schools in semi-rural, north-central Georgia; one in Spring 2020, just before the closing of public schools due to COVID-19; the other to the same students in Fall 2020.

**Results:** Most participants were White (62%) and the majority (88%), reported the same or better treatment than other races. No significant associations were found between baseline perceived racial discrimination and changes in mental health outcomes (depression,  $p=0.6194$ ; anxiety,  $p=0.8240$ ; self-esteem,  $p=0.0731$ ).

**Conclusions:** This study did not find that racial discrimination affected adolescent mental health during the COVID-19 pandemic in a sample with majority White students; however, there is a need for future research to examine racial discrimination and mental health stigma among rural adolescents. These findings could help to improve access and utilization of mental health services as well as promote policy reform to foster more equitable practices.

**Keywords:** Adolescent mental health, COVID-19, Racial discrimination

When schools physically closed due to the COVID-19 pandemic in mid-March 2020, over three million students who had exclusively received mental health services through their schools lost access to that care (Substance Abuse and Mental Health Services Administration, 2020). The sudden loss of school and/or community-based mental health care, combined with the novel stressors of the pandemic, proved to be challenging (YoungMinds, 2020). The Centers for Disease Control and Prevention (CDC) reported a 31% increase in emergency room visits due to acute mental health crises from April-October 2020 among 12-17 year olds (Leeb, 2020).

Adolescent experiences of racial discrimination can adversely affect mental health (Benner et al., 2018; Huynh & Fuligni, 2010; Niwa et al., 2014; Seaton et al., 2008). Such experiences are associated with increases in anxiety, depression, difficulty in peer relationships, lower self-esteem, (Benner et al., 2018; Huynh & Fuligni, 2010; Niwa et al., 2014) distress, somatic symptoms, reduced academic achievement, and risky health behaviors (Benner et al., 2018; Huynh & Fuligni, 2010). Repeated incidents of racism may provoke a physiological response that when compounded over time, can erode mental and physical health (Krill Williston et al., 2019; Smith & Pössel, 2021; Trent et al., 2019).

### INTRODUCTION

During the summer of 2020, there was widespread media attention to the police murder of George Floyd, increasing the potential for vicarious racism, which is when a person witnesses racism towards another of the same race (Chae et al., 2021; Cheah et al., 2020). There was also the onset of COVID-19-associated discrimination (CAD), which is discrimination towards people with similar social characteristics to those who are assumed to spread COVID-19 (Liu et al., 2020). Almost half of Chinese-American parents and their children reported experiencing or witnessing CAD, which is associated with increased anxiety and depressive symptoms. Adolescent mental health is more negatively affected by vicarious racism and Sinophobia compared to adults (Cheah et al., 2020).

### Purpose

During the pandemic, incidences of racial discrimination increased (Cheah et al., 2020; Ha et al., 2021; Liu et al., 2020), and adolescent mental health challenges became more pervasive (Leeb, 2020; Meade, 2021; Meherali et al., 2021; Patrick et al., 2020; YoungMinds, 2020), while access to mental health services declined (Bartek et al., 2021; Power et al., 2020). This study sought to answer: do pre-COVID-19 perceptions of racial discrimination predict

changes in mental health outcomes during the COVID-19 pandemic among high schoolers in semi-rural Georgia? We hypothesized that racial discrimination would predict changes in mental health outcomes (as measured by depression, anxiety, and self-esteem), particularly for students who identified as Asian, Black, Latinx, and multiracial.

## **METHODS**

### **Study Design**

This study was a secondary analysis of data collected through two online surveys administered at two public high schools. The first survey was administered between February 17 – March 4, 2020, just prior to the closing of public schools in Georgia due to the COVID-19 pandemic. A second survey including COVID-19 items was administered from November 16 - December 17, 2020. The Institution's Institutional Review Board reviewed and approved all study protocols and surveys.

### **Participants and Setting**

The study population was 9th grade students in Spring 2020, who became 10th graders in Fall 2020, attending two semi-rural public high schools in north-central Georgia. In Spring 2020, 9th graders (N=1,133) from both schools, were recruited for participation in the survey. Parents could opt their child out of the study, and participating students indicated assent. A total of 863 students participated in the spring survey, 408 in the fall, and 223 completed both. Students who completed all the mental health measures on both surveys, (n=129) were included in the pair-wise analysis.

### **Data Sources**

Three data sources were used: Time 1 (T1), Spring survey; Time 2 (T2), Fall survey; demographic data from the school district's Office of Student and Data Services. Data collected from the two schools were combined for analyses. All surveys were administered online via Qualtrics (Qualtrics, 2021).

The T1 survey was administered on school laptops during advisory periods or health classes. This survey consisted of two sections completed within 15 days. Part one consisted of 102 items with domains including: demographics, sleep habits/hygiene, daytime sleepiness, physical health, health conditions, activities, physical activity, and nutrition. Part two consisted of 106 items with domains including: technology use, perceived discrimination, mental health, stress, self-esteem, bullying, social support, loneliness, home/neighborhood.

The T2 survey was administered online during in-person class on school laptops (n=89). For the 40 students attending virtually, the survey was sent to the student's school email address. This survey consisted of 180 items with domains including: demographics, sleep habits/hygiene, daytime

sleepiness, COVID-19 (worry, exposure, experiences, beliefs, online learning, behavior, social norms), physical health, health conditions, activities, physical activity, caffeine, technology use, perceived discrimination, mental health, stress, self-esteem, bullying, social support, loneliness, home/neighborhood.

## **STUDY MEASURES**

### *Exposure*

#### **Perceived Racial Discrimination**

A modified item from the Reactions to Race Module was used (Centers for Disease Control and Prevention [CDC], 2010). Participants were asked, "Since the start of the school year (Fall 2019) at school, do you feel you were treated worse than, the same as, or better than people of other races?" Data were dichotomized into "worse," and "same/better" categories as only three students reported better treatment.

### *Outcomes*

#### **Depression**

A modified Patient Health Questionnaire for Adolescents (PHQ-8) was utilized (Johnson, 2002). Participants were asked, "How often have you been bothered by each of the following symptoms during the past 7 days?" Answer choices were 1, "not at all," to 5, "every day." Answers for each item were recoded from 1-5 to 0-4.

#### **Anxiety**

Anxiety was measured with the Severity Measure for Generalized Anxiety Disorder – Child Age 11-17 (GAD) (Craske, 2013). Students responded to the prompt, "During the past 7 days, I have..." and considered scenarios such as, "felt anxious, worried or nervous." Answers ranged from 0, "never" to 4, "all of the time."

#### **Self-esteem**

Self-esteem was measured with the Single Item Self-Esteem Scale (Robins et al., 2001). Participants were asked how strongly, "I have high self-esteem," was true. Answers ranged from 1, "not very true of me," to 5, "very true of me." The scores were reverse coded so that higher scores on all mental health items represent worse mental health outcomes.

### *Covariates*

All student-reported covariates were taken at T1.

#### **Demographics**

Student race and ethnicity were characterized as Hispanic, non-Hispanic Asian, non-Hispanic Black, non-Hispanic

multi-racial, or non-Hispanic White. Gender was reported as male or female. Eligibility for Free and Reduced Price Lunch (FRPL) was reported as yes or no.

### **Parental Employment**

Students answered a yes/no question regarding their parent(s)/guardian(s) employment status.

### **Physical Health**

Respondents answered the question, "...how would you rate your physical health?" from the Patient-Reported Outcomes Measurement Information System Global Health Items (Hays et al., 2015). Answers choices ranged from 1 "poor," to 5 "excellent." Responses were categorized into three groups.

### **Sleep**

Sleep was queried with, "...do you feel you usually get..." with the choice of three responses, "Too much ...?" "Enough ...?" or "Too little sleep?" Answers were dichotomized into the categories "enough," or "too much/too little," due to only three students having too much sleep.

### **Physical Activity**

The CDC recommends adolescents perform a cumulative 60 minutes of moderate/vigorous activity daily (CDC, 2021). Participants were asked, "During the past 7 days, on how many days were you physically active for a total of at least 60 minutes per day?" Respondents could choose between 0-7 days. The answers were dichotomized as meeting CDC standards or not.

### **Stress**

A modified Adolescent Stress Questionnaire – Short was utilized (Ertanir et al., 2021). Two items were removed for redundancy and survey length. Participants followed the prompt, "...indicate how stressful you have found each of the following...during the past 6 months." An example item would be, "arguments at home." Answer choices ranged from 1, "N/A or has not happened," to 6, "very stressful." Summed scores were categorized into three groups.

### **Loneliness**

The 4-Item Loneliness Scale was utilized (Roberts et al., 1993). Students indicated how frequently they experienced each of the prompts. An example item was, "I feel left out." Answer choices ranged from 1, "I never feel this way," to 4, "I often feel this way." Answers were recoded from 1-4 to 0-3 and summed scores were categorized into four groups.

### **Bullying**

Respondents answered the yes/no question, "During the past 12 months, have you ever been bullied?"

### **Data Analysis**

All data were analyzed using SAS 9.4 (SAS Institute Inc., 2013). Descriptive statistics of all variables were performed. Mean item scores of depression, anxiety, and self-esteem were calculated for T1 and T2. A change score for each mental health variable was created by subtracting the means of T1 from T2.

Bivariate analyses were conducted to examine if relationships existed between the covariates and exposure with mental health change scores.

Before conducting multivariate model testing, we examined whether perceived racial discrimination was associated with the depression, anxiety, or self-esteem change scores at the  $p < 0.20$  level (Hosner & Lemeshow, 1989). If a significant relationship did not exist, then the multivariate model was not performed. If a significant relationship was found, then a multivariate regression model was conducted including any covariates that were significant at  $p < 0.20$ .

## **RESULTS**

### **Descriptive Statistics**

The majority of the participants were White (62%). Most (93%) reported at least one parent was employed, and the majority (88%) reported same/better treatment than other races. (Table 1).

### **Bivariate Analysis**

Higher scores on all mental health items indicated worse mental health.

Depression scores were consistently low: T1 depression mean=1.41 (SD=0.96), T2 depression mean=1.46 (SD=1.15), and depression change mean=0.04 (SD=1.05). Perceived racial discrimination was not significantly associated with depression change. (Table 2).

Anxiety scores were consistently low: T1 anxiety mean=0.92 (SD=0.91), T2 anxiety mean=1.09 (SD=1.09), and anxiety change mean=0.17 (SD=0.93). There was no association between anxiety change and perceived racial discrimination.

Self-esteem scores were consistently moderate: T1 self-esteem mean=3.02 (SD=1.16), T2 self-esteem mean=3.26 (SD=1.18), and self-esteem change mean=0.24 (SD=1.08). Perceived racial discrimination was associated with self-esteem change ( $p=0.0731$ ); therefore a linear regression model was created. Three covariates that were also associated were included in the model: race and ethnicity ( $p=0.1818$ ), parent/guardian employment ( $p=0.1143$ ), and sleep ( $p=0.0661$ ).

**Table 1**

*Participant characteristics of students from two high schools in semi-rural Georgia (N=129)*

Measures	n	Percentages
<b>Race/Ethnicity</b>		
Asian	8	6%
Black	8	6%
Latinx	28	22%
Multiracial	5	4%
White	80	62%
<b>Gender</b>		
Female	73	57%
Male	56	43%
<b>Free and Reduced Price Lunch</b> Yes	54	42%
<b>Parent Employed</b> -Yes	98	93%
<b>Health</b>		
Poor/Fair	30	25%
Good	53	44%
Very Good/Excellent	37	31%
<b>Sleep</b>		
Enough	47	39%
Too Much/Too Little	74	61%
<b>Physical Activity</b>		
Meets CDC guidelines	14	12%
<b>Stress</b>		
None	24	22%
A Little	70	64%
Moderate to Very	15	14%
<b>Loneliness</b>		
Never	24	19%
Rarely	38	30%
Sometimes	43	34%
Often	22	17%
<b>Bullying</b> - Yes	22	17%
<b>Discrimination</b>		
Worse	15	12%
Same/Better	114	88%

**Table 2.***Bivariate analysis of covariates and risk factor, with depression, anxiety, and self-esteem change scores<sup>†</sup>*

Covariates from T1	Depression Change <sup>†</sup> Mean M=0.04 (SD=1.05)	Depression Change p-value	Anxiety Change <sup>†</sup> Mean M=0.17 (SD=0.93)	Anxiety Change p-value	Self-Esteem Change <sup>†</sup> Mean M=0.24 (SD=1.08)	Self-Esteem Change p-value
<b>Race &amp; Ethnicity</b>						
Asian	-0.14 (1.36)	0.6995	0.48 (1.32)	0.4143	-0.38 (1.06)	0.1818*
Black	-0.31 (0.86)		-0.28 (0.66)		0.63 (0.92)	
Latinx	0.24 (1.11)		0.16 (1.16)		0.14 (0.89)	
Multiracial	0.18 (1.44)		-0.26 (0.48)		-0.40 (1.14)	
White	0.02 (1.00)		0.22 (0.84)		0.34 (1.14)	
<b>Gender</b>						
Female	0.13 (1.00)	0.2961	0.29 (0.81)	0.1022*	0.15 (1.07)	0.2865
Male	-0.07 (1.11)		0.01 (1.05)		0.36 (1.10)	
<b>FRPL</b>						
Yes	0.13 (1.10)	0.4502	0.26 (0.95)	0.3864	0.31 (0.97)	0.5086
No	-0.02 (1.01)		0.11 (0.92)		0.19 (1.16)	
<b>Parent Employed</b>						
Yes	0.20 (1.12)	0.3293	0.89 (1.52)	0.2354	0.17 (1.01)	0.1143*
No	-0.03 (1.03)		0.13 (0.83)		0.71 (0.76)	
<b>Health</b>						
Poor/Fair	0.03 (0.82)	0.8368	0.13 (0.68)	0.9215	0.1 (1.27)	0.7455
Good	-0.08 (1.03)		0.13 (0.82)		0.19 (0.96)	
Very Good/ Excellent	0.04 (1.21)		0.20 (1.10)		0.30 (1.00)	
<b>Sleep</b>						
Enough	0.11 (0.15)	0.3363	0.23 (0.91)	0.5086	0.40 (0.85)	0.0661*
Too Much/ Little	-0.08 (1.03)		0.11 (0.86)		0.07 (1.14)	
<b>Physical Activity<sup>¶</sup></b>						
Yes	-0.34 (1.23)	0.2953	-0.06 (1.20)	0.4791	0.29 (1.38)	0.8031
No	0.03 (1.01)		0.18 (0.83)		0.19 (1.01)	
<b>Stress</b>						
None	0.41 (0.94)	0.2391	0.38 (0.93)	0.4466	0.46 (1.02)	0.5511
A Little	0.01 (0.97)		0.12 (0.70)		0.21 (1.15)	
Moderate/ Very	0.07 (1.29)		0.15 (1.18)		0.47 (1.19)	
<b>Loneliness</b>						
Never	0.24 (1.06)	0.5704	0.32 (1.03)	0.8294	0.5 (1.02)	0.4015
Rarely	-0.06 (1.02)		0.19 (1.02)		0.21 (0.99)	
Sometimes	0.13 (1.06)		0.14 (0.78)		0.28 (1.20)	
Often	-0.13 (1.11)		0.07 (1.01)		-0.05 (1.10)	
<b>Bullying</b>						
Yes	0.11 (1.39)	0.7878	0.13 (1.53)	0.8839	0.09 (1.23)	0.5274
No	0.03 (0.97)		0.18 (0.76)		0.27 (1.05)	

**Table 2. Continued**

<b>Discrimination</b>						
Worse						
Same/Better	-0.10 (1.19)	0.6194	0.11 (1.24)	0.8240	-0.27 (1.10)	0.0731*
	0.06 (1.03)		0.18 (0.89)		0.31 (1.07)	

\* Statistically significant at  $p < 0.20$

† Change scores are T2 mean – T1 mean. Higher scores = worse mental health. Scale of 0-4 for depression/anxiety; 1-5 for self-esteem.

‡ Meets CDC guidelines

**Table 3.**

Multivariate Linear Regression for Self-Esteem Change with risk factor and variables significant at the bivariate level

	$\beta$	95% confidence interval	p-value
<b>Racial Discrimination</b>			
Same/Better	Ref*		
Worse	-0.54	(-1.11, 0.03)	0.0626
<b>Race and Ethnicity</b>			
White	Ref		
Asian	-0.43	(-1.22, 0.36)	0.2829
Black	0.58	(-0.14, 1.29)	0.1133
Latinx	0.09	(-0.36, 0.50)	0.6832
Multiracial	-0.16	(-1.30, 0.98)	0.7807
<b>Parent Employment</b>			
Yes	Ref		
No	0.38	(-0.35, 1.11)	0.3041
<b>Sleep</b>			
Enough	Ref		
Too Much/Too Little	-0.33	(-0.71, 0.04)	0.0814

\*Referent group

### Multivariate Linear Regression

Racial discrimination was not found to predict changes in self-esteem at a statistically significant level when controlling for race and ethnicity, parent employment, and sleep, ( $p = 0.0626$ ). (Table 3).

### DISCUSSION

The findings of this study differed from existing literature regarding declines in adolescent mental health and (Leeb, 2020; Meade, 2021; Meherali et al., 2021; Patrick et al., 2020; YoungMinds, 2020) reports of racial discrimination during the COVID-19 pandemic (Cheah et al., 2020; Ha et al., 2021; Liu et al., 2020), as well as effects of racial discrimination on adolescent mental health (Benner et al., 2018; Huynh & Fuligni, 2010; Niwa et al., 2014; Seaton et al., 2008).

While the findings of this study were unexpected, we cannot discount the possibility that the results may be representative of these students. During the study period, this particular county experienced fewer COVID-19 cases

(USAFacts, 2022), most students returned to in-person school in Fall 2020, and the majority had at least one parent/guardian who continued to work. It is possible that these adolescents experienced fewer pandemic-related changes to their daily routine, and thus faced less declines in their mental health. Conversely, we cannot rule out that the students with better mental health fully completed these items in the surveys, and/or these students may have under-reported their mental health challenges and/or experiences of racial discrimination.

### Strengths

This study has at least four strengths. The greatest strength of this study was the unique opportunity for comparison of pre-COVID-19 data with data collected during the early pandemic from the same students. Secondly, data concerning many covariates along several domains were collected. Third, many of the instruments used in the study were grounded in theory and well-validated. Finally, the study's research question was novel.

## Limitations

Despite the strengths of the study, there were at least three limitations. Survey fatigue and perceived confidentiality bias may have influenced the sub-optimal response rate for the mental health measures. As stigma can be associated with mental health challenges (Kaushik et al., 2016; Krill Williston et al., 2019), and questions about perceived racial discrimination may be sensitive, privacy concerns could have been a factor.

A second limitation was that there may have been sampling biases regarding race and ethnicity. According to the Georgia Department of Education (2021), 54-56% of the students over the two schools were White, and 15-16% of the students were Black. In our study, 62% of the students were White, and 6% Black; therefore, White students may have been overrepresented and Black students underrepresented.

## CONCLUSION

Although this study did not identify the role of racial discrimination on adolescent mental health during the COVID-19 pandemic, the importance of this topic should not be discounted. There is a need to study mental health stigma among rural adolescents which may help improve access and utilization of mental health services. Additionally, there is a need to examine adolescent racial discrimination in rural communities with diverse racial and ethnic groups and sub-groups. Improved understanding of adolescent experiences of racial discrimination may help inform policy changes that would promote more equitable practices.

## References

- Achievement of Competence in Pediatric Dentistry in US Dental Schools. (2014). *J Dent Educ*, 79, 644-652.
- Bartek, N., Peck, J. L., Garzon, D., & VanCleve, S. (2021). Addressing the Clinical Impact of COVID-19 on Pediatric Mental Health. *J Pediatr Health Care*, 35(4), 377-386. doi:10.1016/j.pedhc.2021.03.006
- Benner, A. D., Wang, Y., Shen, Y., Boyle, A. E., Polk, R., & Cheng, Y. P. (2018). Racial/ethnic discrimination and well-being during adolescence: A meta-analytic review. *Am Psychol*, 73(7), 855-883. doi:10.1037/amp0000204
- Caffrey, E., Lu, J., Wright, R., et al. (2021). Are Your Kids Covered? Medicaid Coverage for the Essential Oral Health Benefits (2nd ed.). Chicago, IL: Pediatric Oral Health Research and Policy Center, American Academy of Pediatric Dentistry.
- Centers for Disease Control and Prevention (CDC). (2010). Behavioral Risk Factor Surveillance System Survey Questionnaire. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention.
- Centers for Disease Control and Prevention (CDC). (2021). Mental health symptoms in school-aged children in four communities. *Children's Mental Health*. Retrieved from <https://www.cdc.gov/childrensmentalhealth/features/school-aged-mental-health-in-communities.html>
- Centers for Medicare and Medicaid Services. (2021). Early and Periodic Screening, Diagnostic, and Treatment. Retrieved from <https://www.medicare.gov/medicaid/benefits/early-and-periodic-screening-diagnostic-and-treatment/index.html>
- Chae, D. H., Yip, T., Martz, C. D., Chung, K., Richeson, J. A., Hajat, A., Curtis, D.S., Rogers, L.O., & LaVeist, T. A. (2021). Vicarious Racism and Vigilance During the COVID-19 Pandemic: Mental Health Implications Among Asian and Black Americans. *Public Health Rep*, 136(4), 508-517. doi:10.1177/00333549211018675
- Chalmers, N. I., & Compton, R. D. (2017). Children's Access to Dental Care Affected by Reimbursement Rates, Dentist Density, and Dentist Participation in Medicaid. *Am J Public Health*, 107(10), 1612-1614.
- Cheah, C. S. L., Wang, C., Ren, H., Zong, X., Cho, H. S., & Xue, X. (2020). COVID-19 Racism and Mental Health in Chinese American Families. *Pediatrics*, 146(5), 1-10. doi:10.1542/peds.2020-021816
- Crisp, J., Mihos, P., Sanders, A. E., Divaris, K., & Wright, J. T. (2021). Influences on dentists' adoption of nonsurgical caries management techniques: A qualitative study. *J Am Dent Assoc*, 152(6), 463-470. doi:10.1016/j.adaj.2020.10.001
- Dye, B., Mitnik, G. L., Iafolla, T. J., & Vargas, C. M. (2017). Trends in dental caries in children and adolescents according to poverty status in the U.S. from 1999-2004 and from 2011-2014. *J Am Dent Assoc*, 48(8), 550-565.
- Ertanir, B., Rietz, C., Graf, U., & Kassis, W. (2021). A Cross-National Validation of the Shortened Version of the Adolescent Stress Questionnaire (ASQ-S) Among Adolescents From Switzerland, Germany, and Greece. *Front Psychol*, 12, 619493. doi:10.3389/fpsyg.2021.619493
- Georgia Department of Education. (2021, July 26). COVID-19 (Coronavirus). Retrieved from <https://www.gadoe.org/Pages/Home.aspx>
- Ha, S., Nguyen, A. T., Sales, C., Chang, R. S., Ta, H., Srinivasan, M., Chung, S., Palaniappan, L., & Lin, B. (2021). Increased Self-Reported Discrimination and Concern for Physical Assault Due to the COVID-19 Pandemic in Chinese, Vietnamese, Korean, Japanese, and Filipino Americans. *J of Asian Health*, 1(1), 1-9. Retrieved from <https://journalofasianhealth.org/index.php/jasianh/article/view/5>
- Hays, R. D., Spritzer, K. L., Thompson, W. W., & Cella, D. (2015). US general population estimate for "excellent" to "poor" self-rated health item. *J Gen Intern Med*, 30(10), 1511-1516.
- Hosner, D. W., & Lemeshow, S. (1989). Applied logistic regression. New York: John Wiley & Son.
- Huynh, V. W., & Fuligni, A. J. (2010). Discrimination Hurts: The Academic, Psychological, and Physical Well-Being of Adolescents. *J Res Adolesc*, 20(4), 916-941. doi:10.1111/j.1532-7795.2010.00670.x
- Johnson, J. G., Harris, E.S., Spitzer, R.L., & Williams, J.B.W. (2002). The Patient Health Questionnaire for Adolescents: Validation of an instrument for the assessment of mental disorders among adolescent primary care patients. *J Adolesc Health*, 30, 196-204.
- Kaushik, A., Kostaki, E., & Kyriakopoulos, M. (2016). The stigma of mental illness in children and adolescents: A systematic review. *Psychiatry Res*, 243, 469-494. doi:10.1016/j.psychres.2016.04.042
- Krill Williston, S., Martinez, J. H., & Abdullah, T. (2019). Mental health stigma among people of color: An examination of the impact of racial discrimination. *Int J Soc Psychiatry*, 65(6), 458-467. doi:10.1177/0020764019858651

- Leeb, R. T., Bitsko, R. H., Radhakrishnan, L., Martinez, P., Njai, R., & Holland, K. M. (2020). Mental Health–Related Emergency Department Visits Among Children Aged <18 Years During the COVID-19 Pandemic — United States, January 1–October 17, 2020. *Morb Mortal Wkly Rep. (MMWR)*, 69(10/25/2021), 1675–1680. doi:10.15585/mmwr.mm6945a3
- Liu, Y., Finch, B., Brenneke, S., Thomas, K., & Le, P. (2020). Perceived Discrimination and Mental Distress Amid the COVID-19 Pandemic: Evidence From the Understanding America Study. *Am J Prev Med*, 59(4), 481–492. doi:10.1016/j.amepre.2020.06.007
- Meade, J. (2021). Mental health effects of the COVID-19 pandemic on children and adolescents: A review of the current research. *Ped. Clin. North Am.*, 68(5), 945–959. doi:https://doi.org/10.1016/j.pcl.2021.05.003
- Meherali, S., Punjani, N., Louie-Poon, S., Abdul Rahim, K., Das, J. K., Salam, R. A., & Lassi, Z. S. (2021). Mental Health of Children and Adolescents Amidst COVID-19 and Past Pandemics: A Rapid Systematic Review. *Int J Environ Res*, 18(7), 1–16. Retrieved from https://www.mdpi.com/1660-4601/18/7/3432
- Niwa, E. Y., Way, N., & Hughes, D. L. (2014). Trajectories of ethnic-racial discrimination among ethnically diverse early adolescents: associations with psychological and social adjustment. *Child Dev*, 85(6), 2339–2354. doi:10.1111/cdev.12310
- Patrick, S. W., Henkhaus, L. E., Zickafoose, J. S., Lovell, K., Halvorson, A., Loch, S., Letterie, M., & Davis, M. M. (2020). Well-being of Parents and Children During the COVID-19 Pandemic: A National Survey. *Pediatrics*, 146(4), e2020016824. doi:10.1542/peds.2020-016824
- Power, E., Hughes, S., Cotter, D., & Cannon, M. (2020). Youth mental health in the time of COVID-19. *Ir J Psychol*, 37(4), 301–
- Qualtrics. (2021). Qualtrics, (Version March 2020). Provo, UT: Qualtrics Software. Retrieved from https://www.qualtrics.com/
- Roberts, R. E., Lewinsohn, P. M., & Seeley, J. R. (1993). A brief measure of loneliness suitable for use with adolescents. *Psychol Rep*, 72(3\_suppl), 1379–1391.
- Robins, R. W., Hendin, H. M., & Trzesniewski, K. H. (2001). Measuring global self-esteem: Construct validation of a single-item measure and the Rosenberg Self-Esteem Scale. *Pers Social Psychol Bull*, 27(2), 151–161.
- SAS Institute Inc. (2013). SAS 9.4. Cary, NC.
- Seaton, E. K., Caldwell, C. H., Sellers, R. M., & Jackson, J. S. (2008). The prevalence of perceived discrimination among African American and Caribbean Black youth. *Dev Psychol*, 44(5), 1288–1297. doi:10.1037/a0012747
- Smith, E., & Pössel, P. (2021). Exploring the Relation between Adolescents' Number of Perceived Reasons for Discrimination and Depressive Symptoms. *Res Child Adolesc Psychopathol*. doi:10.1007/s10802-021-00875-0
- Substance Abuse and Mental Health Services Administration. (2020). Key substance use and mental health indicators in the United States: Results from the 2019 National Survey on Drug Use and Health. Retrieved from https://www.samhsa.gov/data/
- Trent, M., Dooley, D. G., Dougé, J., Cavanaugh, R. M., Lacroix, A. E., Fanburg, J., Rahmandar, M.H., Hornberger, L.L., Schneider, M.B., & Yen, S. (2019). The impact of racism on child and adolescent health. *Pediatrics*, 144(2), 1–14.
- USAFacts. (2022). Coronavirus cases and deaths. Retrieved from https://usafacts.org/visualizations/coronavirus-covid-19-spread-map/
- YoungMinds. (2020). Coronavirus: Impact on young people with mental health needs. Retrieved from London: https://www.youngminds.org.uk/about-us/reports-and-impact/coronavirus-impact-on-young-people-with-mental-health-needs