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A Longitudinal Study of Adolescent Stress, Critical Consciousness, and Resilience Trajectories in the Context of Structural Racism: The RISE Baltimore Study Protocol

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Ethics and dissemination. All study procedures were approved by the Johns Hopkins Bloomberg School of Public Health Institutional Review Board (IRB). Findings will be disseminated through publications in peer-reviewed journals and presentations at academic conferences. We will also communicate research findings with study participants and disseminate findings to the Baltimore community, such as developing briefs for the Baltimore City Health Department and/or hosting a town hall meeting for Baltimore families.

Keywords: critical consciousness, adolescence, mental health, race-related stress, resilience, structural racism

Article Summary

Strengths and limitations of this study

- Quantitative and qualitative data collection at multiple assessment points across a 4-year period when participants are becoming young adults will provide insight into an important developmental transition with implications for adult EBH.
- The study's rigor and potential to advance the field are enhanced by recruitment of a racially and ethnically diverse adolescent sample, mixed methods with sequential explanatory analyses, and assessment of three domains of emotional and behavioral functioning, including emotional wellbeing.
- Partnership with youth-serving community agencies and guidance and implementation support from a study Youth Advisory Board increases our capacity to engage the adolescent population and represent their perspectives authentically.
- Like the vast majority of observational studies, our study will not use a random sample of youth, and the results will not be weighted to represent Baltimore or national adolescent populations.

Introduction

Adolescence is a key developmental period that influences long-term health and wellbeing.¹ Cumulative risk models indicate that adolescents who experience additive stress are at risk for developing emotional and behavioral problems (e.g., depression, substance use) with negative consequences for the transition into adulthood^{2,3} and adverse impacts over the life course and inter-generationally. *Systemic racism*, the oppression of specific racial or ethnic groups at a structural or policy level,⁴ disproportionately exposes marginalized adolescents to acute and chronic stressors, including poverty and violence.⁵ Thus, for Black and Latinx adolescents in low-income, often segregated settings, experiencing racism and discrimination during a critical developmental period creates significant risk for current and future emotional and behavioral problems.⁶⁻⁹

In times of general societal stress, such as the COVID-19 pandemic and its aftermath, systemic racism further exacerbates hardships for Black and Latinx adolescents, resulting in high levels of family financial strain, food insecurity, disruption in education, and illnesses and deaths of loved ones.¹⁰⁻¹⁴ Compounding these issues, Black and Latinx adolescents continue to be exposed to publicized instances of police brutality, stressful personal interactions with police, and oppressive anti-Latinx immigration policies.¹⁵⁻¹⁷ Data are lacking, however, on the impact of the current social climate¹⁸ on these young people. Gaps include the lack of longitudinal data on multiple race-related stress exposures, assessment of multiple emotional and behavioral health (EBH) domains, including both mental and behavioral health problems (e.g., depressive, anxiety, and post-traumatic stress symptoms, problematic substance use), and a dearth of studies that involve Black, Latinx, and White adolescents in an urban context as participants. In addition, it's important to acknowledge and examine how Black and Latinx adolescents experience racism

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that aspects of CC are also linked with overall mental health, including lower depressive symptoms²⁴ and positive emotional development.^{22,25,26}

There are few longitudinal studies concerning CC, however, and we know little about how the development of CC over time may differ for minoritized youth.²¹ Relatedly, the development of CC among adolescents with privileged identities (e.g., White youth) is poorly understood.²¹ Research on associations between CC and mental health is also scarce, particularly studies examining a range of emotional and behavioral outcomes among youth of different racial and ethnic groups longitudinally.²¹ Addressing these gaps is critical to our understanding of when and how CC develops, whether it is associated with mental health for young people, and distinct developmental pathways of CC for different racial and ethnic groups can help to lay the groundwork for development of tailored interventions to promote CC among diverse young people.

Positive adaptation, or resilience, occurs when protective factors at the individual and/or contextual levels buffer a person against the harmful effects of stress exposure over time and across contexts.^{19,27-29} Consistent with a strength-based approach, CC has been proposed as a potentially important protective factor for youth exposed to oppressive systems. Specifically, CC is hypothesized to mitigate harmful effects of racism and associated stressors.²⁰ No prior studies to our knowledge, however, have explicitly tested whether CC has protective effects in the context of race-related stress. This study will investigate CC as a protective factor that reduces harmful links between trajectories of race-related stress and EBH and will evaluate these associations for Black, Latinx, and White adolescents.

To address the gaps outlined above, we are conducting a mixed-methods longitudinal study titled RISE (Resilience in a Stressful Era) Baltimore. We are currently recruiting Black, Latinx, and White adolescents ages 14-19 residing in Baltimore and will follow their development for four years as they transition into early adulthood. Specifically, the study will assess adolescents' stress exposures (including race-related stressors such as police interactions and immigration policies), adolescents' development of CC, the prospective associations of stress exposures and CC with EBH, and the potentially protective influence of CC.

The three study aims are illustrated in Figures 1 and 2. First, as shown in Figure 1, we will identify trajectories of adolescent stress exposures (Aim 1a) and assess the trajectories' associations with EBH outcomes (Aim 1b). Second, we will identify trajectories of adolescent critical consciousness (Aim 2a) and assess the trajectories' associations with EBH outcomes (Aim 2b; see Figure 1). For each component of Aims 1 and 2, we will test how trajectories and associations may differ for Black, Latinx, and White youth.

Third, as shown in Figure 2, critical consciousness will be evaluated as a protective factor that may reduce harmful links between stress exposures and EBH (Aim 3). We will assess whether these relationships may differ for Black, Latinx, and White youth. For each aim, qualitative data will be used to contextualize and expand survey findings.

Methods and Analysis

Study Design

This is a mixed methods longitudinal study, with an explanatory sequential design.³⁰ Participants will complete two self-administered online questionnaires per year over a four-year period, for a total of 8 waves of survey data collection. In-depth qualitative interviews will be conducted with a subset of participants, some with high scores on CC and some with low scores

on CC, and, separately, with their parents or caregivers. Interviews will be conducted one-on-one virtually or over the phone annually for 4 total qualitative time points. The goal of these interviews is to explore the development and mental health impacts of CC and potential differences between young people with high and low levels of CC.

Patient and Public Involvement: The Youth Advisory Board (YAB)

Meaningful inclusion of youth input in research and programming that affects adolescents and young adults improves the quality and outcomes of these processes and boosts youth engagement in resulting services.³¹⁻³³ We will develop a Youth Advisory Board (YAB) to guide study implementation, including measurement selection, recruitment strategies, assessments, interpretation of findings, and next steps for shaping policies, practices, and programming. We will also train YAB members to conduct qualitative interviews with adolescent participants to promote participant comfort and trust and provide research and professional development training for the YAB members.

The YAB will include 6-12 young people from Baltimore who are well positioned to understand participant experiences, needs, and perspectives. Recruitment and supervision of YAB members will be facilitated by our partnerships with HeartSmiles,³⁴ a grassroots community organization that trains Baltimore City youth in leadership and professional development (<https://heartsmilesmd.com>), and Centro SOL,³⁵ a multidisciplinary organization that serves Latinx youth and families (<https://jhcentrosol.org>). We will hold regular YAB meetings at convenient times for members and will pay them for their time and contributions.

Participants and Recruitment

We will enroll up to 650 young people who are between the ages of 14-19; identify as Black, Latinx, White, or multiracial; reside in Baltimore; and currently or previously attended

school in Baltimore. We selected this baseline age range as we are interested in young people’s stress, mental health, and CC development across the transition from adolescence into emerging adulthood. With help from our YAB, participants will be recruited through outreach to local youth-serving organizations, youth networks, and social media posts on a study Instagram account. Study staff will also attend community events to distribute information about the project. In addition, we will use snowball sampling: young people will receive a \$20 VISA gift card for each person they recruit who enrolls in the study and completes the questionnaire.

We will also re-contact young people who participated in a previous study called Project POWER (Promoting Options for Wellness and Emotion Regulation; R01HD106654). The Project POWER sample consisted of 631 eighth graders across four cohorts (59% female, 74% Black, 15% Latinx, 7% White, 3% multi-racial, and 1% other races/ethnicities) who are now 14-19 years old. Eligibility criteria for Project POWER were the same as those for RISE except that Project POWER participants attended one of 29 participating Baltimore public schools. Inclusion of Project POWER participants will enhance the feasibility of recruiting our goal sample size due to our prior connection with those young people.

Consent and Incentive Procedures

Young people under age 18 will be required to provide signed parent permission and signed assent; those 18 or older will provide signed consent. The RISE Baltimore project website will include videos in English and Spanish in which YAB members will describe the study in a clear and engaging manner, as well as a link to REDCap, a secure web-based application hosted through Johns Hopkins University where adolescents can complete the eligibility screener questionnaire. Blank assent and consent forms will be available on REDCap for eligible youth to sign and upload. Eligible adolescents will be asked to provide their contact information; those

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under age 18 will also be asked to provide contact information for a parent or legal guardian. Study staff will follow up with parents to inform them about the study and guide them through providing signed permission through the portal.

The online questionnaire incentive, which is emailed to the youth after completion, is scaled to incentivize prompt response (\$35 for completing within 24 hours of invitation, and \$25 if completed later than that). Electronic Mastercard gift card codes were chosen because they can be used in many locations and can be sent and received quickly after participants complete the questionnaire. Youth will receive an additional \$25 gift card honorarium for each completed interview if they are selected for the qualitative subsample and agree to participate. Caregivers will also receive \$25 for each interview they complete if they are contacted and choose to participate in the qualitative component.

Measures

Quantitative Measures

Table 1 summarizes the quantitative measures to be used in the study. Whenever possible, we selected measures that were developed or tested with young people of color in urban contexts. The age of the participants will range from 14 – 19 years at baseline; for those participants who are under 18, we will use pediatric instrument versions when appropriate. Similarly, participants who are 18 years and older will complete the adult instrument version. We chose this option for instruments that were either specifically normed and/or developed for adolescents under 18, or for where it made sense to do so given the questions. We have noted which version we have used in Table 1.

(TABLE 1 GOES HERE)

Descriptions of Selected Scales Key to CC and Race-related Stress.

Short Form Critical Consciousness Scale. ³⁶ A 13-item scale assessing adolescents’ views on race and class-based in equality (critical reflection), their self-efficacy to address these inequalities (critical motivation) and the socio-political actions they take in response to critical reflection and motivation (critical action). For adolescents who reported experiencing racial injustice, we developed questions to ascertain the type of discrimination experience, in what setting, and how it affected them.

Perceived Policy Effects Scale (PIPES). ^{37,38} A 24-item measures of the impact of immigration policies on Latino families. While it was originally developed and validated for use with parents, high reliability subscales of the measures have been used in a self-report format for adolescents.

Survey of the health of Urban Residents (SHUR). ³⁹ A subset of items from this measures assessing youth experiences with police brutality will be used, including questions about police cursing/harsh language, searching/frisking, threats and displays of force, and deployment of weapons against respondents (e.g., stun gun, firearm).

Demographic Characteristics. Questions assessing race and Latinx ethnicity will be based on the recommendations of the U.S. Census. ⁴⁰ Adolescents who endorse Latinx ethnicity are asked about their country of origin. Gender classifications will include: female (including cis and trans girls), male (including cis and trans boys), and non-binary. We expect the number of gender minority youth (i.e., trans boys, trans girls, and non-binary youth) to be small. We will also gather other relevant demographic data (see Table 1).

Questionnaire Development. Questionnaires will be pilot tested with members of our YAB to ascertain cultural and developmental appropriateness. For selected constructs that are

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particularly central to the study and have been less widely used and tested (e.g., critical consciousness), we will conduct cognitive testing of the items with YAB members and will refine item wording based on their feedback.

Qualitative Measures

Interviews will explore adolescent and caregiver perceptions of participant critical consciousness, including social issues they care about, activities they engage in to advance those issues, family members or other people who helped develop their interest, and the emotional impact of their involvement. For participants who do not endorse an interest in social issues, interviews will explore other interests and activities they enjoy, as well as reasons for their lack of interest or engagement with social issues.

Data Collection***Staff Training***

All staff members are required to complete training in the ethical treatment of human subjects, child safety policies, the history of structural racism in Baltimore, and historical abuses of research power by Baltimore research institutions that have created mistrust of research among many Black and Latinx Baltimore residents. Research assistants are trained to be clear, respectful, and sensitive in their interactions with youth and families and alert for signs of participant discomfort. All parents and youth will be informed that they are free to decline research participation, stop participation at any time, restart participation at any time (i.e., miss one survey data point, but wish to complete others), and skip questions they do not wish to answer. Our team includes Spanish-speaking staff who will reach out to Spanish speaking families; consents, questionnaires, and interviews can be administered in Spanish if preferred.

We will also train several young people from the YAB to serve as qualitative interviewers for this study. This training will include education about the nature of, and rationale for, qualitative research, discussion of effective interview techniques, and role plays with feedback. We will pair interviewers with adolescent participants based on shared gender and race/ethnicity whenever possible. Study investigators will review the first few audiotaped interviews each young person conducts and will provide supervision and coaching as needed. The young people will be paid for their time in training and conducting interviews.

Quantitative Data Collection

Participants will complete the survey on REDCap using a Smartphone or computer; dates and completion of follow-up surveys will also be tracked using REDCap. Participants lacking appropriate technology or digital access can opt to have a team member administer the survey to them over the phone or can complete a paper copy mailed to them. Participants will receive a text and email with a personalized survey link every six months. Study staff will also contact participants to remind them to take the survey and will follow up with those who do not complete it via email, text, phone calls, and private, direct social media messages (if social media contact information was provided by the participant at enrollment). For participants under the age of 18 at enrollment, parents will be contacted to remind them that their child needs to complete the survey if needed.

Each follow-up survey will have a five-week window for completion. Participants will be contacted two weeks prior to their follow-up date and will have until two weeks after the date to complete the survey. For example, if a participant has a follow-up survey scheduled for Tuesday in the second week of March, they will be contacted on Monday in the fourth week of February to start the questionnaire and will have until Friday of the fourth week of March to complete it.

Qualitative Data Collection

We will identify a subsample of Black, Latinx, and White participants with whom to conduct in-depth interviews. We will select 12 participants who are Black - six with high baseline scores on CC and six with low baseline scores (with a particular focus on their scores on the sociopolitical participation subscale). We will attempt to interview an equal number of boys and girls at each level of CC to explore possible gender differences in the development of CC. We will follow the same approach for identifying subsamples of Latinx and White youth for interviews for a total of 36 youth who participate in qualitative interviews.

We will conduct 30-minute audio-recorded phone or Zoom interviews with this subset of adolescents once per year and (separately) with one of their parents or caregivers (n = 36) once per year. YAB members who are trained as interviewers will conduct the interviews with adolescent participants. Study staff will conduct interviews with parents/caregivers. We will follow the same subset of adolescents and caregivers over the four years of data collection to gather longitudinal qualitative data. If interviewees no longer wish to participate or are unreachable, we will identify participants with similar characteristics to interview in their stead.

Protocol for Addressing Youth Mental Health Needs

Our surveys will not assess suicidal ideation or behavior but will include measures of psychological distress (see Table 1). The REDCap system will score the measure of depressive symptoms in real time. Participants will be notified at the end of the questionnaire if they scored above a clinical cutoff on depressive symptoms that their answers indicated they may be experiencing some distress; they will be linked with a list of local mental and behavioral health services and will be encouraged to reach out to Dr. Mendelson if they have questions. If they are under 18, their parents/caregivers will receive a similar communication. Dr. Mendelson, a

licensed clinical psychologist, will be available to address questions from adolescents and their parents over the study and provide additional information about local mental health services if desired. We will also provide a list of local mental and behavioral health services to all participants at the end of each questionnaire regardless of their questionnaire scores.

Quantitative Data Analyses

Overall Analytic Approach

Both the study conceptual framework and data-responsive model building will inform our approach to allow for flexibility in modeling individual differences. We will use growth mixture modeling⁴¹ to identify the race-related stress exposure and CC trajectories and explore the heterogeneity of these trajectories.⁴¹⁻⁴⁴ Using these techniques allows for accounting of missing data through full information maximum likelihood methodology, if the data are missing at random.⁴¹⁻⁴⁵ These person-centered analyses will also explicate the role of race and ethnicity in the trajectories and their associated outcomes. While we will be appropriately powered to explore differences across Black, White, and Latinx groups⁴⁶, we will be underpowered for analyses focused on multi-racial groups. For these, and other low prevalence races, we will focus on more descriptive analyses. Additionally, sensitivity analyses will explore whether the magnitude of associations differ when the Project POWER participants are or are not included in analyses. Further, in all analyses we will include gender, age, ethnic identity, and prior trauma as predictors of class membership, and may test if these variables moderate the relation between stress exposures and EBH outcomes.^{36,47,48}

Aim 1a: Identify trajectories of adolescent stress exposure and test how they differ for Black, Latinx, and White youth. We will first determine the number of trajectories present in the overall sample using growth mixture modeling.⁴³ After identifying trajectories, we will use

measurement invariance testing to account for trajectory differences associated with race/ethnicity following the multiple-indicator multiple-causes (MCMC)⁴⁹ and item response theory (IRT)⁵⁰ frameworks. If measurement invariance testing suggests differential item functioning (DIF) with regards to race/ethnicity, we will perform iterative models testing for uniform and non-uniform DIF across all items.

Aim 1b: Assess how trajectories of race-related stress are associated with EBH outcomes and test how these associations may differ for Black, Latinx, and White youth.

For this aim, latent trajectory classes and posterior class probabilities estimated in Aim 1a will be used to extend the model to include a distal outcome (EBH; see Figure 3). After the main effect model is estimated, we will add an interaction between the latent trajectory classes and race/ethnicity to determine⁵¹ if race/ethnicity moderates the relation between stress exposure trajectories and EBH outcomes.

Aim 2a: Identify trajectories of CC and test how they may differ for Black, Latinx, and White youth. This aim will follow the same general modeling procedure as Aim 1a: an iterative process to develop a measurement model that accounts for potential DIF for race/ethnicity. The class enumeration process will use standard fit statistics to determine the best fitting model, followed by the measurement invariance testing process laid out in Aim 1a.

Aim 2b: Assess how trajectories of CC are associated with EBH outcomes and test how these associations may differ for Black, Latinx, and White youth. Analyses for this aim parallel the methods described for Aim 1b. Using the model determined in Aim 2a, a nominal latent class variable, along with the posterior class probabilities, will be used to build a latent trajectory regression model (see Figure 3). The main effect model will include a regression

between latent trajectory class and EBH outcomes, and then the interaction between latent trajectory class and race/ethnicity regressed on EBH outcomes.

Aim 3: Evaluate CC as a protective factor that reduces harmful links between race-related stress and EBH and test how these associations may differ for Black, Latinx, and White youth. Informed by the measurement invariance testing in Aims 1 and 2, we will first build a structural equation model to appropriately model stress exposure and CC over time. The specific model will depend on the measurement models determined in Aims 1 and 2. For example, if CC remains stable across time, we may consider including a CC score averaged across timepoints as a moderator of the relation between stress exposure trajectories and EBH outcomes (see Figure 3).^{52,53}

Alternative Analytic Approach. Our goal is to recruit approximately even numbers of Black, Latinx, and White youth; however, given that Baltimore is a majority Black/African American population, it's possible that our sample sizes will be uneven. If this occurs, we would consider analyzing the proposed aims separately for Black, Latinx, and White youth rather than using race/ethnicity as a moderator.

Qualitative and Mixed Methods Analyses

As noted above, we will use an explanatory sequential design^{30,54-56}, in which the qualitative subsample consists of Black, Latinx, and White youth, who are selected for in-depth interviews based on their baseline survey scores on CC (high/low), as well as a caretakers of youth who are interviewed will also be invited to participate in a separate interview. Interviews will be audiotaped, transcribed, and uploaded into a qualitative data management program (Atlas.ti).⁵⁷ Emergent themes will be summarized, as outlined by Miles and Huberman.⁵⁸ Interview data will be coded independently by a primary coder and two secondary coders, by

tagging and then regrouping responses by observed themes. A few transcripts will be read by each coder to develop an initial coding scheme. After reading all transcripts, coders will meet to refine the scheme until no new codes emerge. Once data are coded, matrices of the key codes will be developed to look for patterns, particularly themes regarding how aspects of CC may influence stress responses and EBH. Causal network diagrams may also be developed to illustrate relations emerging from the data.⁵⁸ For instance, a causal network diagram can be created to “map” how linkages among stressors, CC, and mental health influence one another.

Interview data will be used to contextualize, interpret, and expand on quantitative survey findings. For instance, questionnaires will gather information about participants’ level of critical consciousness, and interviews will explore how adolescents become engaged in activities related to critical action, what these activities mean to them, and how these activities affect their mood. To aid in merging quantitative and qualitative data, we may create joint displays of quantitative and qualitative findings that enable cross-comparisons.⁵⁹ We anticipate that these mixed methods analyses will provide insight into how, for whom, and under which conditions, CC may serve a protective function, with implications for future intervention development.^{46,60}

Discussion

This mixed-methods longitudinal study will gather data on race-related stress exposures, mental health, and CC over a four-year period in a sample of Black, Latinx, White, and multi-racial adolescents residing in an urban context. RISE Baltimore’s focus on current crises and their impact on adolescents is both novel and timely. The global COVID-19 pandemic, structural racism, and associated economic and social upheavals are impacting adolescents in ways that may shape their lives for years to come, particularly Black and Latinx adolescents in under-resourced communities who are exposed to cumulative traumatic stressors stemming from

structural racism. In particular, the COVID-19 pandemic and related financial downturn are likely to usher in a prolonged period of economic hardship, exacerbating existing disparities in wealth and in adolescent race-related stress, trauma, and associated mental health problems.

Thus, it is critical that we understand the influences of these race-related stressors on adolescent EBH, as well as potential protective factors such as CC, to develop programs and policies that support adolescent thriving now and into adulthood. CC is theorized to be a “developmental competency that may promote thriving for children and adolescents, particularly those experiencing marginalizing systems” (p.547).²¹ However, no studies to our knowledge have explicitly tested CC as a protective factor that can reduce the harmful impact of race-based stress. Although we hypothesize that for most youth, CC will be protective, there is the possibility that for some youth higher levels of CC, particularly CC knowledge, may lead to more mental distress, as youth may feel overwhelmed by a perceived burden of responsibility to change “the system.” The proposed study will be unique in its 4-year longitudinal assessments of race-related stress, CC, and EBH for Black, Latinx, and White youth and its rigorous assessment of protective effects of CC, as well as examining moderators that may reveal for which youth CC is protective vs. distressing.

If found to be protective against these stressors, CC holds exciting potential for benefiting adolescent health. Interventions and policies that enhance youth CC may prove instrumental in empowering Black and Latinx adolescents, promoting adolescent health equity, and, ultimately, helping to dismantle oppressive social systems. The proposed research will advance theory and research regarding race-related stress, CC, and adolescent development, as well as inform public health practice and policy related to an important and growing segment of the U.S. population.

Findings from this study will help shape long-term, sustainable public health practices and policies to support adolescent mental health equity.

Limitations and Strengths

Like most observational studies, our study will not use a random sample of youth, and the results will not be weighted to represent Baltimore or national adolescent populations. However, our relatively large sample size, and attempts to recruit young people across a range of city settings and networks will enhance the study's capacity to illustrate developmental trends and themes. We acknowledge that while our study is focused on Black, Latinx, and White youth, there are many other racial/ethnic groups that experience racism that are not part of this study (e.g., Asian and Native youth). In addition, the subset of participants recruited from our prior Project POWER sample may differ significantly from new participants, further expanding the range of youth included in our sample. Our inclusion criteria for RISE Baltimore are largely the same as those for Project POWER so that combining these groups is simple and justified. Further, we plan to conduct sensitivity analyses to assess potential differences between the samples and will control for Project POWER participation. Of note, approximately half of Project POWER participants were randomized to a trauma-informed intervention during the fall of their 8th grade year, which may influence their EBH over time above and beyond other factors assessed in the present study. To address possible intervention effects, we will control for intervention arm assignment in analyses.

The study also has several important strengths. First, both quantitative and qualitative data will be gathered over a four-year period when participants are becoming young adults, providing insight into an important developmental transition with implications for adult EBH. Second, our collection of survey data at 8 assessment points across the study will enable

examination of trajectories of Black, Latinx and White youth. Third, the study’s rigor and potential to advance the field are enhanced by recruitment of a racially and ethnically diverse adolescent sample, mixed methods with sequential explanatory analyses, and assessment of three domains of emotional and behavioral functioning, including emotional wellbeing. Finally, partnership with youth-serving community agencies and guidance and implementation support from a study Youth Advisory Board comprised of young people increases our capacity to engage the adolescent population and represent their perspectives authentically.

Ethics and Dissemination

Study procedures were approved by the Johns Hopkins Bloomberg School of Public Health Institutional Review Board (IRB; #00017850). Findings will be disseminated through publications in peer-reviewed journals and presentations at academic conferences. We will also communicate with study participants to share research findings and will explore ways to disseminate findings to the Baltimore community, such as developing a brief to be shared by the Baltimore City Health Department and/or hosting a town hall meeting for Baltimore families.

Conclusions

This study will lay a foundation for future development of actionable policy and intervention strategies that not only improve mental health and wellbeing for marginalized adolescents but also address the structural barriers that create disproportionate stress and trauma for them in the first place. Our mixed methods approach will enable an in-depth look at which stressors associated with racism most negatively impact Black and Latinx youth. These data can inform policies and practices that dismantle those aspects of oppression (e.g., harmful police interactions). Our data will also provide insight into how adolescents engage in CC and social justice activism and how this engagement may benefit them. If study findings suggest CC is a

protective factor, an intervention that promotes CC can be developed or adapted and rigorously evaluated, considering what we have learned about for whom CC is protective and under what conditions. Findings may suggest ways to optimize and evaluate existing approaches being implemented by grassroots organizations that train young people to be community leaders and advocates. While it is not the responsibility of young people to solve social problems they did not create, young leaders can play an important role in dismantling structural oppression and improving conditions for other young people. In summary, we see strong potential to translate the longitudinal data collected in this study into practice-based solutions for promoting youth mental health equity.

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Author contributions

LC and TM developed the study design and manuscript draft. RW conducted foundational research on critical consciousness and helped shape our thinking about the construct and its measurement. MG and JH, our community partners, helped inform our approach to including youth voices through a Youth Advisory Board. LC, TM, RW, MG, JH, LW, , RM, RJ, DS, and MJ contributed to the study design, protocol development, and selection and refinement of measures. All authors approved the final manuscript.

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Availability of data and materials

Not relevant at this stage.

Ethics approval and consent to participate

This study has been approved by the Johns Hopkins Bloomberg School of Public Health (BSPH) Institutional Review Board (IRB000017850). Informed consent will be obtained from all individuals aged 18 or over and informed assent and parent permission will be obtained from all individuals under age 18 using procedures approved by the BSPH IRB.

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Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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Table 1*Measurement Domains, Constructs, Variables, and Instruments*

Domain	Construct	Variables	Pediatric/Adult Instrument
Stress Exposures	COVID experiences	COVID Experiences	COVID-19 Adolescent Symptom and Psychological Experience Questionnaire (CASPE) ⁶¹ ; ECHO COVID-19 Items ⁶²
		COVID Education Access	
		Family Conflict/Cohesion	
	Racism exposure	Immigration Policy Effect	Perceived Policy Effects Scale ³⁷
		Racism / Police Interactions	Survey of the Health of Urban Residents ³⁹
		Discrimination	Everyday Discrimination Scale ⁶⁴⁻⁶⁶
Civil, social, and political awareness and engagement	Critical consciousness	Critical reflection: Perceived inequality	Short Critical Consciousness Scale ⁶⁷
		Critical reflection: Egalitarianism	
		Critical action	
	Sociopolitical engagement	Critical consciousness	Contemporary Critical Consciousness Measure ⁶⁸
		Sociopolitical leadership	Sociopolitical Control Scale for Youth – Leadership ⁶⁹
		Sociopolitical involvement	Youth Inventory of Involvement ⁷⁰
	Social values	Sociopolitical values	Positive Youth Development Student Questionnaire ⁷¹⁻⁷³
Emotional & Behavioral Health (EBH)	Mental health problems	Anxiety Symptoms	PROMIS Pediatric Item Bank v 2.0 – Anxiety ⁷⁴ OR PROMIS Item Bank v1.0 Emotional Distress Anxiety – Short Form 4a ⁷⁴
		PTSD Symptoms	Child PTSD Symptom Scale – Revised ⁷⁵
		Depressive Symptoms	Centre for Epidemiological Studies – Depression ^{76,77}
		Behavioral Problems	Youth Outcomes Questionnaire ⁷⁸ OR Outcome Questionnaire -45 ⁷⁹
	Substance use	Alcohol, cannabis, tobacco/nicotine	Items drawn from the Youth Risk Behavior Surveillance System ⁸⁰ & Monitoring the Future ⁸¹

Domain	Construct	Variables	Pediatric/Adult Instrument
	Emotional wellbeing	Flourishing	2011/2012 National Survey of Children’s Health ⁸²
		Hope	HOPE Scale - Child Trends ⁸³
		Resilience	Protective Factors for Resilience Scale ⁸⁴
		Happiness	Subjective Happiness Scale ⁸⁵
		Self-esteem	Adolescent Self-Esteem Scale ⁸⁶
		Self-efficacy	NIH Self-Efficacy Scale ⁸⁷⁻⁸⁹
Other relevant variables	Ethnic and racial identity and socialization	Ethnic identity	Ethnic Identity Scale – Brief ⁹⁰
		Ethnic-racial socialization	Parent Ethnic-Racial Socialization Scale ⁹¹
	Parent and peer civic engagement	Parent civic engagement	Parent Civic Engagement measure ⁹²
		Peer civic engagement	Adapted from Parent Civic Engagement measure
	Social and personal resources	Coping	Youth Coping in Traumatic Times ⁹³
		Peer relationships	Positive Peer Relations ⁹⁴
Psycho-social and demographic characteristics	Race & Latinx ethnicity	Black, Latinx, White	Investigator-developed items
	Gender	Female, male, non-binary	
	Age	Age	
	Prior trauma exposure	ACEs	2011/2012 NSCH ⁸²
	Service use	Mental, behavioral, & health service access	Investigator-developed items
	Sample type	Project POWER vs other	Investigator rated

Figure 1
Stress Exposure and Critical Consciousness Trajectory Aims (Aims 1 and 2)

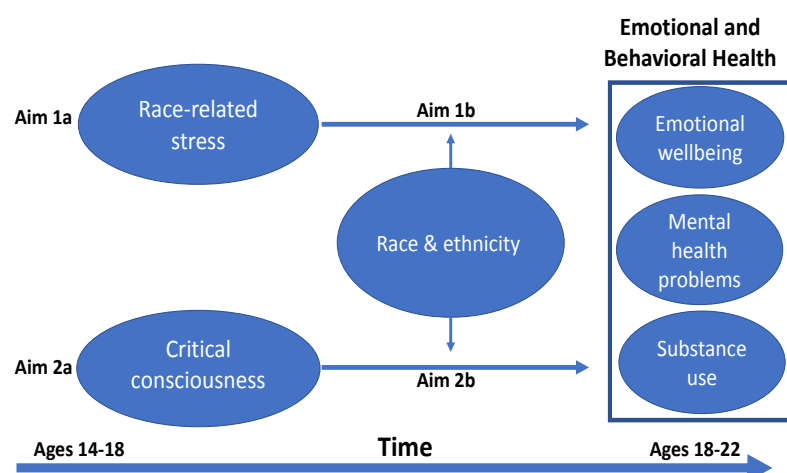


Figure 2
Critical Consciousness as a Protective Factor (Aim 3)

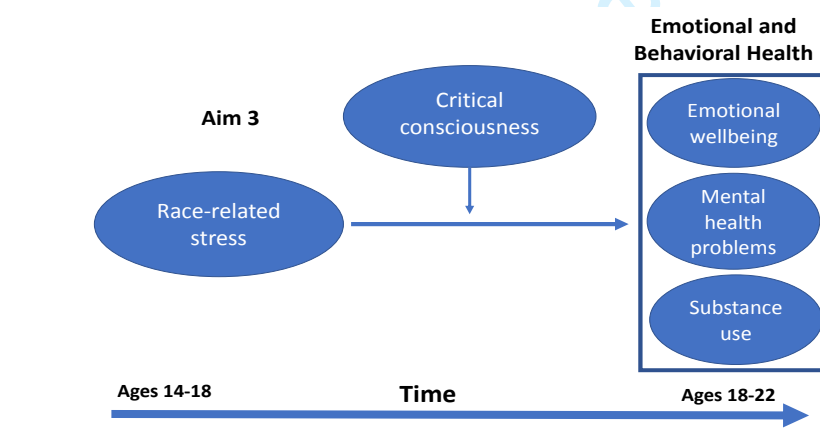
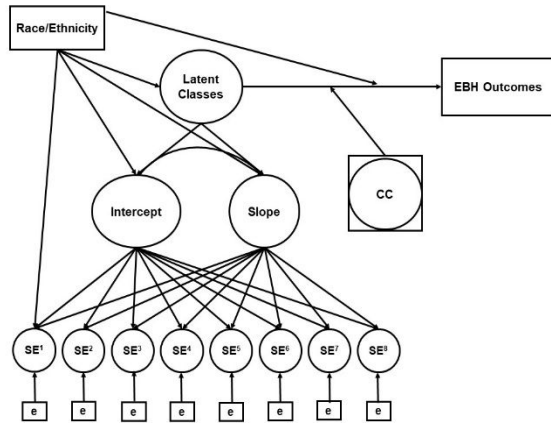


Figure 3
Projected Latent Trajectory Class



BMJ Open

A Longitudinal Study of Adolescent Stress, Critical Consciousness, and Resilience Trajectories in the Context of Structural Racism: The RISE Baltimore Study Protocol

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Keywords:	Adolescents < Adolescent, MENTAL HEALTH, Community Participation, Health Equity, Risk Factors, Stress, Psychological

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Ethics and dissemination. All study procedures were approved by the Johns Hopkins Bloomberg School of Public Health Institutional Review Board (IRB). Findings will be disseminated through publications in peer-reviewed journals and presentations at academic conferences. We will also communicate research findings with study participants and disseminate findings to the Baltimore community, such as developing briefs for the Baltimore City Health Department and/or hosting a town hall meeting for Baltimore families.

Keywords: critical consciousness, adolescence, mental health, race-related stress, resilience, structural racism

Article Summary

Strengths and limitations of this study

- Quantitative and qualitative data collection at multiple assessment points across a 4-year period when participants are becoming young adults will provide insight into an important developmental transition with implications for adult EBH.
- The study's rigor and potential to advance the field are enhanced by recruitment of a racially and ethnically diverse adolescent sample, mixed methods with sequential explanatory analyses, and assessment of three domains of emotional and behavioral functioning, including emotional wellbeing.
- Partnership with youth-serving community agencies and guidance and implementation support from a study Youth Advisory Board increases our capacity to engage the adolescent population and represent their perspectives authentically.
- Like the vast majority of observational studies, our study will not use a random sample of youth, and the results will not be weighted to represent Baltimore or national adolescent populations.

Introduction

Adolescence is a key developmental period that influences long-term health and wellbeing.¹ Cumulative risk models indicate that adolescents who experience additive stress are at risk for developing emotional and behavioral problems (e.g., depression, substance use) with negative consequences for the transition into adulthood^{2,3} and adverse impacts over the life course and inter-generationally. *Systemic racism*, the oppression of specific racial or ethnic groups at a structural or policy level,⁴ disproportionately exposes marginalized adolescents to acute and chronic stressors, including poverty and violence.⁵ Thus, for Black and Latinx adolescents in low-income, often segregated settings, experiencing racism and discrimination during a critical developmental period creates significant risk for current and future emotional and behavioral problems.⁶⁻⁹

In times of general societal stress, such as the COVID-19 pandemic and its aftermath, systemic racism further exacerbates hardships for Black and Latinx adolescents, resulting in high levels of family financial strain, food insecurity, disruption in education, and illnesses and deaths of loved ones.¹⁰⁻¹⁴ Compounding these issues, Black and Latinx adolescents continue to be exposed to publicized instances of police brutality, stressful personal interactions with police, and oppressive anti-Latinx immigration policies.¹⁵⁻¹⁷ Data are lacking, however, on the impact of the current social climate¹⁸ on these young people. Gaps include the lack of longitudinal data on multiple race-related stress exposures, assessment of multiple emotional and behavioral health (EBH) domains, including both mental and behavioral health problems (e.g., depressive, anxiety, and post-traumatic stress symptoms, problematic substance use), and a dearth of studies that involve Black, Latinx, and White adolescents in an urban context as participants. In addition, it's important to acknowledge and examine how Black and Latinx adolescents experience racism

differently, and how multiple identities (e.g., identifying as Latinx and Black) intersect. Such data are critical for understanding current and prospective trends in adolescent EBH, and particularly identifying how differing experience of racism may lead to specific stressors for Black, Latinx and White youth.

The present study addresses those gaps using a strength-based approach. A strength-based approach is well-suited to identifying and valuing (and later expanding through intervention) the inherent talent and potential of marginalized youth who have been denied equitable opportunities. Unlike much of the prior research on adolescent mental health, this study employs a positive youth framework to assess *emotional wellness* as a core EBH domain, including flourishing, hope, and resilience. The aims and design are informed by a positive youth development framework and resiliency theory. The former emphasizes the inherent potential in all young people and promoting youth assets,¹⁹ whereas the latter highlights internal assets and external resources that protect against negative effects of adversity.

The study also explores the development and impact of *critical consciousness* (CC), which has emerged as a competency associated with positive developmental functioning, especially for marginalized adolescents. CC is comprised of three components: (1) awareness of unjust social systems (critical reflection); (2) a belief that communities can resist these systems (critical motivation); and (3) engagement in anti-oppressive actions (critical action).^{20,21} Evidence suggests that CC may promote positive youth development²² and youth empowerment²³ through the development of social justice activism and leadership. CC is also associated with other positive aspects of youth functioning, such as career development, community engagement, civic participation, and academic achievement. Some studies suggest

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that aspects of CC are also linked with overall mental health, including lower depressive symptoms²⁴ and positive emotional development.^{22,25,26}

There are few longitudinal studies concerning CC, however, and we know little about how the development of CC over time may differ for minoritized youth.²¹ Relatedly, the development of CC among adolescents with privileged identities (e.g., White youth) is poorly understood.²¹ Research on associations between CC and mental health is also scarce, particularly studies examining a range of emotional and behavioral outcomes among youth of different racial and ethnic groups longitudinally.²¹ Addressing these gaps is critical to our understanding of when and how CC develops, whether it is associated with mental health for young people, and distinct developmental pathways of CC for different racial and ethnic groups can help to lay the groundwork for development of tailored interventions to promote CC among diverse young people.

Positive adaptation, or resilience, occurs when protective factors at the individual and/or contextual levels buffer a person against the harmful effects of stress exposure over time and across contexts.^{19,27-29} Consistent with a strength-based approach, CC has been proposed as a potentially important protective factor for youth exposed to oppressive systems. Specifically, CC is hypothesized to mitigate harmful effects of racism and associated stressors.²⁰ No prior studies to our knowledge, however, have explicitly tested whether CC has protective effects in the context of race-related stress. This study will investigate CC as a protective factor that reduces harmful links between trajectories of race-related stress and EBH and will evaluate these associations for Black, Latinx, and White adolescents.

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To address the gaps outlined above, we are conducting a mixed-methods longitudinal study titled RISE (Resilience in a Stressful Era) Baltimore. We are currently recruiting Black, Latinx, and White adolescents ages 14-19 residing in Baltimore and will follow their development for four years as they transition into early adulthood. Specifically, the study will assess adolescents’ stress exposures (including race-related stressors such as police interactions and immigration policies), adolescents’ development of CC, the prospective associations of stress exposures and CC with EBH, and the potentially protective influence of CC.

The three study aims are illustrated in Figures 1 and 2. First, as shown in Figure 1, we will identify trajectories of adolescent stress exposures (Aim 1a) and assess the trajectories’ associations with EBH outcomes (Aim 1b). Second, we will identify trajectories of adolescent critical consciousness (Aim 2a) and assess the trajectories’ associations with EBH outcomes (Aim 2b; see Figure 1). For each component of Aims 1 and 2, we will test how trajectories and associations may differ for Black, Latinx, and White youth.

Third, as shown in Figure 2, critical consciousness will be evaluated as a protective factor that may reduce harmful links between stress exposures and EBH (Aim 3). We will assess whether these relationships may differ for Black, Latinx, and White youth. For each aim, qualitative data will be used to contextualize and expand survey findings.

Methods and Analysis

Study Design

This is a mixed methods longitudinal study, with an explanatory sequential design.³⁰ Participants will complete two self-administered online questionnaires per year over a four-year period, for a total of 8 waves of survey data collection. In-depth qualitative interviews will be conducted with a subset of participants, some with high scores on CC and some with low scores

on CC, and, separately, with their parents or caregivers. Interviews will be conducted one-on-one virtually or over the phone annually for 4 total qualitative time points. The goal of these interviews is to explore the development and mental health impacts of CC and potential differences between young people with high and low levels of CC.

Patient and Public Involvement: The Youth Advisory Board (YAB)

Meaningful inclusion of youth input in research and programming that affects adolescents and young adults improves the quality and outcomes of these processes and boosts youth engagement in resulting services.³¹⁻³³ We will develop a Youth Advisory Board (YAB) to guide study implementation, including measurement selection, recruitment strategies, assessments, interpretation of findings, and next steps for shaping policies, practices, and programming. We will also train YAB members to conduct qualitative interviews with adolescent participants to promote participant comfort and trust and provide research and professional development training for the YAB members.

The YAB will include 6-12 young people from Baltimore who are well positioned to understand participant experiences, needs, and perspectives. Recruitment and supervision of YAB members will be facilitated by our partnerships with HeartSmiles,³⁴ a grassroots community organization that trains Baltimore City youth in leadership and professional development (<https://heartsmilesmd.com>), and Centro SOL,³⁵ a multidisciplinary organization that serves Latinx youth and families (<https://jhcentrosol.org>). We will hold regular YAB meetings at convenient times for members and will pay them for their time and contributions.

Participants and Recruitment

We will enroll up to 650 young people who are between the ages of 14-19; identify as Black, Latinx, White, or multiracial; reside in Baltimore; and currently or previously attended

school in Baltimore. Within these parameters, there were no exclusion criteria. We selected this baseline age range as we are interested in young people’s stress, mental health, and CC development across the transition from adolescence into emerging adulthood. With help from our YAB, participants will be recruited through outreach to local youth-serving organizations, youth networks, and social media posts on a study Instagram account. Study staff will also attend community events to distribute information about the project. In addition, we will use snowball sampling: young people will receive a \$20 VISA gift card for each person they recruit who enrolls in the study and completes the questionnaire.

We will also re-contact young people who participated in a previous study called Project POWER (Promoting Options for Wellness and Emotion Regulation; R01HD106654). The Project POWER sample consisted of 631 eighth graders across four cohorts (59% female, 74% Black, 15% Latinx, 7% White, 3% multi-racial, and 1% other races/ethnicities) who are now 14-19 years old. Eligibility criteria for Project POWER were the same as those for RISE except that Project POWER participants attended one of 29 participating Baltimore public schools. Inclusion of Project POWER participants will enhance the feasibility of recruiting our goal sample size due to our prior connection with those young people.

Consent and Incentive Procedures

Young people under age 18 will be required to provide signed parent permission and signed assent; those 18 or older will provide signed consent. The RISE Baltimore project website will include videos in English and Spanish in which YAB members will describe the study in a clear and engaging manner, as well as a link to REDCap, a secure web-based application hosted through Johns Hopkins University where adolescents can complete the eligibility screener questionnaire. Blank assent and consent forms will be available on REDCap for eligible youth to

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sign and upload. Eligible adolescents will be asked to provide their contact information; those under age 18 will also be asked to provide contact information for a parent or legal guardian. Study staff will follow up with parents to inform them about the study and guide them through providing signed permission through the portal.

The online questionnaire incentive, which is emailed to the youth after completion, is scaled to incentivize prompt response (\$35 for completing within 24 hours of invitation, and \$25 if completed later than that). Electronic Mastercard gift card codes were chosen because they can be used in many locations and can be sent and received quickly after participants complete the questionnaire. Youth will receive an additional \$25 gift card honorarium for each completed interview if they are selected for the qualitative subsample and agree to participate. Caregivers will also receive \$25 for each interview they complete if they are contacted and choose to participate in the qualitative component.

Measures

Quantitative Measures

Table 1 summarizes the quantitative measures to be used in the study. Whenever possible, we selected measures that were developed or tested with young people of color in urban contexts. The age of the participants will range from 14 – 19 years at baseline; for those participants who are under 18, we will use pediatric instrument versions when appropriate. Similarly, participants who are 18 years and older will complete the adult instrument version. We chose this option for instruments that were either specifically normed and/or developed for adolescents under 18, or for where it made sense to do so given the questions. We have noted which version we have used in Table 1.

(TABLE 1 GOES HERE)

Descriptions of Selected Scales Key to CC and Race-related Stress.

Short Form Critical Consciousness Scale. ³⁶ A 13-item scale assessing adolescents’ views on race and class-based in equality (critical reflection), their self-efficacy to address these inequalities (critical motivation) and the socio-political actions they take in response to critical reflection and motivation (critical action). For adolescents who reported experiencing racial injustice, we developed questions to ascertain the type of discrimination experience, in what setting, and how it affected them.

Perceived Policy Effects Scale (PIPES). ^{37,38} A 24-item measures of the impact of immigration policies on Latino families. While it was originally developed and validated for use with parents, high reliability subscales of the measures have been used in a self-report format for adolescents.

Survey of the health of Urban Residents (SHUR). ³⁹ A subset of items from these measures assessing youth experiences with police brutality will be used, including questions about police cursing/harsh language, searching/frisking, threats and displays of force, and deployment of weapons against respondents (e.g., stun gun, firearm).

Demographic Characteristics. Questions assessing race and Latinx ethnicity will be based on the recommendations of the U.S. Census. ⁴⁰ Adolescents who endorse Latinx ethnicity are asked about their country of origin. Gender classifications will include: female (including cis and trans girls), male (including cis and trans boys), and non-binary. We expect the number of gender minority youth (i.e., trans boys, trans girls, and non-binary youth) to be small. We will also gather other relevant demographic data (see Table 1).

Questionnaire Development. Questionnaires will be pilot tested with members of our YAB to ascertain cultural and developmental appropriateness. For selected constructs that are

particularly central to the study and have been less widely used and tested (e.g., critical consciousness), we will conduct cognitive testing of the items with YAB members and will refine item wording based on their feedback. For a list of investigator-developed items, please see the Supplemental File.

Qualitative Measures

Interviews will explore adolescent and caregiver perceptions of participant critical consciousness, including social issues they care about, activities they engage in to advance those issues, family members or other people who helped develop their interest, and the emotional impact of their involvement. For participants who do not endorse an interest in social issues, interviews will explore other interests and activities they enjoy, as well as reasons for their lack of interest or engagement with social issues. Interviews will be conducted using a qualitative interview guide, which was investigator developed (see Supplemental Material).

Data Collection

This study is funded from August 1, 2021 through August 1, 2026, with a possible extension to August 1, 2027. Recruitment began in November of 2022 and ended in March 2023. Data collection is currently ongoing.

Staff Training

All staff members are required to complete training in the ethical treatment of human subjects, child safety policies, the history of structural racism in Baltimore, and historical abuses of research power by Baltimore research institutions that have created mistrust of research among many Black and Latinx Baltimore residents. Research assistants are trained to be clear, respectful, and sensitive in their interactions with youth and families and alert for signs of participant discomfort. All parents and youth will be informed that they are free to decline

research participation, stop participation at any time, restart participation at any time (i.e., miss one survey data point, but wish to complete others), and skip questions they do not wish to answer. Our team includes Spanish-speaking staff who will reach out to Spanish speaking families; consents, questionnaires, and interviews can be administered in Spanish if preferred.

We will also train several young people from the YAB to serve as qualitative interviewers for this study. This training will include education about the nature of, and rationale for, qualitative research, discussion of effective interview techniques, and role plays with feedback. We will pair interviewers with adolescent participants based on shared gender and race/ethnicity whenever possible. Study investigators will review the first few audiotaped interviews each young person conducts and will provide supervision and coaching as needed. The young people will be paid for their time in training and conducting interviews.

Quantitative Data Collection

Participants will complete the survey on REDCap using a Smartphone or computer; dates and completion of follow-up surveys will also be tracked using REDCap. Participants lacking appropriate technology or digital access can opt to have a team member administer the survey to them over the phone or can complete a paper copy mailed to them. Participants will receive a text and email with a personalized survey link every six months. Study staff will also contact participants to remind them to take the survey and will follow up with those who do not complete it via email, text, phone calls, and private, direct social media messages (if social media contact information was provided by the participant at enrollment). For participants under the age of 18 at enrollment, parents will be contacted to remind them that their child needs to complete the survey if needed.

Each follow-up survey will have a five-week window for completion. Participants will be contacted two weeks prior to their follow-up date and will have until two weeks after the date to complete the survey. For example, if a participant has a follow-up survey scheduled for Tuesday in the second week of March, they will be contacted on Monday in the fourth week of February to start the questionnaire and will have until Friday of the fourth week of March to complete it.

Qualitative Data Collection

We will identify a subsample of Black, Latinx, and White participants with whom to conduct in-depth interviews. We will select 12 participants who are Black - six with high baseline scores on CC and six with low baseline scores (with a particular focus on their scores on the sociopolitical participation subscale). We will attempt to interview an equal number of boys and girls at each level of CC to explore possible gender differences in the development of CC. We will follow the same approach for identifying subsamples of Latinx and White youth for interviews for a total of 36 youth who participate in qualitative interviews.

We will conduct 30-minute audio-recorded phone or Zoom interviews with this subset of adolescents once per year and (separately) with one of their parents or caregivers (n = 36) once per year. YAB members who are trained as interviewers will conduct the interviews with adolescent participants. Study staff will conduct interviews with parents/caregivers. We will follow the same subset of adolescents and caregivers over the four years of data collection to gather longitudinal qualitative data. If interviewees no longer wish to participate or are unreachable, we will identify participants with similar characteristics to interview in their stead.

Protocol for Addressing Youth Mental Health Needs

Our surveys will not assess suicidal ideation or behavior but will include measures of psychological distress (see Table 1). The REDCap system will score the measure of depressive

symptoms in real time. Participants will be notified at the end of the questionnaire if they scored above a clinical cutoff on depressive symptoms that their answers indicated they may be experiencing some distress; they will be linked with a list of local mental and behavioral health services and will be encouraged to reach out to Dr. Mendelson if they have questions. If they are under 18, their parents/caregivers will receive a similar communication. Dr. Mendelson, a licensed clinical psychologist, will be available to address questions from adolescents and their parents over the study and provide additional information about local mental health services if desired. We will also provide a list of local mental and behavioral health services to all participants at the end of each questionnaire regardless of their questionnaire scores.

Quantitative Data Analyses

Overall Analytic Approach

Both the study conceptual framework and data-responsive model building will inform our approach to allow for flexibility in modeling individual differences. We will use growth mixture modeling⁴¹ to identify the race-related stress exposure and CC trajectories and explore the heterogeneity of these trajectories.⁴¹⁻⁴⁴ Using these techniques allows for accounting of missing data through full information maximum likelihood methodology, if the data are missing at random.⁴¹⁻⁴⁵ These person-centered analyses will also explicate the role of race and ethnicity in the trajectories and their associated outcomes. While we will be appropriately powered to explore differences across Black, White, and Latinx groups⁴⁶, we will be underpowered for analyses focused on multi-racial groups. For these, and other low prevalence races, we will focus on more descriptive analyses. Additionally, sensitivity analyses will explore whether the magnitude of associations differ when the Project POWER participants are or are not included in analyses. Further, in all analyses we will include gender, age, ethnic identity, and prior trauma as

predictors of class membership, and may test if these variables moderate the relation between stress exposures and EBH outcomes.^{36,47,48}

Aim 1a: Identify trajectories of adolescent stress exposure and test how they differ for Black, Latinx, and White youth. We will first determine the number of trajectories present in the overall sample using growth mixture modeling.⁴³ After identifying trajectories, we will use measurement invariance testing to account for trajectory differences associated with race/ethnicity following the multiple-indicator multiple-causes (MCMC)⁴⁹ and item response theory (IRT)⁵⁰ frameworks. If measurement invariance testing suggests differential item functioning (DIF) with regards to race/ethnicity, we will perform iterative models testing for uniform and non-uniform DIF across all items.

Aim 1b: Assess how trajectories of race-related stress are associated with EBH outcomes and test how these associations may differ for Black, Latinx, and White youth. For this aim, latent trajectory classes and posterior class probabilities estimated in Aim 1a will be used to extend the model to include a distal outcome (EBH; see Figure 3). After the main effect model is estimated, we will add an interaction between the latent trajectory classes and race/ethnicity to determine⁵¹ if race/ethnicity moderates the relation between stress exposure trajectories and EBH outcomes.

Aim 2a: Identify trajectories of CC and test how they may differ for Black, Latinx, and White youth. This aim will follow the same general modeling procedure as Aim 1a: an iterative process to develop a measurement model that accounts for potential DIF for race/ethnicity. The class enumeration process will use standard fit statistics to determine the best fitting model, followed by the measurement invariance testing process laid out in Aim 1a.

Aim 2b: Assess how trajectories of CC are associated with EBH outcomes and test how these associations may differ for Black, Latinx, and White youth. Analyses for this aim parallel the methods described for Aim 1b. Using the model determined in Aim 2a, a nominal latent class variable, along with the posterior class probabilities, will be used to build a latent trajectory regression model (see Figure 3). The main effect model will include a regression between latent trajectory class and EBH outcomes, and then the interaction between latent trajectory class and race/ethnicity regressed on EBH outcomes.

Aim 3: Evaluate CC as a protective factor that reduces harmful links between race-related stress and EBH and test how these associations may differ for Black, Latinx, and White youth. Informed by the measurement invariance testing in Aims 1 and 2, we will first build a structural equation model to appropriately model stress exposure and CC over time. The specific model will depend on the measurement models determined in Aims 1 and 2. For example, if CC remains stable across time, we may consider including a CC score averaged across timepoints as a moderator of the relation between stress exposure trajectories and EBH outcomes (see Figure 3). ^{52,53}

Alternative Analytic Approach. Our goal is to recruit approximately even numbers of Black, Latinx, and White youth; however, given that Baltimore is a majority Black/African American population, it's possible that our sample sizes will be uneven. If this occurs, we would consider analyzing the proposed aims separately for Black, Latinx, and White youth rather than using race/ethnicity as a moderator.

Power. The focus of this study is to investigate the heterogeneity of trajectories of key constructs over time and estimate the influence of predictors on these patterns. Given the complexity surrounding the determination of power to identify the accurate number of classes in

a given growth mixture model, we rely on prior simulation studies suggesting that we have adequate power (approximately 80%) to extract the correct number of classes with 8 items and between 300 and 600 participants. Further, assuming the presence of EBH constructs approximately match prevalence rates from Project POWER (rates of elevated anxiety, depression, and trauma range from 20% - 45%) with a two-tailed alpha level of 0.05, we will have approximately 80% - 95% power to detect a statistically significant relationship between EBH outcomes and stress exposure trajectory class membership. Thus, we feel confident in power levels for detecting small-moderate effect sizes for full sample analyses, and moderate to large effects for within race/ethnicity analyses.

Qualitative and Mixed Methods Analyses

As noted above, we will use an explanatory sequential design^{30,54-56}, in which the qualitative subsample consists of Black, Latinx, and White youth, who are selected for in-depth interviews based on their baseline survey scores on CC (high/low), as well as a caretakers of youth who are interviewed will also be invited to participate in a separate interview. Interviews will be audiotaped, transcribed, and uploaded into a qualitative data management program (Atlas.ti).⁵⁷ Emergent themes will be summarized, as outlined by Miles and Huberman.⁵⁸ Interview data will be coded independently by a primary coder and two secondary coders, by tagging and then regrouping responses by observed themes. A few transcripts will be read by each coder to develop an initial coding scheme. After reading all transcripts, coders will meet to refine the scheme until no new codes emerge. Once data are coded, matrices of the key codes will be developed to look for patterns, particularly themes regarding how aspects of CC may influence stress responses and EBH. Causal network diagrams may also be developed to

illustrate relations emerging from the data.⁵⁸ For instance, a causal network diagram can be created to “map” how linkages among stressors, CC, and mental health influence one another.

Interview data will be used to contextualize, interpret, and expand on quantitative survey findings. For instance, questionnaires will gather information about participants’ level of critical consciousness, and interviews will explore how adolescents become engaged in activities related to critical action, what these activities mean to them, and how these activities affect their mood. To aid in merging quantitative and qualitative data, we may create joint displays of quantitative and qualitative findings that enable cross-comparisons.⁵⁹ We anticipate that these mixed methods analyses will provide insight into how, for whom, and under which conditions, CC may serve a protective function, with implications for future intervention development.^{46,60}

Discussion

This mixed-methods longitudinal study will gather data on race-related stress exposures, mental health, and CC over a four-year period in a sample of Black, Latinx, White, and multi-racial adolescents residing in an urban context. RISE Baltimore’s focus on current crises and their impact on adolescents is both novel and timely. The global COVID-19 pandemic, structural racism, and associated economic and social upheavals are impacting adolescents in ways that may shape their lives for years to come, particularly Black and Latinx adolescents in under-resourced communities who are exposed to cumulative traumatic stressors stemming from structural racism. In particular, the COVID-19 pandemic and related financial downturn are likely to usher in a prolonged period of economic hardship, exacerbating existing disparities in wealth and in adolescent race-related stress, trauma, and associated mental health problems.

Thus, it is critical that we understand the influences of these race-related stressors on adolescent EBH, as well as potential protective factors such as CC, to develop programs and

policies that support adolescent thriving now and into adulthood. CC is theorized to be a “developmental competency that may promote thriving for children and adolescents, particularly those experiencing marginalizing systems” (p.547).²¹ However, no studies to our knowledge have explicitly tested CC as a protective factor that can reduce the harmful impact of race-based stress. Although we hypothesize that for most youth, CC will be protective, there is the possibility that for some youth higher levels of CC, particularly CC knowledge, may lead to more mental distress, as youth may feel overwhelmed by a perceived burden of responsibility to change “the system.” The proposed study will be unique in its 4-year longitudinal assessments of race-related stress, CC, and EBH for Black, Latinx, and White youth and its rigorous assessment of protective effects of CC, as well as examining moderators that may reveal for which youth CC is protective vs. distressing.

If found to be protective against these stressors, CC holds exciting potential for benefiting adolescent health. Interventions and policies that enhance youth CC may prove instrumental in empowering Black and Latinx adolescents, promoting adolescent health equity, and, ultimately, helping to dismantle oppressive social systems. The proposed research will advance theory and research regarding race-related stress, CC, and adolescent development, as well as inform public health practice and policy related to an important and growing segment of the U.S. population. Findings from this study will help shape long-term, sustainable public health practices and policies to support adolescent mental health equity.

Limitations and Strengths

Like most observational studies, our study will not use a random sample of youth, and the results will not be weighted to represent Baltimore or national adolescent populations. However, our relatively large sample size, and attempts to recruit young people across a range of city

settings and networks will enhance the study’s capacity to illustrate developmental trends and themes. We acknowledge that while our study is focused on Black, Latinx, and White youth, there are many other racial/ethnic groups that experience racism that are not part of this study (e.g., Asian and Native youth). In addition, the subset of participants recruited from our prior Project POWER sample may differ significantly from new participants, further expanding the range of youth included in our sample. Our inclusion criteria for RISE Baltimore are largely the same as those for Project POWER so that combining these groups is simple and justified. Further, we plan to conduct sensitivity analyses to assess potential differences between the samples and will control for Project POWER participation. Of note, approximately half of Project POWER participants were randomized to a trauma-informed intervention during the fall of their 8th grade year, which may influence their EBH over time above and beyond other factors assessed in the present study. To address possible intervention effects, we will control for intervention arm assignment in analyses.

The study also has several important strengths. First, both quantitative and qualitative data will be gathered over a four-year period when participants are becoming young adults, providing insight into an important developmental transition with implications for adult EBH. Second, our collection of survey data at 8 assessment points across the study will enable examination of trajectories of Black, Latinx and White youth. Third, the study’s rigor and potential to advance the field are enhanced by recruitment of a racially and ethnically diverse adolescent sample, mixed methods with sequential explanatory analyses, and assessment of three domains of emotional and behavioral functioning, including emotional wellbeing. Finally, partnership with youth-serving community agencies and guidance and implementation support

from a study Youth Advisory Board comprised of young people increases our capacity to engage the adolescent population and represent their perspectives authentically.

In summary, this study will lay a foundation for future development of actionable policy and intervention strategies that not only improve mental health and wellbeing for marginalized adolescents but also address the structural barriers that create disproportionate stress and trauma for them in the first place. Our mixed methods approach will enable an in-depth look at which stressors associated with racism most negatively impact Black and Latinx youth. These data can inform policies and practices that dismantle those aspects of oppression (e.g., harmful police interactions). Our data will also provide insight into how adolescents engage in CC and social justice activism and how this engagement may benefit them. If study findings suggest CC is a protective factor, an intervention that promotes CC can be developed or adapted and rigorously evaluated, considering what we have learned about for whom CC is protective and under what conditions. Findings may suggest ways to optimize and evaluate existing approaches being implemented by grassroots organizations that train young people to be community leaders and advocates. While it is not the responsibility of young people to solve social problems they did not create, young leaders can play an important role in dismantling structural oppression and improving conditions for other young people. We see strong potential to translate the longitudinal data collected in this study into practice-based solutions for promoting youth mental health equity.

Ethics and Dissemination

Study procedures were approved by the Johns Hopkins Bloomberg School of Public Health Institutional Review Board (IRB; #00017850). Findings will be disseminated through publications in peer-reviewed journals and presentations at academic conferences. We will also

communicate with study participants to share research findings and will explore ways to disseminate findings to the Baltimore community, such as developing a brief to be shared by the Baltimore City Health Department and/or hosting a town hall meeting for Baltimore families.

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Author contributions

LKC served as the guarantor. LKC and TM developed the study design and manuscript draft. RW conducted foundational research on critical consciousness and helped shape our thinking about the construct and its measurement. MG and JH, our community partners, helped inform our approach to including youth voices through a Youth Advisory Board. LKC, TM, RW, MG, JH, LW, , RM, RJ, DS, and MJ contributed to the study design, protocol development, and selection and refinement of measures. All authors approved the final manuscript.

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Availability of data and materials

Not relevant at this stage.

Ethics approval and consent to participate

This study has been approved by the Johns Hopkins Bloomberg School of Public Health (BSPH) Institutional Review Board (IRB000017850). Informed consent will be obtained from all individuals aged 18 or over and informed assent and parent permission will be obtained from all individuals under age 18 using procedures approved by the BSPH IRB.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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For peer review only

Table 1*Measurement Domains, Constructs, Variables, and Instruments*

Domain	Construct	Variables	Pediatric/Adult Instrument
Stress Exposures	COVID experiences	COVID Experiences	COVID-19 Adolescent Symptom and Psychological Experience Questionnaire (CASPE) ⁶¹ ; ECHO COVID-19 Items ⁶²
		COVID Education Access	
		Family Conflict/Cohesion	COVID-19 Household Environment Scale
	Racism exposure	Immigration Policy Effect	Perceived Policy Effects Scale ³⁷
		Racism / Police Interactions	Survey of the Health of Urban Residents ³⁹
Discrimination		Everyday Discrimination Scale ⁶⁴⁻⁶⁶	
Civil, social, and political awareness and engagement	Critical consciousness	Critical reflection: Perceived inequality	Short Critical Consciousness Scale ⁶⁷
		Critical reflection: Egalitarianism	
		Critical action	
	Sociopolitical engagement	Critical consciousness	Contemporary Critical Consciousness Measure ⁶⁸
		Sociopolitical leadership	Sociopolitical Control Scale for Youth – Leadership ⁶⁹
		Sociopolitical involvement	Youth Inventory of Involvement ⁷⁰
	Social values	Sociopolitical values	Positive Youth Development Student Questionnaire ⁷¹⁻⁷³
Emotional & Behavioral Health (EBH)	Mental health problems	Anxiety Symptoms	PROMIS Pediatric Item Bank v 2.0 – Anxiety ⁷⁴ OR PROMIS Item Bank v1.0 Emotional Distress Anxiety – Short Form 4a ⁷⁴
		PTSD Symptoms	Child PTSD Symptom Scale – Revised ⁷⁵
		Depressive Symptoms	Centre for Epidemiological Studies – Depression ^{76,77}
		Behavioral Problems	Youth Outcomes Questionnaire ⁷⁸ OR Outcome Questionnaire -45 ⁷⁹
	Substance use	Alcohol, cannabis, tobacco/nicotine	Items drawn from the Youth Risk Behavior Surveillance System ⁸⁰ & Monitoring the Future ⁸¹

Domain	Construct	Variables	Pediatric/Adult Instrument
	Emotional wellbeing	Flourishing	2011/2012 National Survey of Children’s Health ⁸²
		Hope	HOPE Scale - Child Trends ⁸³
		Resilience	Protective Factors for Resilience Scale ⁸⁴
		Happiness	Subjective Happiness Scale ⁸⁵
		Self-esteem	Adolescent Self-Esteem Scale ⁸⁶
		Self-efficacy	NIH Self-Efficacy Scale ⁸⁷⁻⁸⁹
Other relevant variables	Ethnic and racial identity and socialization	Ethnic identity	Ethnic Identity Scale – Brief ⁹⁰
		Ethnic-racial socialization	Parent Ethnic-Racial Socialization Scale ⁹¹
	Parent and peer civic engagement	Parent civic engagement	Parent Civic Engagement measure ⁹²
		Peer civic engagement	Adapted from Parent Civic Engagement measure
	Social and personal resources	Coping	Youth Coping in Traumatic Times ⁹³
		Peer relationships	Positive Peer Relations ⁹⁴
Psycho-social and demographic characteristics	Race & Latinx ethnicity	Black, Latinx, White	Investigator-developed items
	Gender	Female, male, non-binary	
	Age	Age	
	Prior trauma exposure	ACEs	2011/2012 NSCH ⁸²
	Service use	Mental, behavioral, & health service access	Investigator-developed items
	Sample type	Project POWER vs other	Investigator rated

Figure 1
Stress Exposure and Critical Consciousness Trajectory Aims (Aims 1 and 2)

Figure 2
Critical Consciousness as a Protective Factor (Aim 3)

Figure 3
Projected Latent Trajectory Class

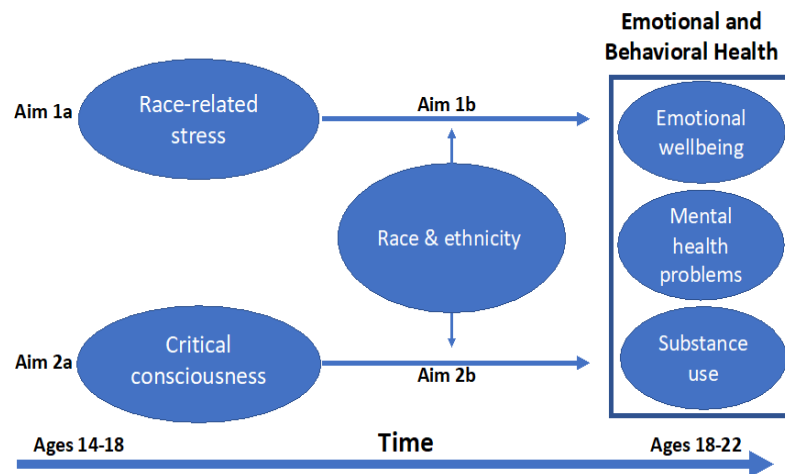
Figure 1*Stress Exposure and Critical Consciousness Trajectory Aims (Aims 1 and 2)*

Figure 2
Critical Consciousness as a Protective Factor (Aim 3)

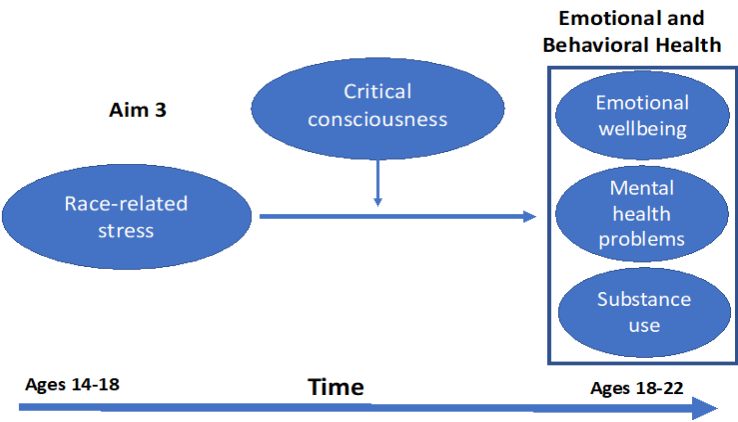
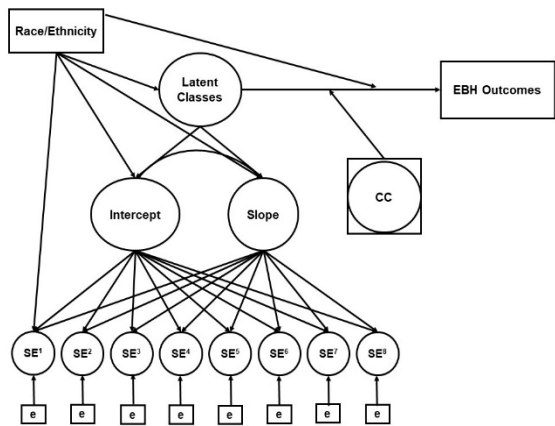


Figure 3
Projected Latent Trajectory Class



Supplemental File

Investigator-Developed Items.

These items are stand-alone questions and are not included in the scoring of already validated questionnaires used in the survey.

School/employment status:

Question: Think about the past 6 months, including now. Pick all the answers that are true for you.

- ☐ in school full-time
- ☐ in school part-time
- ☐ stopped going to school
- ☐ graduated from school, received a GED, or finished a training program
- ☐ had a paid or unpaid part-time job, internship or other training (less than 32 hours per week)
- ☐ had a paid or unpaid full-time job, internship, or training program (for 32 or more hours per week)
- ☐ I did not have a job or go to school

Voting status:

Question: Have you ever been registered to vote?

- ☐ Yes
- ☐ No

Race/policing:

Question: How often has at least one of your parents or another adult in your home talked to you about discrimination from police against your own racial or ethnic group?

- ☐ Never
- ☐ Sometimes
- ☐ A lot of times

Health Service Access:

Question: Are you able to get the physical healthcare services that you need? This includes things like doctor or dentist appointments

- ☐ Yes
- ☐ No

Question: Are you able to get the mental healthcare services that you need? This includes things like therapist, counselor, and psychiatrist appointments.

- ☐ Yes
- ☐ No

Qualitative Interview Guides

Semi-Structured Interview Guide for Youth Participants

Note: Interviews will be conducted via Zoom. We will aim to include an equal number of Black, Latinx, and white youth, half with high scores and half with low scores on the critical consciousness measure in our baseline survey. Within each group, we will attempt to interview an equal number of males and females.

Introduction:

My name is _____ and I work with the RISE Baltimore study at the Johns Hopkins Bloomberg School of Public Health. How are you doing today?

You remember the survey you took for the RISE study? Today we're going to be doing an interview instead of a survey. It should last about 30-45 minutes. This interview asks about different topics, such as activities you're involved in, issues you care about, and things that are stressful. Your information is important to us, and we want to understand your point of view. There are no right or wrong answers – just what's true for you. If any questions make you uncomfortable, you don't have to answer them. You can also stop the interview at any time.

You'll get a \$25 e-gift card about a day after you finish the interview. It will come from this email address: [specify]. If you don't get the e-gift card within one day, please let me know. You should also check your spam since sometimes it goes into spam.

I'm going to record this interview so that we have a record of what you tell us, but I'll only record audio, not video, to protect your confidentiality. We also won't include your name when we save the recording; we'll use a study number instead of your name.

Also, if you say your own name or another person's name during the interview, we'll delete it in the transcript to protect confidentiality. We'll store the transcript of this interview in a secure online folder with a password that only our study team has access to, and we'll delete the transcript after we analyze it.

We won't share your interview with your parents or caregivers or anyone else.

But there are a few special situations where we do need to share things you tell us with your caregivers or other people. If you tell us you want to harm yourself or someone else, we need to tell other people to keep you safe. If you tell us that you or another youth under 18 or an older adult or disabled individual are being neglected or abused, we need to report that information. We aren't going to ask you questions about these topics.

Also, just a heads up that if you tell us you're feeling very sad or depressed, a project leader may follow up with you to see if you need any support. We won't share this information outside the project unless you want us to. It's totally fine to share this information about how you're feeling, we just want you to know a project leader may follow up with you.

Do you have any questions? *[Answer any questions the participant may have.]*

Are you in a private space where others can't hear what you're saying? *[Make sure the participant is in a private space or give them time to get to a private space.]*

Are you ready to get started?

OK great. Let's turn our cameras off before I start recording so that we only get an audio recording.

[Press record and request transcription option on zoom.]

Q1: I'm going to start out with some questions about activities you enjoy. Tell me about what kinds of activities you like to do.

Probe: *[for each activity that the participant mentions]:*

- What is it about [activity] that you like?
- Tell me more about how it makes you feel.

Q2: Sometimes activities can make a person feel like they are making a difference or having a positive impact. Tell me about whether you do any activities that make you feel that way.

Probe: *[for each activity that the participant mentions]:*

- What is it about [activity] that makes you feel like you're having a positive impact?
- Tell me more about how it makes you feel.

Follow up: Tell me about whether there are other activities make you feel that way.

Note: If the participant talked about social issues/social activism when they answered Q2, you can skip to Q4.

Q3: Some young people are involved in thinking about social issues or doing activities to support social change, and some young people are not. Some examples of social issues are poverty, lack of housing, and gun violence.

Tell me about whether there are any issues or problems like these that you care about. These could be problems in your community or problems that affect people beyond your community.

Follow up: Why is this issue (or these issues) important to you?

Note: If the participant says they don't care about social issues, say:

Tell me about why you don't care about these kinds of issues.

Tell me about what types of things matter more to you than these kinds of issues.

Then you can skip to Q10

Note: For Q4-Q9, if the participant has mentioned more than one social issue they care about, try to ask about each one separately to get a sense of how they got interested in each one, whether they are part of activities for each one, etc.

Q4: How did you get interested in this issue/issues?

Follow up: When did you first start caring about this issue/issues? (probe about experiences they may have had that sparked their interest)
 Who helped you get interested in this? (Probe about family involvement, peer involvement)
 Tell me about how your interest in this issue/issues has impacted you.

Q5. Tell me about whether you have ever done an activity to help create positive change on this issue. (Probe about groups or activities or events they may have participated in or art they may have made about it.)

Follow up: Tell me about when you were involved in this activity (or group or event).
 Tell me about how long you were involved with this activity (or group or event).
 Tell us about a memory you have of this activity (or group or event).
 Why did you decide to do this activity? (Probe about what seemed important to them about the activity or group or event.)

Note: If the participant has never been involved with an activity, group, or event related to the issue/issues they mentioned, say:

Tell me about why you have not been involved. (Probe about whether they were not aware of any activities, groups, or events they could participate in. If they were aware of options, probe about why they decided not to take part.

Then you can skip to Q10.

Q6. How involved are you currently with the issue? (e.g., readings, groups, activities, arts)

Q7. What would you say to someone who didn't think this issue was important?

Q8. Tell me about whether it feels like you are helping create change when you've been involved with this issue. (Probe about whether they feel like they are making a positive difference.)

Q9. Tell me about whether being involved with those issues affects your mood or how you feel.

If they say yes, probe: Tell me more about that.
 Tell me about whether it affects how you feel about

yourself? How you feel about your community or about the US?

Q10. Tell me about whether there are social issues that are important to your family members or people who are close to you. (Probe about which people in their lives care about social issues and how they are involved in addressing the issues.)

Q11. Tell me about whether there are social issues that are important to your friends. (Probe about how their friend/friends are involved in addressing the issues.)

Q12. Now I'm going to shift a little and ask you about things that stress you out. What kinds of things stress you out?

Probe: What about those things stresses you out?
How do you think that stress affects you in your daily life?

Over the last year, what has been stressful?
[Can probe on COVID-related stressors and race-related stressors]

Q13. How do you deal with your stress?

Probe: Think about something that stresses you, how do you deal with that?
Tell me about whether that helps you manage stress.

Q14. How do you know when stress is getting to you? What do you notice? (Probe about what they notice physically and with their emotions, behavior, and relationships.)

Q15. And finally, I want to hear about how you feel when things are going well for you. (Probe about what they notice physically and with their emotions, behavior, and relationships.)

Follow up: What brings you happiness and joy?
What makes you feel calm and peaceful? What makes you feel hopeful?

That's all the questions I have. Thank you! We appreciate your time and all the information you shared today. You'll be getting your \$25 gift card by email, as well as a list of local resources, so make sure to look out for it and to check your spam too. Please let us know if you don't receive the gift card. You'll also be getting an email with a link to answer a few questions about this interview. Those questions will help us understand if there's anything we need to change about the interview format or questions.
Do you have any questions before we end? [Answer questions, if there are any.]

Semi-Structured Interview Guide for Parents

Introduction:

My name is _____, my pronouns are _____, and I work with the RISE Baltimore study at the Johns Hopkins Bloomberg School of Public Health. How are you doing today?

Your child [*child's name*] is participating in the RISE study, and they recently did an interview with us. Today I'll be interviewing you. The interview should last about 30-45 minutes. I'll be asking about different topics, such as your child's moods, stress, and things they enjoy, activities you and your child are involved in, and issues you care about. Your information is important to us, and we want to understand your point of view. There are no right or wrong answers – just what's true for you. If any questions make you uncomfortable, you don't have to answer them. You can also stop the interview at any time.

You'll get a \$25 e-gift card about a day after you finish the interview. It will come from this email address: [*specify*]. If you don't get the e-gift card within one day, please let me know. You should also check your spam since sometimes it goes into spam.

I'm going to record this interview so that we have a record of what you tell us, but I'll only record audio, not video, to protect your confidentiality. We also won't include your name when we save the recording; we'll use a study number instead of your name.

Also, if you say your own name or another person's name during the interview, we'll delete it in the transcript to protect confidentiality. We'll store the transcript of this interview in a secure online folder with a password that only our study team has access to, and we'll delete the transcript after we analyze it.

We won't share your interview with anyone outside the research team, except in very special circumstances, such as if you share that a child is being abused or neglected; we won't ask you about those kinds of topics.

Do you have any questions? [*Answer any questions the participant may have.*]

Are you in a private space where others can't hear what you're saying? [*Make sure the participant is in a private space or give them time to get to a private space.*]

Are you ready to get started?

OK great. Let's turn our cameras off before I start recording so that we only get an audio recording.

[*Press record and request transcription option on zoom.*]

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Q1: I'm going to start out with some questions about activities your child enjoys. Tell me about what kinds of activities they like to do.

Probe: [for each activity that the participant mentions]:

- What is it about [activity] that your child likes?

Q2: Sometimes activities can make a person feel like they are making a difference or having a positive impact. Tell me about whether your child does any activities that make them feel that way.

Probe: [for each activity that the participant mentions]:

- What is it about [activity] that makes your child feel like they're having a positive impact?
- Tell me more about how it makes them feel.

Follow up: Tell me about whether there are other activities that seem to make them feel that way.

Note: If the participant talked about their child's social issues/social activism when they answered Q2, you can skip to Q4.

Q3: Some young people are involved in thinking about social issues or doing activities to support social change, and some young people are not. Some examples of social issues are poverty, lack of housing, and gun violence.

Tell me about whether there are any issues or problems like these that your child cares about. These could be problems in your community or problems that affect people beyond your community.

Follow up: Why is this issue (or these issues) important to them?

Note: If the participant says their child doesn't care about social issues, say:

Tell me about why you think your child isn't so interested in these kinds of issues.

Tell me about what types of things matter more to your child than these kinds of issues.

Then you can skip to Q10

Note: For Q4-Q9, if the participant has mentioned more than one social issue their child cares about, try to ask about each one separately to get a sense of how they got interested in each one, whether they are part of activities for each one, etc.

Q4: How did your child get interested in this issue/issues?

Follow up: When did they first start caring about this issue/issues? (probe about experiences they may have had that sparked their interest)

Who helped them get interested in this? (Probe about family involvement, peer involvement)

Q5: Tell me about whether your child has ever done an activity to help create positive change on this issue. (Probe about groups or activities or events they may have participated in or art they may have made about it.)

Follow up: Tell me about when they were involved in this activity (or group or event).

Tell me about how long they were involved with this activity (or group or event).

Why did they decide to do this activity? (Probe about what seemed important to them about the activity or group or event.)

Note: If the participant has never been involved with an activity, group, or event related to the issue/issues they mentioned, say:

Tell me about why you think your child has not been involved. (Probe about whether they were not aware of any activities, groups, or events they could participate in. If they were aware of options, probe about why they decided not to take part.

Q6: Have you seen your child's interest in this issue change over time? How?

Follow up: Has your child's participation in activities related to the issue changed over time? How?

Q7: How does your child's involvement affect them?

Q8: How does it make them feel?

Probe regarding:

- whether it makes them feel more than one way
- whether and how it affects their child's stress level
- why they think it has these effects on their child

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Q10: Now I want to shift a bit and learn more about you. We just talked about your child’s interest in social issues. Please tell me about whether you are interested in any social issues – these could be issues or problems in your community or problems that affect people beyond your community.

Why is this issue (or these issues) important to you?

Q11: How did you first get interested in this issue or issues?

Follow up: When did you first start caring about this issue/issues?
(probe about experiences they may have had that sparked their interest)
Who helped you get interested in this?

Q12. Tell me about the role this issue played in your life.

Probe: Tell me more about how this issue fits into the way you see yourself, your place in the world, your role as a parent.

Q13. How involved are you currently in doing activities related to this issue or issues? (e.g., readings, groups, activities, arts)

Probe regarding:

- what their involvement looks like
- how long they have been involved in these or other activities related to the issue
- whether they used to be involved in activities but are no longer involved

Q14: How does your involvement make you feel?

Probe regarding:

- whether it makes them feel more than one way
- why they think it makes them feel that way

Q15: How does your involvement affect you?

Q16: How does it make you feel?

Probe regarding:

- whether it makes them feel more than one way
- whether and how it affects their stress level
- why they think it has these effects on them

Q17: Tell me about whether you have shared this interest with your child.

Probe : How have you shared your interest?

How did this affect your child?

How has this affected your relationship with your child?

Q18. Tell me about whether you've ever involved your child in activities to help create positive change on this issue.

Q19. How often do you and your child discuss social issues in general?

Q20. What values do you try to teach or communicate to your child?

Probe: How do you do that? Tell me about ways you do that. Please provide an example.

Is there anything else you'd like to share related to the topics we just talked about?

That's all the questions I have. Thank you! We appreciate your time and all the information you shared today. You'll be getting your \$25 gift card by email, as well as a list of local resources, so make sure to look out for it and to check your spam too. Please let us know if you don't receive the gift card. You'll also be getting an email with a link to answer a few questions about this interview. Those questions will help us understand if there's anything we need to change about the interview format or questions.

Do you have any questions before we end? *[Answer questions, if there are any.]*

Thanks again!