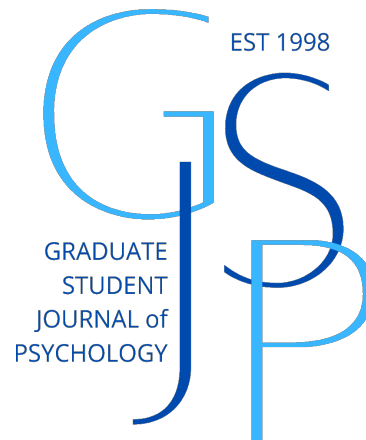# Graduate Student
Journal of Psychology

About the Artist:

George Bonanno is a Professor of Clinical Psychology at Columbia University's Teachers College and internationally recognized for his pioneering research on human resilience in the face of loss and potential trauma. He is recognized by the Web of Science as among the top one percent most cited scientists in the world, and has been honored with lifetime achievement awards by the Association for Psychological Science (APS), the International Society for Traumatic Stress Studies (ISTSS), and the International Positive Psychology Association (IPPA). In addition to the books, The End of Trauma and The Other Side of Sadness, Dr. Bonanno has published hundreds of peer-reviewed scientific articles, many appearing in leading journals such as Nature, JAMA, American Psychologist, and the Annual Review of Psychology. He is also an avid painter (when he has time), reads widely, and loves music.

I began drawing around the age of 15. If I remember correctly, one day I simply decided to try a small portrait drawing. The process was thrilling. Hours passed and I hardly noticed it. Ever since that day I have passionately engaged in portraiture, landscapes and still lifes in a variety of media. I've never sought formal training in art but nonetheless hoped to make a career of it. Oddly my biggest artistic output occurred while I was a doctoral student in psychology, often painting and drawing in the middle of the night. I exhibited and sold a number of my works during that time. Yet, simultaneously, I found psychological research and writing deeply gratifying, and eventually that became the obvious career choice. I never regretted that choice but, luckily, when time permits, I am still able to lose myself in the wonders of creating art.

    - Dr. George Bonnano

Graduate Student Journal of Psychology

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Graduate Student Journal of Psychology

Letter from the Editors:

We are proud to present Volume 24 of the *Graduate Student Journal of Psychology*, continuing our tradition of showcasing rigorous research that advances our understanding of psychological phenomena and addresses the complex challenges of our diverse world.

This volume features a compelling collection of studies that explore trauma, stress, mental health, and resilience across diverse populations. Barber and Mance investigate childhood trauma, race-related stress, and racial socialization in Black emerging adults. DeSoto and Gaby examine anxiety and attention-based tasks in college students. Park, Goger, and Cha explore adverse childhood experiences and adolescent suicidality, highlighting the roles of family functioning and perceived parental criticism. Budyantara and Soetikno investigate Indonesian male breadwinners' mental health, revealing how family harmony buffers the effects of stress. Davis, Notari, and Sim show how a sense of calling can mitigate burnout's impact on teacher behaviors, finding that educators with a strong sense of purpose were less likely to engage in counterproductive work behaviors even when experiencing reduced personal accomplishment. Shinbine, Maroney, Coombs, Maisey, and Fender examine how lesbian communities form on TikTok, analyzing how these digital spaces foster membership, influence, fulfillment of needs, and shared emotional connection as physical lesbian spaces diminish.

Collectively, these studies enhance our understanding of factors influencing psychological well-being while underscoring the importance of culturally sensitive approaches to mental health research and practice, and highlighting the protective roles of family dynamics, purpose, resilience, and digital community spaces in our increasingly connected world. We extend our gratitude to our contributors, peer reviewers, and our faculty sponsor, Dr. Matt Blanchard, for his continued support.

This volume also marks a significant transition as we bid farewell to three outstanding editors—Yutong, Emma, and Niklas—who are graduating. Their exceptional editorial insights, unwavering commitment to scholarly excellence, and collaborative spirit have been instrumental in shaping both this volume and the journal's development. We are confident they will continue to make meaningful contributions to psychology and wish them tremendous success in their future endeavors.

We invite our readers to engage with this important work through gsjp@tc.columbia.edu or our social media channels. Your engagement enriches the ongoing dialogue about these critical psychological issues.

Thank you for your continued support and interest in our journal.

Warm regards,

The Editors - Xi Pan, Yutong Zhu, Emma Langsford, Niklas Nyblom, Rachel Shin, Camila Domínguez, & Seraphima Ogden

Exploring Childhood Trauma, Race-Related Stress, Racial Socialization, and Symptoms in Black Emerging Adulthood

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Objective: Systemic oppression contributes to disproportionate rates of childhood trauma and race-related stress among Black emerging adults, heightening harmful psychological outcomes (Hope et al., 2022; Williams et al., 2010). This study explored how race-related stress influences the relationship between childhood trauma and internalizing symptoms in Black emerging adults. It also investigated whether racial socialization messages moderated these effects in a three-way interaction. **Methods**: Black emerging adults (ages 18 – 25) were recruited through academic channels and social media platforms to complete a demographic questionnaire, the Childhood Trauma Questionnaire – Short Form (CTQ), the Index of Race-Related Stress – Brief Version (IRRS-B), the Racial Socialization Questionnaire-teen (RSQ-t), and the Brief Symptom Inventory–18 (BSI-18). Hayes' PROCESS Model 3 was utilized to test moderated moderation analysis. **Results**: Analyses comprised 341 Black emerging adults (75.4% women, 31% 18-year-olds). Race-related stress did not moderate the relationship between childhood trauma and internalizing symptoms, B = -0.004, SE = 0.0025, 95% CI [-0.0054, 0.0046]. The overall moderated moderation model was not significant, B = 0.00002, SE = 0.0002, 95% CI [-0.0002, 0.0007]. However, higher endorsed childhood trauma and racial socialization messages, in the absence of race-related stress, were associated with increased internalized symptomology, B = 0.0105, SE = .0045, 95% CI = [0.0017, 0.0194]. **Conclusions**: These findings highlight the unique ways childhood trauma, race-related stress, and racial socialization messages impact Black emerging adults' psychological functioning. A higher frequency of endorsed racial socialization messages may amplify distress associated with childhood trauma. Future research should investigate racial socialization competency and coping self-efficacy to better understand racial socialization's role as a potential protective factor for Black emerging adults facing psychological distress from trauma and stress.

Keywords: childhood trauma, race-related stress, Black emerging adults, racial socialization, internalizing symptoms

Childhood trauma (e.g., physical, sexual, emotional abuse, and physical and emotional neglect) can be detrimental, as it can exacerbate adverse well-being outcomes (Gallagher et al., 2023). These adverse outcomes often persist into adulthood (Gause et al., 2022). Therefore, adults who experienced childhood trauma may continue to experience its psychological effects.

Intersectional factors contributing to systemic oppression— such as indirect racism (e.g., income inequality, mass incarceration) and direct racism (e.g., over-policing, community violence, and overt racial discrimination)— intensify trauma symptoms among Black Americans, who also face greater barriers to accessing mental health treatment (Gallagher et al., 2023). Research supports the notion that racial trauma or race-related stress amplifies the relationship between interpersonal trauma (e.g., childhood trauma) and the behavioral and psychological health outcomes of Black Americans (Mekawi et al., 2021; Metzger et al., 2021).

Race-related stress pertains to experiencing psychological distress from a racial encounter or experiences of racism (Carter & Pieterse, 2019; Roberson & Carter, 2022). Race-related stress is significantly associated with internalizing symptoms, such as anxiety and depression (Carter et al., 2019). Emerging adulthood (ages 18 – 25) is a developmental time period for youth that bridges adolescence and adulthood. Black emerging adults are more susceptible to racial discrimination than their counterparts from other racial/ethnic groups (Arnett, 2000). For example, Black emerging adults are more likely to experience racial discrimination when engaging in normative developmental tasks such as seeking jobs, training opportunities, advanced education, etc. (Hurd et al., 2014; Pearlin et al., 2005). The transition to adulthood and greater autonomy, coupled with race-related stress, can make Black emerging adults feel vulnerable. For those with a history of childhood trauma, the additive stress of race-related events can further increase vulnerability and complicate psychological outcomes. Therefore, it is critical to examine culturally relevant coping strategies that best fit the needs of this population.

Research indicates that racial socialization (RS) is a cultural coping strategy for Black youth, which can produce positive emotional well-being outcomes (Anderson et al., 2019). RS messages include themes of culture, attitudes, and values to prepare youth to navigate racial discrimination, oppression, and stress-

ors related to racial and ethnic identity (Hughes et al., 2006; Lesane-Brown et al., 2005; Metzger et al., 2021). RS messages are often verbal and nonverbal communication from caregivers to youth (Anderson et al., 2019; Hughes et al., 2006). An example of a verbal RS message would be a caregiver communicating to a youth, "You should be proud to be Black" (Neblett et al., 2009). An example of an RS nonverbal or behavioral message would be a caregiver buying youth books focusing on Black culture and history (Neblett et al. 2009). Five examples of notable RS messages are as follows: (1) instilling cultural pride by emphasizing heritage and ancestry (racial pride messages); (2) preparing for racial discrimination (barrier messages); (3) promoting racial equality or orienting youth to fit into mainstream culture (egalitarian messages); (4) reiterating positive traits (self-worth messages); and (5) participating in activities or demonstrating behaviors that promote Black culture (behavioral messages) (Bowman & Howard, 1985; Hughes et al., 2006; Metzger et al., 2021; Neblett et al., 2008; Neblett et al., 2009). RS has been associated with decreased depressive and stress-related symptoms (Metzger et al., 2021; Neblett et al., 2008) while allowing Black youth to gain a more robust and healthier sense of racial identity (Metzger et al., 2021; Neblett et al., 2008). It is also linked to positive psychological and behavioral outcomes for Black youth who experience racial stress and discrimination (Anderson et al., 2019) while promoting positive racial coping self-efficacy. However, while a wealth of research has examined RS as a protective factor for Black youth who have experienced racial stress (e.g., Neblett et al., 2013; Jones and Neblett, 2017; Anderson et al., 2019), there are mixed findings when it comes to racial socialization messages. For example, the protective impact of RS messages, such as egalitarian messages (Saleem et al., 2022, pp. 146–147) and racial barriers (Rodriguez et al., 2008), may vary as their effectiveness depends on the frequency, content, and context in which they are delivered. However, the literature is clear that negative messages, which communicate   negative stereotypes about Black people (e.g., "Told you that learning about Black history is not that important."), are linked to harmful mental health outcomes (Anderson et al., 2024).

This study will examine whether cumulative RS messages serve as a protective factor for Black emerging adults who have experienced racial stress and childhood trauma, using the Racial Encounter Coping Appraisal and Socialization Theory (RECAST) model as a guiding framework.

Guiding Theoretical Frameworks: Racial Encounter Coping Appraisal and Socialization Theory

Stevenson (2014) adapted the Transactional Model of Stress and Coping (TMSC) to address race-related stressors. Building on the foundational work of Lazarus and Folkman (1984), Stevenson extended the TMSC by introducing RECAST. This theoretical framework offers a nuanced lens for understanding how race-related stress and RS impact psychological outcomes.

TMSC emphasizes the role of primary appraisal in stress responses. Folkman et al. (1986) describe primary appraisal as the initial assessment of whether an individual perceives an event as threatening or harmful. In the context of childhood trauma, traumatic experiences are associated with heightened psychological distress, which can persist into adulthood (Gause et al., 2022). In this study, childhood traumatic experiences are examined as a predictor variable, representing an individual's early exposure to stressors that likely shape how individuals appraise stress and threats. These experiences, in turn, influence psychological outcomes or internalizing symptomology in emerging adulthood, which serves as the outcome variable for this study.

Similarly, RECAST examines racial stress or race-related stress as an appraisal process, where individuals recognize a discriminatory racial encounter as racial (Anderson & Stevenson, 2019). In the RECAST framework, RS competency (the confidence and skills of families' RS communication) is explored as a moderating variable, determining whether racial stress, coupled with the mediating variable of racial coping self-efficacy, influences outcomes for Black youth. The RECAST framework suggests that higher RS competency will enhance coping self-efficacy, ultimately leading to more positive and adaptive well-being outcomes for Black youth (Anderson & Stevenson, 2019). While RECAST focuses on RS competency as a potential protective factor, this study will explore the broader culmination of RS messages. Specifically, we aim to determine whether the increased frequency of RS messages serves as a protective factor, moderating the effects of race-related stress. Although both TMSC and RECAST examine secondary appraisal—where individuals assess their

coping resources—this study focuses on the frameworks' primary appraisal and outcome components.

The current study will add to the literature through two broad goals. First, the study will examine internalizing symptoms of Black emerging adults who have experienced race-related stress and childhood trauma. Specifically, this study will examine the moderating effects of race-related stress on the relationship between childhood trauma and internalizing symptomology (i.e., anxiety, depression, and somatization). Secondly, the study will investigate whether RS messages buffer against internalizing symptoms for Black emerging adults who have experienced race-related stress and childhood trauma. Thus, this study will examine the moderating effects of RS on the interaction of race-related stress and childhood trauma on internalizing symptoms. The study's statistical framework is presented in Figure 1. We hypothesize the following:

Hypothesis 1a (H1a): Frequent exposure to race-related stress will increase internalizing symptoms.

Hypothesis 1b (H1b): Frequent exposure to childhood trauma will increase internalizing symptoms.

Hypothesis 1c (H1c): Higher endorsement of racial socialization messages will be associated with lower internalizing symptoms.

Hypothesis 2 (H2): The presence of race-related stress will exacerbate the relationship between childhood trauma and internalizing symptoms.

Hypothesis 3 (H3): Racial socialization will moderate the relationship between childhood trauma and race-related stress such that greater experience of racial socialization will buffer against the negative effects of childhood trauma on internalizing symptoms. To our knowledge, this serves as the first research study to explore whether RS serves as a protective factor for Black emerging adults who have experienced race-related stress and childhood trauma. Specifically, limited studies have examined how traumatic events experienced in childhood, combined with race-related stress, impact Black youth in emerging adulthood. Additionally, there is a gap in research exploring RS messages as a potential protective factor for Black emerging adults who have experienced both childhood trauma and race-related stress.

Methods

A Mid-Atlantic University Institutional Review Board approved all study procedures. Data were collected between February 2022 and April 2022.

Participants

Participants were Black emerging adults recruited from the Mid-Atlantic region and via online social media platforms. Eligible participants were between the ages of 18 and 25, identified as Black or of African descent (e.g., African American, African, Black Caribbean, Afro-Latinx, etc.), and considered English their primary language. Exclusion criteria included respondents who did not identify as of African descent, were not between the ages of 18 and 25, and did not consider English their primary language.

Procedure

Recruitment for participation included informing potential participants about the study through academic channels and social media platforms. A recruitment flyer containing a quick response code or QR code that linked to the study's Qualtrics survey or questionnaire was distributed through social media platforms (e.g., Facebook and Instagram), shared with academic professors via email, and posted on a university online learning management system.

The Qualtrics questionnaire took approximately 25 minutes to complete. Prior to beginning the survey, the initial page included the informed consent information for participants. Participants were able to give their consent to the study by indicating yes or no electronically. After completing the survey, psychology students recruited from the subject pool had the option to receive extra credit for their course if approved by an undergraduate psychology professor. All other participants were eligible to receive one of three drawings for an electronic gift card valued at $25   .

Measures

Demographic Information

A demographic questionnaire was administered to participants to obtain brief background information. The questionnaire gathered information such as race/ethnicity, gender, family household income, the participant's current income, description of the setting where the participant was raised (e.g., rural vs. urban setting), marital and occupational statuses, educational level, and mental health treatment history (i.e., "Have you ever seen a therapist (for over a month) for trauma, anxiety, and/or depression?").

Childhood Trauma

The Childhood Trauma Questionnaire – Short Form (CTQ; Bernstein, 1998) is a 28-item self-report

questionnaire that screens childhood traumatic experiences using five subscales: emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect. Participants are asked to rate the severity in which a childhood trauma affected them using a 5-point Likert scale of 1 (never true) to 5 (very often true). The item responses included four categories from non to low trauma exposure to extreme trauma exposure. Thus, higher scores indicated higher trauma exposure. Sample item statements are "I believe I was sexually abused," and "I thought my parents wished I had never been born." The CTQ also contains a minimization/denial validity scale created to identify underreporting of maltreatment. For this study, the minimization/denial scale was not assessed. This study aimed to explore participants' perceptions of childhood traumatic experiences, if experienced. Therefore, the minimization/denial of experiences was not the focus of this study. In the current study, the five subscales (emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect) were summed for a global score. While this measure does not measure primary appraisal directly, it captures early stress exposure, which may influence how individuals appraise stressful situations. Of note, as indicated by Bernstein (1998), two subscales (i.e., emotional and physical neglect) on the Childhood Trauma Questionnaire (CTQ) were reverse-coded in SPSS. The CTQ measure has test-retest reliability coefficients ranging from .79 to .86 and an internal consistency coefficient ranging from .66 to .92 (Bernstein, 1998; Bernstein et al., 2003; Liebschutz et al., 2018). The CTQ has also been shown to have good convergent validity when compared to clinician-administered interviews assessing child abuse (Bernstein, 1998). Cronbach's alpha for the current sample was excellent, $\alpha = 0.92$.

Race-Related Stress

The Index of Race-Related Stress – Brief Version (IRRS-B) (Utsey, 1999) is a 22-item questionnaire that measures African Americans' race-related stress on racism and discrimination across three factors: cultural, institutional, and individual racism. The IRRS-B requires participants to assess racist events that either they or someone close to them has experienced and then rate the level of severity of how the experiences have impacted them. A 5-point Likert scale of 0 (this never happened to me) to 4 (the event happened, and I was extremely upset) is used to rate the participants' responses. Sample item statements include "You notice that when individuals belonging to your ethnic group are killed by the police, the media informs the public of the victims criminal record," and "While shopping at a store, or when attempting to make a purchase, you were ignored as if you were not a serious customer or didn't have any money." The Cronbach alpha across scales include the Cultural Racism subscale being .78, the Institutional Racism subscale being .69, the Individual Racism subscale being .78, and Global Racism being .77. Subsequently, the concurrent validity of the IRRS-B was demonstrated through its positive and significant correlations with the Perceived Stress Scale (Cohen et al.,1983; Utsey et al., 2002), particularly with the cultural and individual racism subscales. The global racism score was assessed as moderator 1 in this study. The summed scores for each subscale were transformed into z-scores and then summed to obtain a global racism score. Cronbach's alpha for the global score of the current sample was good, $\alpha = 0.87$.

Racial Socialization

Racial Socialization Questionnaire-teen (RSQ-t; Lesane-Brown et al., 2006) is a theoretically derived 26-item questionnaire that assesses participants' perception of the frequency of racial socialization messages and activities they have received from parents over the past year. This measure seeks to capture how recent racial socialization messages may or may not buffer against the effects of past childhood trauma. There are six subscales measured within the RSQ-t, which include racial pride messages ($\alpha = .63$), racial barrier messages ($\alpha = .69$), egalitarian messages ($\alpha = .64$), self-worth messages ($\alpha = .74$), negative messages ($\alpha = .66$), and behavioral messages ($\alpha = .73$). For this study, only five subscales were examined, excluding the negative messages subscale. The negative message subscale did not directly align with the study's objective, which was to assess RS messages that have been found to be protective or associated with promoting psychological well-being. The five subscales were summed up to create a global score for racial socialization messages. Participants use a 3-point scale of 0 (never) to 2 (more than twice) to respond to item statements such as "Told you that you are somebody special, no matter what anybody says," and "Told you that some people may dislike you because of the color of your skin." The RSQ-t has shown good predictive validity of attitudes regarding racial identity and intergroup relationships (Lesane-Brown

et al., 2006). Additionally, the RSQ has demonstrated good reliability and validity in predicting Black American youths' academic and psychological outcomes (Neblett et al., 2008). Although Lesane-Brown et al. (2006) originally developed the RSQ-t mainly for adolescents, the Cronbach's alpha of the current sample, including Black emerging adults, was good, $\alpha = 0.87$.

Internalizing Symptomology

The Brief Symptom Inventory – 18 (BSI-18; Derogatis, 2011) is an 18-item self-report measure that screens for internalizing symptoms such as somatization, depression, and anxiety. The participants rate how much they have been bothered by internalizing symptoms in the past week using a 5-point Likert scale of 0 (Not at all) to 4 (Extremely). Sample item statements include *"How much were you distressed by feeling lonely?"* and *"How much were you distressed by feeling hopeless about the future?"* Derogatis (2011) found that the internal consistency for somatization ($\alpha = .74$), depression ($\alpha = .84$), and anxiety ($\alpha = .79$) was acceptable. The total range of scores is from 0 to 72, with higher scores indicating higher symptomology. The somatization, depression, and anxiety subscales were summed for a global score of internalizing symptomology. It has been shown to have well-established validity through its two-factor analysis structure (Derogatis, 2011). Likewise, it demonstrated good factorial validity in a study population comprised primarily of young or emerging adults (Recklitis et al., 2006). Cronbach's alpha for the current sample was excellent, $\alpha = 0.94$.

Data Analysis

Missingness Data and Preliminary Assumptions

Three hundred-ninety-two study participants were initially recruited. Before conducting the primary study analyses, preliminary assumptions were examined to assess normality, linearity, homoscedasticity, and outliers. Cases were removed from the study if subscale measures of main study variables had more than 50% of their questions or items missing. This resulted in the removal of 47 cases. Subsequently, two additional cases were removed because participants did not identify as being of African descent.

Mahalanobis distance scores were used to detect multivariate outliers. A threshold of $p <.001$ was utilized, which resulted in one case being identified as a potential outlier. Therefore, this case was removed from the analysis. There were no other outliers detected. Hayes PROCESS analysis (Hayes, 2017) was utilized to examine the moderated-moderation analysis. The Hayes PROCESS analysis conducted listwise deletion, removing one additional case. Upon further investigation, the internalizing symptoms measure (i.e., BSI-18) was incomplete. This resulted in the regression analyses, including a final sample size of $N = 341$ participants.

All assumptions of multiple regression were tested and met, including linearity, normality, and evidence of homoscedasticity. There was no major threat of multicollinearity because the correlation between childhood trauma and race-related stress is less than .90 ($R (339) = .146, p > .05$), childhood trauma and racial socialization (RS) messages is less than .90 ($R (339) = -.253, p > .05$), and race-related stress and RS messages is less than .90 ($R (339) = -.270, p > .05$). Furthermore, the tolerance values .887, .878, and .840 exceed .20, and the VIF factors of 1.127, 1.139, and 1.190 are lower than 4.00, meaning each independent variable has a strong uniqueness.

Descriptive Statistics

Descriptive statistics were calculated in the Statistical Package for Social Sciences (SPSS) version 26 (IBM Corp., 2019) for all available data, including the percentage for all categorical and demographic variables. The mean and standard deviation were also calculated for all main study variables and their subscales. Descriptives of the main study variables are shown in Table 1.

Primary statistical analyses were conducted in SPSS version 26, which included assessing multiple linear regression models and utilizing Andrew Hayes' PROCESS Model 3 (Hayes, 2017; moderated moderation analysis). Childhood trauma (independent variable; CTQ score), internalizing symptoms (dependent variable; BSI-18 score), race-related stress (moderator 1; IRRS-B score), and RS messages (moderator 2; RSQ-t score) were examined in the moderated moderation model (Hayes, 2017). All variables that define products were mean-centered. The conditioning values were set at -1SD, Mean, and +1SD. Confidence intervals were set to 95, with 5,000 bootstrap samples.

Results

Descriptive Statistics

Our study sample was predominantly women (75.4%) and identified as Black/African American (88.9%). Nearly one-third of the sample was 18 years old (31%), and over half of the sample endorsed having "some college" (55.3%) as their highest level of educa-

tion. For further demographic information, see Table 2.

Multiple Linear Regression Models

Three hypotheses were analyzed utilizing the Statistical Package for Social Sciences (SPSS) version 26 (IBM Corp., 2019) to test multiple linear regression models. The three hypotheses consisted of the following: frequent exposure to race-related stress will increase internalizing symptoms (H1a), frequent experiences of childhood trauma will increase internalizing symptoms (H1b), and higher endorsement of RS messages will be associated with lower internalizing symptoms (H1c).

Simple linear regression model results indicated that the predictors childhood trauma, race-related stress, and RS messages explained 27% of the variance (R^2 = 0.271, F = 41.696, p < .001) in internalizing symptoms. It was found that race-related stress significantly predicted internalizing symptoms, B = .198, t (340) = 3.724, SE = 0.53, SE = 0.53, p < .001, 95% CI [0.093, 0.302]. Therefore, the more Black emerging adults experienced race-related stress, the higher their total internalizing symptoms, which supports hypothesis 1a. Further, childhood trauma significantly predicted internalizing symptoms, B = .370, t (340) = 9.331, SE = 0.040, p < .001, 95% CI [0.292, 0.448]. Thus, the more childhood trauma Black emerging adults experienced, the higher their total internalizing symptoms. This supports hypothesis 1b. Interestingly, the relationship between RS messages and internalizing symptoms was not statistically significant, B = .072, t (340) = 0.766, p = .444, 95% CI [-0.113, 0.256]. Therefore, hypothesis 1c is not supported. See Table 3.

Moderated Moderation

The hypothesized moderated moderation effects were tested using PROCESS macro model number 3 (Hayes, 2017). The model tested the moderating effects of race-related stress on the relationship between childhood trauma and internalizing symptomology (H2). Further, the model examined the moderating effects of RS messages on the moderating variable of race-related stress on the path of childhood trauma and internalizing symptomology (H3).

Hypothesis 2 proposed that the presence of race-related stress would exacerbate the relationship between childhood trauma and internalizing symptoms. Race-related stress did not moderate the relationship between childhood trauma and internalizing symptoms, B = -0.004, SE = 0.0025, t (340) = -0.16, p = 0.87, 95% CI [-0.0054,

0.0046], which opposes the study's hypothesis 2.

Hypothesis 3 proposed that RS messages would moderate the relationship between childhood trauma and race-related stress, such that greater endorsement of RS messages would buffer against the negative effects of childhood trauma on internalizing symptoms. The results indicated that there was a conditional interaction between childhood trauma and RS messages, B = 0.0105, SE = .0045, t (340) = 2.35, p < .05, 95% CI = [0.0017, 0.0194]. Thus, higher endorsed childhood trauma and RS messages, in the absence of race-related stress, were associated with increased internalized symptomology. This contradicts the proposed hypothesis that RS messages will buffer against deleterious symptoms of childhood trauma. While childhood trauma and race-related stress (respectively) were significantly related to internalizing symptoms, RS failed to act as a buffer against trauma and symptoms. Rather, it appears to exacerbate internalizing symptoms in the presence of childhood trauma. The overall moderated moderation model was not supported, B = 0.0002, SE = 0.0002, t (340) = 0.99, p = .32, 95% CI [-0.0002, 0.0007]. See Table 4.

Exploratory Analysis: Simple Moderation Analysis

The moderated-moderation model found that higher endorsed childhood trauma and RS messages, in the absence of race-related stress, were associated with increased internalized symptomology. Based on the partially moderated moderation findings, a simple moderation (i.e., Hayes Model 1) was conducted to explore the direct relationships of RS messages on childhood trauma and internalizing symptoms.

RS messages were found to moderate the relationship between childhood trauma and internalizing symptoms, B = 0.0095, SE = 0.0043, t (340) = 2.2438, p < .05, 95%, CI [0.0012, 0.0179]. The interaction between trauma and RS messages accounts for 1.1% of the variance in internalizing symptoms for Black emerging adults (R^2 = .011, F(1, 337) = 5.035, p < .05).

Additionally, it was found that when RS messages were one standard deviation above the mean, and the more Black emerging adults were exposed to childhood trauma, this indicated higher internalizing symptomology, B = 0.4976, SE = 0.0567, t (340) = 8.77, p < .001, 95% CI [0.3860, 0.6091]. See Figure 2.

Discussion

The present study sought to explore the relationship between childhood trauma, race-related stress, racial socialization (RS) messages, and internalizing symptoms among Black emerging adults. Specifically, this study investigated the influence of race-related stress on the relationship between childhood trauma and internalizing symptoms. Further, RS messages were examined to see if they buffered against the effects of race-related stress on the relationship between childhood trauma and internalizing symptoms.

As expected, the results of this study confirmed that Black emerging adults who endorsed race-related stress experienced increased internalizing symptomology. Additionally, the results found that Black emerging adults who experienced childhood trauma experienced increased internalizing symptomology. The RECAST frameworks were used to explore the transactional pattern of childhood trauma, race-related stress, RS messages, and mental health outcomes in Black emerging adults. Specifically, the current study explored the internalizing symptomology (i.e., depression, anxiety, and somatization) of Black emerging adults who have experienced childhood trauma and race-related stress. Further, the RECAST framework was utilized to investigate if RS messages functioned as a protective factor for Black emerging adults who experienced childhood trauma and race-related stress.

It was initially predicted that for Black emerging adults who had experienced childhood trauma, the presence of race-related stress would exacerbate their internalizing symptoms. Additionally, it was predicted that for Black emerging adults who experienced childhood trauma and race-related stress, the more RS messages endorsed would be associated with decreased internalizing symptomology. Thus, higher endorsement of RS messages would be associated with lower internalizing symptoms. Altogether, this study investigated the internalizing symptomology of Black emerging adults who have experienced complex trauma (i.e., childhood trauma and race-related stress) and explored if RS messages served as a protective factor.

Race-Related Stress as a Moderator

The study results did not support the hypothesized moderated model that the presence of race-related stress would exacerbate the relationship between childhood trauma and internalizing symptoms. However, when solely examining the relationship between race-related stress and symptoms, our hypothesis aligned with previous literature, such that Black emerging adults who experienced race-related stress experienced increased internalizing symptoms. Previous literature confirms that Black Americans experience increased internalizing symptoms and disproportionately experience chronic stress due to racism and racial discrimination (Franklin et al., 2006).

Although we found that race-related stress did not exacerbate the internalizing symptomology of Black emerging adults who have experienced childhood trauma, the literature suggests that racial stress or trauma can worsen the mental health outcomes of Black Americans with trauma histories (Mekawi et al., 2021; Metzger et al., 2021). According to the RECAST framework, racial coping self-efficacy mediates the relationship between racial stress and coping, leading to psychological and overall well-being outcomes for Black youth. The current study integrated a childhood trauma component absent from the RECAST model. This component was added in the current study to examine how interpersonal trauma, in addition to racial stress, influences Black emerging adults' mental health outcomes. Thus, the lack of association between racial stress, childhood trauma, and symptoms may be due to the strong linear relationships between childhood trauma and symptoms, as well as race-related stress and symptoms. As a result, race-related stress may not have acted as a moderating variable or exacerbated the symptoms of childhood trauma, given that the internalizing symptoms of childhood trauma were already highly significant.

Further, another possible explanation for race-related stress not emerging as a significant moderator may pertain to racial socialization inherently involving elements of race-related stress. Discussions that prepare individuals for discrimination or teach individuals how to navigate racism can be stress-inducing. As such, racial socialization messages may partially account for the effects of race-related stress, potentially overlapping with or absorbing its influence in the model. This explanation may help clarify why a higher frequency of racial socialization messages was associated with greater internalizing symptoms among Black emerging adults with childhood trauma histories.

Additionally, as mentioned previously, the RECAST model incorporated racial coping self-efficacy as a mediator between racial stress and cop-

ing, leading to predicted outcomes. The current study did not examine coping self-efficacy. This may further explain the lack of association between variables, as the current study did not investigate Black emerging adults' perception of their ability to manage racial stressors and childhood trauma.

Racial Socialization Messages as Moderator 2

In this study, we tested a moderated-moderation model to examine whether RS messages moderated the effect of race-related stress on the relationship between childhood trauma and internalizing symptomatology of Black emerging adults. To our knowledge, this is the first study to test this moderated moderation model with Black emerging adults. No significant relationship was found between childhood trauma, race-related stress, RS messages, and internalizing symptoms. Therefore, our hypothesis was not supported; in fact, the research findings contradicted our hypothesis due to there being a significant conditional interaction between childhood trauma, RS messages, and symptoms. Specifically, Black emerging adults who experienced more childhood traumatic experiences and received RS messages (i.e., racial pride, racial barrier, egalitarian, self-worth, and behavioral) were associated with increased internalizing symptoms. This contradicts previous findings that have suggested that receiving a combination of RS messages is advantageous to Black American youths' mental health outcomes (Davis et al., 2017; Granberg et al., 2012; Neblett et al., 2008). Subsequently, our findings contradict the study results of Fischer and Shaw (1999), who noted that the more African American college students received RS messages, this moderated the relationship between racist experiences and poorer mental health outcomes. Notably, these previous studies have found that the mental health outcomes of Black adolescents receiving RS messages improve when experiencing racial stressors, not interpersonal or childhood trauma.

In the present study, the lack of a significant association between childhood trauma, race-related stress, RS messages, and internalizing symptoms may pertain to the effects of RS deteriorating as a protective factor for Black emerging adults who have experienced cumulative childhood trauma and race-related stress. Accordingly, previous studies have found mixed findings when examining the effects of RS messages on Black Americans' psychological well-being. For instance, while some studies have found racial or cultural pride

messages to be associated with positive psychological outcomes (Bynum et al., 2007; Davis et al., 2017), some studies have found racial barrier messages to be associated with increased depressive symptoms (Liu & Lau, 2013; Stevenson et al., 1996). For Black emerging adults who have experienced childhood trauma, being more conscious of racial discrimination and navigating psychological challenges from childhood trauma may lead to adverse mental health outcomes. The present study's findings contribute to the growing body of literature that RS messages may make Black emerging adults more aware of racial discrimination. Our findings further suggest that for Black Americans with extensive childhood trauma histories, the more endorsed RS messages have the potential to complicate mental health outcomes.

Limitations

While study findings were notable, the study contained limitations. This study was cross-sectional. Thus, the study findings cannot indicate any causal relationships between variables.

Additionally, as mentioned previously, the present study did not examine all the RECAST framework components. The RECAST framework examined Black youths' RS competency moderating racial stress and racial coping self-efficacy, and self-efficacy mediated the relationship between stress and coping, leading to Black youths' mental health and overall well-being outcomes. While the present study utilized the RECAST framework to examine the relationship between trauma and stress, RS as a coping strategy or moderator, and mental health outcomes, this study did not examine RS competency or racial coping self-efficacy. Thus, we are not aware of Black emerging adults' perception of how they believe they manage racial stress and trauma, nor are we aware of this population's confidence and skill level in engaging in RS communication (i.e., RS competency). Examining these RECAST components would likely provide more context in understanding Black emerging adults' mental health outcomes that have experienced race-related stress and complex trauma. Specifically, the RECAST Model emphasized the importance of parent and youth competence in transmitting and engaging in RS communication (Anderson & Stevenson, 2019). Future studies should examine RS competency and coping self-efficacy for trauma and race-related stress to effectively explore how RS can serve as a protective factor.

In alignment with the RECAST model, the primary appraisal of discriminatory racial encounters determines one's level of racial stress. The primary appraisal is best understood by determining the secondary appraisal of one's racial coping self-efficacy, which will aid in determining how one engages and navigates discriminatory racial encounters. It is critical to note that data collection for this study occurred during a time when Black Americans were experiencing both the COVID-19 pandemic and a racial pandemic. The COVID-19 pandemic highlighted long-standing racial disparities in health outcomes, while Black Americans were also experiencing heightened racial injustices that were highly publicized across all media platforms. The heightened sociopolitical period and persistent racial injustice may have impacted how the study population attended to and their understanding of RS messages. Thus, race-related stress was exacerbated during this time, which may explain why RS messages did not serve as a protective factor. Therefore, a limitation of this study was not examining the population's racial coping self-efficacy and RS competency, especially during a time of heightened discriminatory racial encounters.

Another limitation of this study was that our study population had similar demographics. The study population mainly consisted of college students. Further, most of the study sample had a middle to high household family income during childhood. Research has found that context is essential regarding RS. For example, previous studies have found that RS messages are communicated more frequently in families with higher education and SES (Hughes et al., 2006). A more diverse sample consisting of a community sample could help provide more understanding of how RS can be generalized to Black Americans to serve as a protective factor for adverse outcomes of childhood trauma and race-related stress.

Subsequently, nearly half the study population indicated that they had seen a therapist for depression, anxiety, or trauma for over a month. Whether the participant saw a therapist or not was not controlled. Therefore, the lack of association between childhood trauma, race-related stress, RS messages, and internalizing symptoms may be due to coping contributing to other contextual factors, including mental health treatment. Future studies may consider controlling for mental health treatment to assess RS as a protective factor.

Another possible reason for the lack of relationship between childhood trauma, race-related stress, RS messages, and internalizing symptoms may be due to the selected measures in the study. Notably, the data collected was based on retrospective experiences, including Black emerging adults recounting past childhood experiences and recalling RS messages they received or did not receive from their parents or caregivers. While we firmly believe our study participants' understanding of their past experiences is insightful and informative, this study may be limited in participants' recounting all their experiences. Further, our outcome measure was limited in exploring the full range of psychological distress this population may be experiencing. The BSI-18 explored only anxiety, depression, and somatization symptoms within seven days.

Additionally, the present study only used quantitative measures to examine the symptomology of Black emerging adults who have experienced childhood trauma and race-related stress. This is limiting, as quantitative measures do not explore the in-depth life experiences of this population and how their experiences contribute to their mental health outcomes. Qualitative and mixed-methods studies would help to better understand Black emerging adults' childhood trauma, racial stress, RS, and psychological outcomes. All of which could help provide more insight into how RS may serve as a protective factor for this population. Lastly, the RSQ-t measure, which assessed the frequency of racial socialization messages Black emerging adults received from parents or caregivers, was limited in capturing messages across child development. This is a notable limitation, as emerging adults may engage in fewer race-related discussions with caregivers over time.

Future Directions

Our study findings indicate that Black emerging adults with childhood trauma histories and race-related stress are linked to increased internalizing symptoms. Future research should consider exploring coping strategies that serve as protective factors for this population. Specifically, future research should investigate different subtypes or different types of childhood trauma (e.g., physical abuse, sexual abuse, physical neglect), racial stressors (e.g., cultural, institutional, and individual racism), and RS messages (e.g., racial pride and self-

worth messages) as each experience could influence one's mental health differently. Specifically, future research should examine the associations between different types of childhood trauma, race-related stressors, and RS messages to determine whether certain types of trauma are linked to race-related stress and whether specific RS messages serve a protective role in these relationships. Examining this relationship is particularly important because one possible explanation for why race-related stress did not emerge as a moderator or exacerbate the internalizing symptoms associated with childhood trauma may be that race-related stress is already closely tied to the traumatic experiences encountered during childhood for this population.

Although we found that RS did not serve as a protective factor for our study population's symptoms, we hesitate to conclude that RS does not serve as a protective factor for Black emerging adults who have experienced childhood trauma and race-related stress. This is due to previous studies suggesting that RS promotes positive mental health outcomes for Black Americans. In order to determine RS's role as a coping mechanism for Black emerging adults with a history of trauma and race-related stress, future research should examine the RECAST component variables, RS competency, and coping self-efficacy, and the present study variables, childhood trauma, race-related stress, RS, and internalizing symptoms. Examining all study variables will provide more insight into this population's perception of their traumatic and stressful experiences and how RS could buffer against symptoms. Focusing on the quality of RS communication—specifically by examining RS competency (i.e., confidence and skills in RS communication)—rather than the frequency of RS messages, is likely to provide greater insight into its role as a protective factor.

Regarding methodology, future studies should include outcome measures   that explore more symptomology (e.g., externalizing symptoms, self-esteem, hypervigilance, etc.) with a more diverse sample population. Further, future research should consider using a qualitative or mixed-methods research design. This design would help scholars gain a more in-depth and nuanced understanding of Black Americans' psychological outcomes who have experienced childhood trauma, race-related stress, and received RS messages.

Implications

The current study's findings indicate that child-hood traumatic experiences and race-related stress influence mental health outcomes for Black emerging adults. RS messages did not moderate symptoms for Black emerging adults who experienced increased childhood trauma and race-related stress. However, results found that Black emerging adults who experienced childhood traumatic experiences and received RS messages were associated with having increased internalizing symptoms.

Although we found that a higher frequency of cumulative RS messages has the ability to produce adverse mental health outcomes for Black emerging adults who have experienced trauma, the literature supports that RS messages can serve as a protective factor for Black Americans who have experienced race-related stress (Davis et al., 2017; Granberg et al., 2012; Neblett et al., 2008). Our study adds to the growing body of literature that context is important when communicating RS messages. Thus, it is essential to consider Black Americans' trauma histories when utilizing RS, as certain messages may have the ability to improve or worsen mental health outcomes for this population. For RS to be effective in serving as a protective factor for Black emerging adults who have experienced childhood trauma and race-related stress, assessing for and fostering RS competency may be beneficial for Black emerging adults and social figures. Social figures, including parents, caregivers, family members, teachers, mentors, mental health professionals, etc., may benefit from participating in accessible community workshops and work training that provide education on RS and practical RS communication tools. It is also suggested that RS resources and education are provided for Black emerging adults, which will help strengthen RS communication and help build confidence in utilizing RS when navigating trauma and stress.

Social figures practicing cultural humility (being open, self-aware, and self-reflective when interacting with diverse individuals) is also essential (Mosher et al., 2017). Cultural humility is necessary as it embodies person-centered, respectable, and nonjudgmental communication. For Black emerging adults who have experienced significant trauma and stress, cultural humility may help this population feel safe when feeling vulnerable discussing significant life stressors. Researchers and clinicians should incorporate cultural humility into practice with ethnically, racially, and culturally diverse clients or patients and recognize within-group differences (Metzger et al.,

2021). This is critical when assessing and treating clients, as the trauma this population has experienced and the RS messages they receive will vary from person to person and impact individuals differently. Therefore, mental health clinicians working with Black emerging adults should consider implementing culturally tailored interventions in assessment and therapy settings to help meet this population's unique needs. In terms of assessment, clinicians should use culturally appropriate assessment tools to assess the client's childhood trauma and race-related stress history. Additionally, clinicians should assess the RS messages that clients already receive and how those messages impact them. Assessing the RS messages the client already receives and utilizes will help the clinician understand which messages have been beneficial and harmful for the client. This will further help the clinician know which messages to incorporate into treatment. Following assessment, the clinician should collaborate with the client to provide culturally responsive treatment that best meets the client's needs. This may include a cultural adaptation to trauma treatment. For example, Metzger and Colleagues (2021) created a culturally responsive adaptation to Trauma Focused Cognitive Behavioral Therapy (TF-CBT) that focuses on implementing RS into TF-CBT for Black youth with interpersonal and racial trauma histories. The findings of this study highlight that more exploration of culturally responsive and accessible coping strategies and treatment is needed for Black emerging adults experiencing childhood trauma and race-related stress. Notably, it is imperative to acknowledge that, regardless of RS serving as a potential cultural coping strategy that may reduce psychological distress related to stress and trauma, this is not a solution to systemic oppression. We assert that the solution lies in recognizing and addressing the historical and ongoing systemic and racial oppression embedded within societal structures. RS can be most effective when there is a committed effort to confront and dismantle systemic racial oppression.

Conclusion

In conclusion, the results of this study provide new insight into the influence of childhood trauma, race-related stress, and RS messages on Black emerging adults internalizing symptomology. Using some components of the RECAST framework, we found that Black emerging adults experience increased internalizing symptoms when experiencing childhood trauma or race-related stress. We discovered that RS was not a protective factor for this population. In fact, for Black emerging adults with childhood trauma histories, a higher endorsement of RS messages, in the absence of race-related stress, was linked to increased internalizing symptoms. These findings call for additional research to investigate all RECAST framework components, including RS competency and coping self-efficacy. Analyzing all study variables will help better understand how RS may serve as a protective factor for Black emerging adults who have experienced childhood trauma and race-related stress. also explore childhood-onset psychosis and its association with sexual and intimate partner violence.

References

Anderson, R. E., Johnson, N., Jones, S. C. T., Patterson, A., & Anyiwo, N. (2024). Racial Socialization and Black Adolescent Mental Health and Developmental Outcomes: A Critical Review and Future Directions. *Journal of Clinical Child & Adolescent Psychology, 53*(5), 709–732. https://doi.org/10.1080/153 74416.2024.2384025

Anderson, R. E., Jones, S., Anyiwo, N., McKenny, M., & Gaylord-Harden, N. (2019). What's Race Got to Do With It? Racial Socialization's Contribution to Black Adolescent Coping. *Journal of Research on Adolescence, 29*(4), 822–831. https://doi.org/10.1111/jora.12440

Anderson, R. E., & Stevenson, H. C. (2019). RECASTing racial stress and trauma: Theorizing the healing potential of racial socialization in families. *American Psychologist, 74*(1), 63–75. https://doi.org/10.1037/amp0000392

Arnett, J. J. (2000). Emerging adulthood. A theory of development from the late teens through the twenties. *The American Psychologist, 55*(5), 469–480.

Bernstein, D. P. (1998). *Childhood Trauma Questionnaire: A retrospective self-report manual*. The Psychological Corporation, Harcourt Brace & Company.

Bernstein, D. P., Stein, J. A., Newcomb, M. D., Walker, E., Pogge, D., Ahluvalia, T., Stokes, J., Handelsman, L., Medrano, M., Desmond,

D., & Zule, W. (2003). Development and validation of a brief screening version of the Childhood Trauma Questionnaire. *Child Abuse & Neglect, 27*(2), 169–190. https://doi.org/10.1016/S0145-2134(02)00541-0

Bowman, P. J., & Howard, C. (1985). Race-related Socialization, Motivation, and Academic Achievement: A Study of Black Youths in Three-Generation Families. *Journal of the American Academy of Child Psychiatry, 24*(2), 134–141. https://doi.org/10.1016/S0002-7138(09)60438-6

Bynum, M. S., Burton, E. T., & Best, C. (2007). Racism experiences and psychological functioning in African American college freshmen: Is racial socialization a buffer? *Cultural Diversity & Ethnic Minority Psychology, 13*(1), 64–71. https://doi.org/10.1037/1099-9809.13.1.64

Carter, R. T., Johnson, V. E., Kirkinis, K., Roberson, K., Muchow, C., & Galgay, C. (2019). A Meta-Analytic Review of Racial Discrimination: Relationships to Health and Culture. *Race and Social Problems, 11*(1), 15–32. https://doi.org/10.1007/s12552-018-9256-y

Carter, R. T., & Pieterse, A. L. (2019). Measuring the Effects of Racism. *Columbia University Press.* https://doi.org/10.7312/cart19306

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A Global Measure of Perceived Stress. *Journal of Health and Social Behavior, 24*(4), 385. https://doi.org/10.2307/2136404

Davis, B. L., Smith-Bynum, M. A., Saleem, F. T., Francois, T., & Lambert, S. F. (2017). Racial Socialization, Private Regard, and Behavior Problems in African American Youth: Global Self-Esteem as a Mediator. *Journal of Child and Family Studies, 26*(3), 709–720. https://doi.org/10.1007/s10826-016-0601-8

Derogatis, L. R. (2011). Brief Symptom Inventory-18. *In PsycTESTS Dataset*. https://doi.org/10.1037/t07502-000

Fischer, A. R., & Shaw, C. M. (1999). African Americans' mental health and perceptions of racist discrimination: The moderating effects of racial socialization experiences and self-esteem. Journal of *Counseling Psychology, 46(*3), 395–407. https://doi.org/10.1037/0022-0167.46.3.395

Folkman, S., Lazarus, R. S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R. J. (1986). Dynamics of a stressful encounter: Cognitive appraisal, coping, and encounter outcomes. *Journal of Personality and Social Psychology, 50*(5), 992–1003. https://doi.org/10.1037/0022-3514.50.5.992

Franklin, A. J., Boyd-Franklin, N., & Kelly, S. (2006). Racism and Invisibility. *Journal of Emotional Abuse, 6*(2–3), 9–30. https://doi.org/10.1300/J135v06n02_02

Gallagher, A. R., Moreland, M. L., Watters, K. N., & Yalch, M. M. (2023). Relative effects of childhood trauma, intimate partner violence, and other traumatic life events on complex posttraumatic stress disorder symptoms. *Traumatology, 29*(1), 57–64. https://doi.org/10.1037/trm0000379

Gause, N. K., Sales, J. M., Brown, J. L., Pelham, W. E., Liu, Y., & West, S. G. (2022). The protective role of secure attachment in the relationship between experiences of childhood abuse, emotion dysregulation and coping, and behavioral and mental health problems among emerging adult Black women: A moderated mediation analysis. *Journal of Psychopathology and Clinical Science, 131*(7), 716–726. https://doi.org/10.1037/abn0000772

Granberg, E. M., Edmond, M. B., Simons, R. L., Gibbons, F. X., & Lei, M.-K. (2012). The Association between Racial Socialization and Depression. *Society and Mental Health, 2*(3), 207–225. https://doi.org/10.1177/2156869312451152

Hayes, A. F. (2017). *Introduction to Mediation, Moderation, and Conditional Process Analysis, Second Edition: A Regression-Based Approach.* Guilford Publications.

Hope, E. C., Volpe, V. V., Briggs, A. S., & Benson, G. P. (2022). Anti-racism activism among Black adolescents and emerging adults: Understanding the roles of racism and anticipatory racism-related stress. *Child Development, 93*(3), 717–731. https://doi.org/10.1111/cdev.13744

Hughes, D., Rodriguez, J., Smith, E. P., Johnson, D. J., Stevenson, H. C., & Spicer, P. (2006). Parents' ethnic-racial socialization practices: A review of research and directions for future study. *Developmental Psychology, 42*(5), 747–770. https://doi.org/10.1037/0012-1649.42.5.747

Hurd, N. M., Varner, F. A., Caldwell, C. H., & Zimmerman, M. A. (2014). Does perceived racial discrimination predict changes in psychological distress and substance use over time? An exam-

ination among Black emerging adults. *Developmental Psychology, 50*(7), 1910–1918. https://doi.org/10.1037/a0036438

IBM Corp. (2019). *IBM SPSS Statistics for Windows, Version 26.0* (26). IBM Corp.

Jones, S. C. T., & Neblett, E. W. (2017). Future Directions in Research on Racism-Related Stress and Racial-Ethnic Protective Factors for Black Youth. *Journal of Clinical Child & Adolescent Psychology, 46*(5), 754–766. https://doi.org/10.1080/15374416.2016.1146991

Lazarus, R. S., & Folkman, S. (1984). Stress, Appraisal, and Coping. *Springer International Publishing.* https://doi.org/10.1007/978-3-030-39903-0_215

Lesane-Brown, C. L., Scottham, K. M., Nguyên, H. X., & Sellers, R. M. (2006). *The Racial Socialization Questionnaire-teen (RSQ-t): A new measure for use with African American adolescents.*

Liebschutz, J. M., Buchanan-Howland, K., Chen, C. A., Frank, D. A., Richardson, M. A., Heeren, T. C., Cabral, H. J., & Rose-Jacobs, R. (2018). Childhood Trauma Questionnaire (CTQ) correlations with prospective violence assessment in a longitudinal cohort. *Psychological Assessment, 30*(6), 841–845. https://doi.org/10.1037/pas0000549

Liu, L. L., & Lau, A. S. (2013). Teaching about race/ethnicity and racism matters: An examination of how perceived ethnic racial socialization processes are associated with depression symptoms. *Cultural Diversity & Ethnic Minority Psychology, 19*(4), 383–394. https://doi.org/10.1037/a0033447

Mekawi, Y., Carter, S., Brown, B., Martinez de Andino, A., Fani, N., Michopoulos, V., & Powers, A. (2021). Interpersonal Trauma and Posttraumatic Stress Disorder among Black Women: Does Racial Discrimination Matter? *Journal of Trauma & Dissociation, 22*(2), 154–169. https://doi.org/10.1080/15299732.2020.1869098

Metzger, I. W., Anderson, R. E., Are, F., & Ritchwood, T. (2021). Healing Interpersonal and Racial Trauma: Integrating Racial Socialization Into Trauma-Focused Cognitive Behavioral Therapy for African American Youth. *Child Maltreatment, 26*(1), 17–27. https://doi.org/10.1177/1077559520921457

Mosher, D. K., Hook, J. N., Captari, L. E., Davis, D. E., DeBlaere, C., & Owen, J. (2017). Cultural humility: A therapeutic framework for engaging diverse clients. *Practice Innovations, 2*(4), 221–233. https://doi.org/10.1037/pri0000055

Neblett, E. W., Banks, K. H., Cooper, S. M., & Smalls-Glover, C. (2013). Racial identity mediates the association between ethnic-racial socialization and depressive symptoms. *Cultural Diversity & Ethnic Minority Psychology, 19*(2), 200–207. https://doi.org/10.1037/a0032205

Neblett, E. W., Smalls, C. P., Ford, K. R., Nguyên, H. X., & Sellers, R. M. (2009). Racial Socialization and Racial Identity: African American Parents' Messages About Race as Precursors to Identity. *Journal of Youth and Adolescence, 38*(2), 189–203. https://doi.org/10.1007/s10964-008-9359-7

Neblett, E. W., White, R. L., Ford, K. R., Philip, C. L., Nguyên, H. X., & Sellers, R. M. (2008). Patterns of Racial Socialization and Psychological Adjustment: Can Parental Communications About Race Reduce the Impact of Racial Discrimination? *Journal of Research on Adolescence, 18*(3), 477–515. https://doi.org/10.1111/j.1532-7795.2008.00568.x

Pearlin, L. I., Schieman, S., Fazio, E. M., & Meersman, S. C. (2005). Stress, Health, and the Life Course: Some Conceptual Perspectives. *Journal of Health and Social Behavior, 46*(2), 205–219. https://doi.org/10.1177/002214650504600206

Recklitis, C. J., Parsons, S. K., Shih, M.-C., Mertens, A., Robison, L. L., & Zeltzer, L. (2006). Factor structure of the Brief Symptom Inventory--18 in adult survivors of childhood cancer: Results from the Childhood Cancer Survivor Study. *Psychological Assessment, 18*(1), 22–32. https://doi.org/10.1037/1040-3590.18.1.22

Roberson, K., & Carter, R. T. (2022). The relationship between race-based traumatic stress and the Trauma Symptom Checklist: Does racial trauma differ in symptom presentation? *Traumatology, 28*(1), 120–128. https://doi.org/10.1037/trm0000306

Rodriguez, J., McKay, M. M., & Bannon, W. M. (2008). The Role of Racial Socialization in Relation to Parenting Practices and Youth Behavior: An Exploratory Analysis. *Social Work in Mental Health, 6*(4), 30–54. https://doi.org/10.1080/15332980802032409

Saleem, F., Lambert, S., & Rose, T. (2022). Ethnic–racial socialization as a moderator of associations between discrimination and psychosocial well-being among African American and Caribbean Black adolescents. *Cultural Diversity & Ethnic Minority Psychology, 28*(2), 145–157. https://doi.org/10.1037/cdp0000521

Stevenson, H. C., Reed, J., & Bodison, P. (1996). Kinship Social Support and Adolescent Racial Socialization Beliefs: Extending the Self to Family. *Journal of Black Psychology, 22*(4), 498–508. https://doi.org/10.1177/00957984960224006

Stevenson, J., & Stevenson, H. C. (2014). Promoting Racial Literacy in Schools: Differences That Make a Difference. *Teachers College Press*.

Utsey, S. O. (1999). Development and Validation of a Short Form of the Index of Race-Related Stress (IRRS)—Brief Version. *Measurement and Evaluation in Counseling and Development, 32*(3), 149–167. https://doi.org/10.1080/07481756.1999.12068981

Utsey, S. O., Chae, M. H., Brown, C. F., & Kelly, D. (2002). Effect of ethnic group membership on ethnic identity, race-related stress, and quality of life. *Cultural Diversity and Ethnic Minority Psychology, 8*(4), 366–377. https://doi.org/10.1037/1099-9809.8.4.367

Williams, J. H., Van Dorn, R. A., Bright, C. L., Jonson-Reid, M., & Nebbitt, V. E. (2010). Child Maltreatment and Delinquency Onset Among African American Adolescent Males. *Research on Social Work Practice, 20*(3), 253–259. https://doi.org/10.1177/1049731509347865

Table 1.

Descriptive Statistics: Main Study Variables and Subscales

Variables	n	M	SD
Global Race Related Stress	342	.00	2.25
Cultural Racism	342	37.88	8.95
Individual Racism	342	17.88	6.06
Institutional Racism	342	9.60	4.30
Combined Childhood Trauma	342	50.16	20.85
Physical Abuse	342	10.05	5.03
Emotional Neglect	342	10.67	5.00
Emotional Abuse	342	11.16	4.93
Physical Neglect	342	9.13	4.59
Sexual Abuse	342	9.15	5.60
Combined Racial Socialization Messages	342	46.71	9.06
Racial Pride	342	9.42	2.20
Racial Barrier	342	9.49	2.26
Egalitarian	342	7.60	2.10
Self-Worth	342	9.70	2.33
Behavioral	342	10.51	3.03
Internalizing Symptoms	341	42.94	16.70
Somatic	341	12.42	5.80
Anxiety	341	14.57	6.45
Depression	341	15.95	6.28

Table 2

Demographics of the Sample

Variables	*n*	%
Gender		
Men	80	23.4
Women	258	75.4
Non-binary	2	.6
Prefer not to say	1	.3
Other	1	.3
Age		
18	106	31.0
19	90	26.3
20	57	16.7
21	23	6.7
22	24	7.0
23	8	2.3
24	16	4.7
25	17	5.0
Ethnicity		
Black/African American	304	88.9
Afro-Latino/a	15	4.4
Bi-racial/Multi-racial	18	5.3
Black/West Indian	1	
African	1	
Other	3	.9
Current Income		
Less than 20,000	270	78.9
20,000-39,999	17	5.0
40,000-49,999	10	2.9
50,000-59,999	22	6.4
60,000-69,999	11	3.2
70,000-80,000	10	2.9
More than 80,000	1	0.3
Family Household Income		
Less than 20,000	47	13.7
20,000-39,999	46	13.5
40,000-49,999	54	15.8
50,000-59,999	38	11.1
60,000-69,999	48	14.0
70,000-80,000	31	9.1
More than 80,000	74	21.6
Childhood Geographic Area		
Urban/City	146	42.7
Rural	35	10.2
Suburban	148	43.3
Remote	11	3.2
Occupational Status		
Student	196	57.3
Student and Employed	93	27.2
Part-time Employed	20	5.8
Full-time Employed	28	8.2
Unemployed	5	1.5
Therapy History		
Yes	153	44.7
No	188	55.0

Table 3

All in Multiple Regression with Internalizing Symptoms as Outcome Variable, and Childhood Trauma, Race-Related Stress, and Racial Socialization Messages as Predictor Variables

	B	b	SE	t	p	95% CI
Constant	7.306		5.317	1.374	.170	[-3.153, 17.725]
Combined Childhood Trauma	.370***	.462	.040	9.331	.000	[0.292, 0.448]
Race-Related Stress	.198***	.187	.053	3.724	.000	[0.093, 0.302]
Combined Racial Socialization Messages	.072	.039	.094	.766	.444	[-0.113, 0.256]

Note. *p<.05. **p < .01. ***p< .001

Table 4

Hayes PROCESS Model 3: Childhood Trauma (X), Race-Related Stress (W), Racial Socialization Messages (Z), Internalizing Symptomology (Y)

	B	SE	t	p	LLCI	ULCI
Constant	43.7181***	.8563	51.0547	0.0000	42.0336	45.4025
Combined Childhood Trauma	0.3635***	0.413	8.7925	0.0000	0.2822	.4449
Race-Related Stress	0.2021***	0.538	3.7545	.0002	.0962	.3080
Combined Racial Socialization Messages	0.0351	0.0961	0.3650	0.7153	-0.1540	0.2242
X*W	-0.004	0.0025	-0.1644	0.8695	-.0054	.0046
X*Z	0.0105*	0.0045	2.3496	.0194	.0017	.0194
W*Z	-0.0063	0.0048	-1.3274	0.1853	-.0157	.0030
X*W*Z	0.0002	0.0002	0.9911	0.3224	-.0002	.0007

Note. *p<.05. **p < .01. ***p< .001

Figure 1

Statistical Framework of Childhood Trauma, Racial Socialization Race-Related Stress, and Internalizing
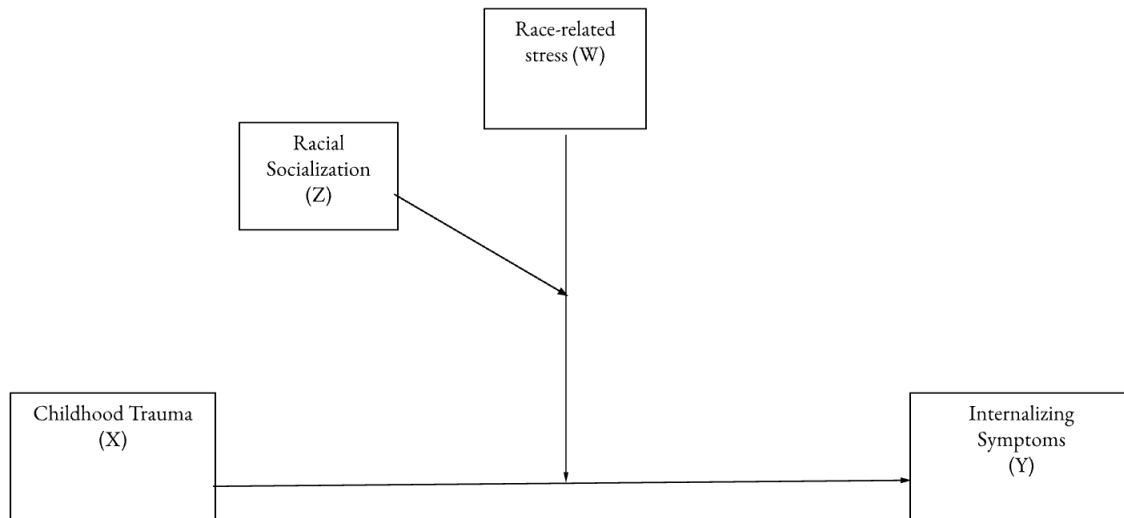
Symptoms

Note. Andrew Hayes' PROCESS Model 3 (moderated moderation analysis) is the statistical framework presented. X = Childhood trauma (independent variable; CTQ score), Y = internalizing symptoms (dependent variable; BSI-18 score), W = race-related stress (moderator 1; IRRS-B score), and Z =Racial Socialization (RS) messages (moderator 2; RSQ-t score).

Figure 2

Two-Way Interaction Between Combined Childhood Trauma and Combined Racial Socialization Messages
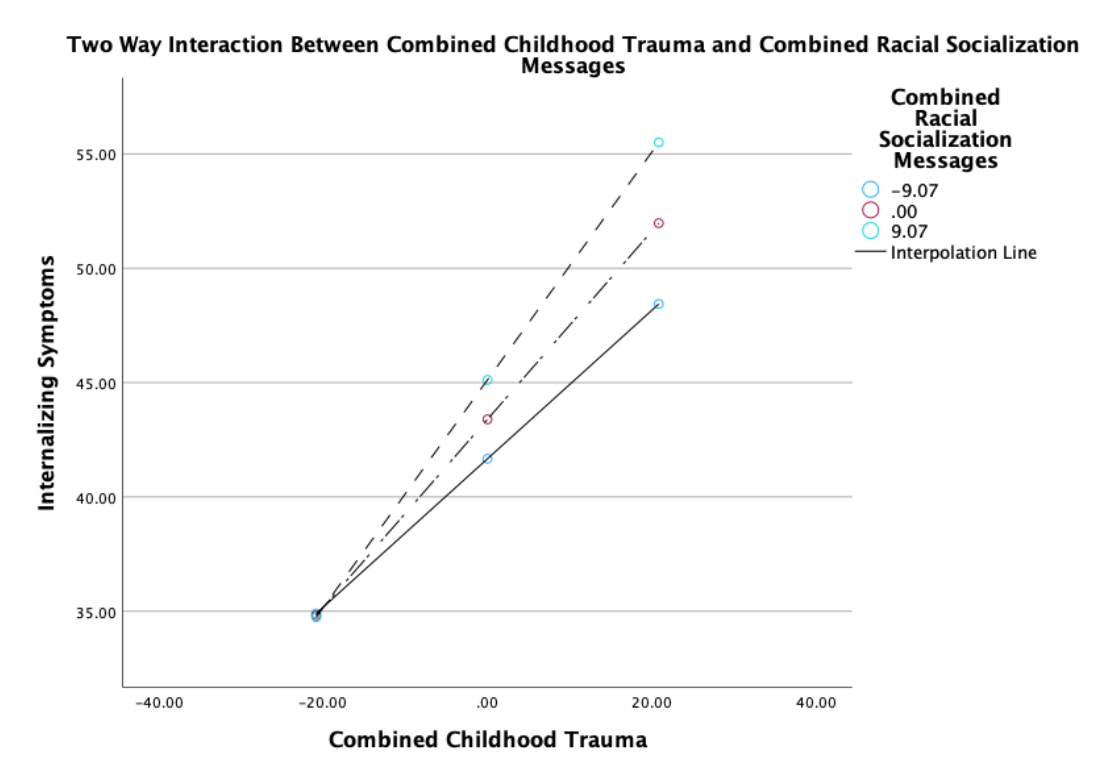
The Mental Health of Indonesian Male Breadwinners: Family Harmony as a Moderator Between Perceived Stress and Psychological Well-Being

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These days, despite the increasing attention directed to mental health, men are typically placed on the back burner of these discussions due to the social stigma that men are supposed to be strong breadwinners. Multiple studies have found a negative association between perceived stress and psychological well-being, ergo, it is important to expand these studies to include the well-being of male breadwinners. Other literature has also suggested that the presence of a harmonious family might help buffer the effects of stress on well-being. Therefore, this study consisting of 304 participants aimed to understand the relationship between perceived stress and psychological well-being, and whether family harmony can moderate this relationship in male breadwinners. Results from linear regression models found that perceived stress predicted psychological well-being in male breadwinners ($R^2 = .30$, $p < .01$), and the moderated regression models also showed family harmony to be a significant moderator between perceived stress and psychological well-being in male breadwinners ($R^2 = .40$, $\beta = -.04$, $p < .001$, 95% CI [-.06, -.02]). Aside from adding to the body of research on stress and family psychology, the practical implications of this study highlight the need for family-centered therapy and workplace policies that support the well-being of male breadwinners.
Keywords: male breadwinner, perceived stress, psychological well-being, family harmony

In recent generations, the topic of mental health is more prevalent than ever before. There is a rise in mental health acknowledgment as an integral part of overall health (Mance, 2022). Be that as it may, there is surprisingly very little research done on the mental health of men. This may be caused by societal views of men that expect them to adhere to harmful outdated gender roles prohibiting them from showing any kind of "weakness" to be strong breadwinners (Dyer, 2021).

In the book "Troubled Men", discussing the psychology, emotional conflicts, and therapy of men (Fine, 1988), men are noted to be infamously reluctant to openly express their feelings, especially if they are characteristically tender feelings. Men do not easily communicate with others because they are often regarded as the "strong and silent type." This is most likely due to the mainstream ideology of masculinity (Brannon, 1976), which dictates that men must avoid anything that seems remotely feminine; men must seek out respect, especially as breadwinners; men are expected to always remain calm by being the "strong and silent type" (as aforementioned); and men must have the virtue of risk-taking and adventure, even to the point of violence when need be.

Taken from a book on male psychology (Levant & Wong, 2017), these ideologies are products of sociocultural beliefs about what it means to be a man, which are then appraised within the community. Although these pillars of masculinity could certainly lead to harming others and oneself, men may still adhere to such unhealthy gender roles to avoid social punishment and gain social rewards for being masculine (p. 140). The same set of norms that push for self-reliance and emotional control make it challenging for men to seek help or even acknowledge their struggles.

According to Erikson's theory of psychosocial development, the age of 30 to the late 40s would be the phase of Generativity vs. Stagnation, which is considered to occur during middle adulthood (Malone et al., 2016). This stage starts when the individual has established their own family and career. These individuals strive to do well in both work and family settings to ensure their future success. This period is described as a time when an individual is satisfied with family life and occupation amongst other life milestones, but because of this, they also face the burden of financial obligation when they have yet to secure a high income while facing crucial family-related choices.

A review of the assumptions surrounding men's mental health (Smith et al., 2016) explains how there is an issue of men being less open to talking about psychological problems due to negative societal stereotypes. Therefore, they might downplay their struggles and escape through addiction or unsafe practices, causing practitioners to erroneously recognize symptoms for a different mental evaluation. A more recent study (Shepherd et al., 2023), adding to Smith et al.'s (2016) theories, posits that masculine socialization

and masculine hegemony are partly responsible for the men's reluctance to reveal their mental distress. They described masculine socialization as the learned values and behaviors from other men, which typically favor "aggression, stoicism, individuality, and self-sufficiency" (p. 1). Meanwhile, masculine hegemony was identified as the cultural expectation for men to be immune to emotions and vulnerability.

This mental health crisis for men should warrant a state of alarm because deteriorating mental health can lead to the development of mental disorders, which then increases the risk of suicidality (Yeh et al., 2019). Hence, if that is the picture of poor mental health, then the perspective of good mental health would not only be the absence of mental illnesses but also a state of psychological well-being. In itself, psychological well-being is conceptually defined as the state of an individual thriving in every aspect of human life despite challenges (Keyes et al., 2002; Ryff, 1995).

In this generation where the fight for equality is higher than ever before, men who are stereotypically called to be breadwinners are facing a dilemma. They would like to do things that are more meaningful to them, but they simultaneously wish to provide for their family financially (Stone, 2022). Despite the increasing number of women joining the workforce, and even replacing their husbands as the family breadwinner, there are still some families who uphold the male-breadwinning model.

The combined feeling of inadequacy faced by male breadwinners with the burden of societal gender roles creates the expectation that they should be all-capable breadwinners, leading to feelings of stress. Every individual has different thresholds for stress; what may be considered a normal occurrence for one may be a source of distress for another (Selye, 1978), which is why stress is subjective to the perceiver. Perceived stress is conceptually defined as the subjective responses of individuals when faced with stressful occurrences (Cohen et al., 1983).

According to a study by Casipong et al. (2022), breadwinners were found to be sensitive to social support, especially from their family members. Although they are undoubtedly motivated by their love for their family to work hard, they are still susceptible to work-related stressors and challenges. Their stress could also be exacerbated by their sense of responsibility to provide for their family. How-ever, having their family as the closest connection to receiving support can enhance their subjective well-being despite facing stress. Even in the face of pandemic stress, engaging with family members managed to buffer the effects of stress (Bates et al., 2021).

Generally, relationships hold the most pivotal role in shaping well-being in multiple cultures (Delle Fave et al., 2016, as cited in Demirci, 2021; Wissing et al., 2019). Another definition of psychological well-being is to flourish (Diener et al., 2010, as cited in Demirci, 2021), and harmonious family relationships have frequently been found to facilitate that (Bethell et al., 2019; Kaya & Önder, 2023; Wang et al., 2019). The concept of family harmony itself could be defined as a family relationship with its own identity built on communication and tolerance to resolve conflict, while also enjoying quality time spent with each other (Kavikondala et al., 2016).

Interdependence and this interpersonal harmony are essential for people's well-being in Eastern societies (Demirci, 2021), and it has been recorded decades ago (Kwan et al., 1997). Although Indonesia is located in Southeast Asia, its culture of valuing interpersonal relations is still aligned with most Eastern countries. While studies on stress and family relations are scarce, findings by Kavikondala et al. (2016) suggest that family harmony has a buffering effect against stress, which could preserve the individual's well-being. Hence, it has become the main focus of this research.

Current Study

This study observed the breadwinner male population. As the topic previously touched upon, male breadwinners face their own unique set of problems (Crowley, 1998), but this issue is rarely discussed due to misconceptions surrounding men's mental health (Smith et al., 2016). Selye (1978) wrote that stress is an inseparable part of life; any emotion and activity could be a source of stress. However, it is how an individual adapts to stress that impacts their overall well-being. On that account, there was a more prominent gap on whether family harmony can buffer the effects of perceived stress to keep it from affecting an individual's overall well-being, leading to several research questions for this study: 1) Could the perceived stress of the male breadwinner predict their psychological well-being? 2) Could family harmony moderate the relationship between perceived stress and psychological well-being in male breadwinners?

Research Question 1: Could the perceived stress of the male breadwinner predict their psychological well-being?

Although there have been numerous definitions of stress, Cohen et al. (1997) have consolidated the various perspectives on stress to define it as a process when demands of stressors exceed an individual's capabilities, resulting in adverse physical and mental health risks for an individual. Prior to this definition, Cohen et al. (1983) developed a global measure of perceived stress based on the subjective responses of individuals towards specific stressful occurrences.

In the transactional model of stress and coping, Lazarus and Folkman (1984) discovered that a person's interpretation or reaction towards the stressor has the most significant impact on their stress levels compared to the stressful situation itself. The broad understanding of stress is a person's state when an event exceeds their adaptive resources to cope (Monat & Lazarus, 1991). Therefore, the primary appraisal of the model is to assess how the event will affect a person's psychological well-being.

Psychological well-being is a broad construct encompassing all quality-of-life dimensions (Eiroa-Orosa, 2020). Ryff (1995), the developer of the six-factor psychological well-being model, described psychological well-being as "a breadth of wellness that includes ... self-acceptance, positive relationships with other people, autonomy, environmental mastery, purpose in life, and personal growth" (p. 99). Many studies have found that perceived stress could have damaging effects on psychological well-being (see Ceri & Cicek, 2021; Chen et al., 2022; Nazir et al., 2020). Even though it has been proven that stress is inversely related to psychological well-being, prior studies typically center specific professions. Therefore, this study would like to add a new perspective in which the focus would be the general perceived stress of male breadwinners and its relation to their psychological well-being.

H1: Perceived stress predicts the psychological well-being of male breadwinners.

Research Question 2: Could family harmony moderate the relationship between perceived stress and psychological well-being in male breadwinners?

While stress initially seems to be closely related to psychological well-being, many studies have found that there is more than meets the eye in their relationships. One interesting finding from a study on dual-earner families (Schwartzberg & Dytell, 1996) pointed out the significance of family matters in predicting fathers' psychological well-being. Although both work and family stressors could predict fathers' depressive symptoms, the study highlights how one significant predictor was a "lack of spousal support" (p. 216). They also discovered an unexpected negative relationship between the support from their child and the fathers' depression, wherein "the greater the reported lack of support from children, the lower the level of reported depression." (p. 216).

Family psychology is grounded in the theory that families are structured by relational systems that interact with their environment, such as demographic cultures (Thoburn & Sexton, 2015). Within Asian contexts, family harmony could be tied to the relational models theory and Confucian ethics (Chuang, 2005). It was also concluded that the communal sharing model is fundamental for family relationship quality. In Chinese families, the facets of family harmony partially draw from the family strengths model while adding traits of forbearance and family identity (Kavikondala et al., 2016). According to an Indonesian perspective, family harmony is marked by a general sense of happiness and overall satisfaction when there is a lack of tension and disappointment (Gunarsa, 2002). Alternatively, another Indonesian perspective believes that family harmony is achieved through the synthesis of both husband and wife as a married couple, basing their relationship on sincerity and shared values even in the face of differences (Walgito, 1991).

A study by Demirci (2021) conducted a correlational analysis of the relationships between "family harmony, interdependent happiness, harmony in life, and flourishing." Their results indicated a positive relationship between all the variables, consistent with past findings. In a study exploring the facets of well-being in China (Wang et al., 2019), family harmony was strongly associated with the happiness, meaning, purpose, and social dimensions of well-being. The participants reported that family harmony made them feel satisfied and valuable; it also increased their worldview optimism. A qualitative study analyzing the factors determining people's well-being also included family harmony for the participants (Xu & Liu, 2023). Meanwhile, ruptured family relationships were correlated with decreased life satisfaction and heightened depres-

sion in older Chinese parents (Chen & Zhou, 2021).

However, it is important to note that although prior studies have focused on family harmony as an antecedent to well-being, some have found poor well-being preceding family harmony (Ni et al., 2019). In this case, it is not a matter of causality but merely a trend in research of one being put first over the other. Keeping in mind that family harmony is especially related to psychological well-being in Asian contexts (see Chen & Zhou, 2021; Demirci, 2021; Kaya & Önder, 2023), the combination of these concepts creates a reason to believe family harmony could play a role in the relationship between perceived stress and psychological well-being. This assumption is backed by the stress-buffering hypothesis (Cohen & Wills, 1985), which states that social support could act as a stress buffer because it filters a person's reaction to stress. Such support may lessen the harmful impacts of stress by providing resources to deal with the problem or by putting it into the perspective of a bigger picture. In terms of emotional support, it could counterbalance the threats of stress against self-esteem by serving as a reminder to the person of their worth. However, instead of focusing on social support, this study will highlight the social environment instead, namely the family.

Within family-oriented cultures, individuals rely on their families as their central source of emotional support when they face work-related stress (Fiorilli et al., 2019). The strongest reference point for this study would be the conclusion drawn from Kavikondala et al. (2016), where a strong negative correlation between family harmony and depressive symptoms, yet a weak correlation with stressful events was found. This implies family bonds could serve as a safety net against stressors because the bonds are independent of the stressors. Additionally, the interaction between family harmony and stress was the link to explain depressive symptoms. Therefore, the researchers proposed family harmony might act as a buffer to keep the individual from developing depressive symptoms in the face of stress.

H2: Family harmony moderates the relationship between perceived stress and psychological well-being in male breadwinners.

Method

A non-experimental quantitative moderation analysis was used for this study, assessing three variables: perceived stress, psychological well-be-

ing, and family harmony. Data collection was conducted in the Jakarta metropolitan area of Indonesia through an online survey. Since this study was conducted online, there were no tools needed aside from a working device to fill in the questionnaire for the participants to utilize at their disposal.

Participants

Participants were mainly recruited through social media platforms and word-of-mouth; this included messaging app broadcasts, social media posts, and referrals. There were 304 participants in total. Criteria for participants included: adult males between the age of 30-40 years old, married with children between the age of 3-12 years old, act as the breadwinner of the family, live within the Jakarta metropolitan area, and live with their nuclear family (no extended family members in the household).

The age restriction (30–40 years old) was chosen because this period aligns with key developmental stages in adulthood, where men typically face peak career demands and family responsibilities. Additionally, focusing on the Jakarta metropolitan area hopes to limit extraneous variables from living conditions, family and work cultures, and commuting times. This restriction on the children's age of the participants is due to the consideration that parents have usually adapted better to new parenthood after their child reaches the age of three. Furthermore, the Indonesian education system typically spans from 3 to 12 years old, equating to a child's school age. Beyond 12 years old, children typically begin adolescence, and this age group has different sets of problems for the parents to handle. The geographical limitation was decided with the consideration that the Jakarta metropolitan area is the center of business trade in Indonesia, with the largest working population in the country. These specific criteria aimed to minimize confounding variables possibly affecting the study.

Measurements

Demographic questionnaire

The demographic questionnaire included questions to assess their age, city address, commuting time from their workplace to their home, marital status, occupational status, income range, spending range, wife's occupational status, percentage of wife's earnings to total household income, number of children, the age of the youngest and oldest child (if they only had one child, they could state the same age as their youngest).

Perceived Stress (Dependent Variable)

Perceived stress was measured by the Perceived Stress Scale (PSS; Cohen et al., 1983), which had been translated into Indonesian (Nadyastuti et al., 2021). There are a total of 10 items in the scale, and none of the items are reverse-scored. Participants indicated their answers using the 5-point Likert scale with 1 being "Never" and 5 being "Very Often." Perceived stress is operationally defined as the total score on the PSS, wherein higher scores indicate greater perceived stress. The translated version of the PSS had high reliability with the value of Cronbach's α scoring at .91.

Psychological Well-Being (Independent Variable)

Psychological well-being was measured by the Psychological Well-Being Scale (PWBS; Ryff, 1989), which had been translated into Indonesian (Salamah et al., 2023). There are 42 items across six dimensions (autonomy, environmental mastery, personal growth, positive relations, purpose in life, and self-acceptance) in the scale, with 20 items reversed-scored. Participants indicated their answers according to the 7-point scale with the lowest being "Strongly Disagree" and the highest being "Strongly Agree." Psychological well-being is operationally defined as the total score on the PWBS, wherein higher scores indicate greater psychological well-being. The translated version of the PWBS had high reliability with the value of Cronbach's α scoring at .91.

Family Harmony (Moderating Variable)

Family harmony was measured by the Family Harmony Scale (FHS-24; Kavikondala et al., 2016), which had been translated into Indonesian (Fauziah et al., 2021). There are 24 items across five dimensions (communication, conflict resolution, forbearance, family identity, and quality time) in the scale, with none of the items reverse-scored. Participants could indicate their answer according to the 5-point scale with 1 being "Strongly Disagree" and 5 being "Strongly Agree." Family harmony is operationally defined as the total score on the FHS-24, wherein higher scores indicate greater family harmony. The FHS-24 had high reliability with the value of Cronbach's α scoring at .91.

Procedure

This study used Google Forms as a platform to gather responses from the participants through questionnaires. Upon clicking the link provided in the study announcement, participants were given an informed consent form where they could indicate their consent by ticking the box at the very end of the page. Afterward, they were given a demographic questionnaire to assess their eligibility for participation. If participants fulfilled all the criteria for this study, they were directed to the next page containing the first set of questionnaires. If they failed to meet even one of the criteria, they were automatically directed to the end of the form with the description that they did not fulfill the criteria for this study.

Participants who were directed to the next page of the study were presented with the PSS first, followed by the PWBS second, and then the FHQ last. After participants had finished answering all the questions on the final page, they were thanked for their participation, and a link was included for them to share with other people. The entire sequence was expected to be completed within 20 minutes or less.

Results

This study aimed to study the relationship between perceived stress and psychological well-being, and whether family harmony moderates this relationship in male breadwinners. The measurements used in this study were tested for reliability and were found to be reliable in all dimensions. The Perceived Stress Scale (PSS; Cohen et al., 1983) has a Cronbach's α of .83, the Psychological Well-Being Scale (PWBS; Ryff, 1989) has a Cronbach's α of .82, and the Family Harmony Scale (FHS-24; Kavikondala et al., 2016) has a Cronbach's α of .83.

A total of 304 participants were included in the data analysis. Based on their demographics, most of the participants were between the ages of 33 and 35 years old (43.8%), lived in Jakarta (57.2%), spent 30 – 60 minutes for work commute (76.3%), were high-school graduates (59.9%), with bachelor's graduates numbering at (35.2%), worked as private sector employees (87.5%), earned Rp 5.000.000 – Rp 10.000.000 a month (69.7%) and spent as much as that amount (60.5%), and had housewives (56.9%, instead of working wives) as well as two children (54.6%).

This study hypothesized that perceived stress predicts the psychological well-being of male breadwinners; and that family harmony moderates the relationship between perceived stress and psychological well-being in male breadwinners. The data analyzing procedure was done through PROCESS by Hayes using the moderated regression analysis (Model 1).

Based on the categorization of the participants in Table 1 (see Appendix A), it was found that most of the participants in this study reported low perceived stress (98.0%), high psychological well-being (88.8%), and high family harmony (98.7%).

Classical assumption tests were conducted for normality, linearity, heteroscedasticity, and multicollinearity to determine the relationship between variables. Normality tests showed that the residual data (Kolmogorov-Smirnov = 1.29, p = .101) were normally distributed. Linearity tests showed that the relationship between perceived stress (p < .01) and family harmony (p < .01) with psychological well-being was linear. There were also no signs of heteroscedasticity based on the tests on perceived stress (p = .832) and family harmony (p = .090), neither were there signs of multicollinearity for both perceived stress and family harmony with psychological well-being as the dependent variable (Tolerance = .710, VIF = 1.408).

Based on the correlations in Table 2 (see Appendix B), psychological well-being has a statistically significant negative correlation with perceived stress (r = -.545, p < .01) and a statistically significant positive correlation with family harmony (r = .504, p < .01). However, perceived stress was also found to be significantly negatively correlated with family harmony (r = -.538, p < .01). Additionally, linear regression models for perceived stress and psychological well-being also showed a significant linear correlation (R^2 = .30, p < .01), which indicates that perceived stress predicts psychological well-being with a 30% rate.

Table 3 (see Appendix C) shows the analysis results through a moderated regression model with PROCESS© (Hayes, 2013). The model included perceived stress and family harmony as predictors of psychological well-being. The moderated regression model was found to be significant with R^2 = .40 (p < .001). The effect of family harmony interacting with perceived stress on psychological well-being is shown to be significant (β = -.04, p < .001, 95% CI [-.06, -.02]).

Figure 1 illustrates how all three levels of family harmony (low, moderate, high) show a downward trend, indicating a negative relationship between perceived stress and psychological well-being at all levels of family relationships. The relationship between perceived stress and psychological well-being in the group reporting high family harmony (FH = 119.52) has the same model as the group reporting low family harmony (FH = 103.30), yet psychological well-being levels were consistently higher in the former compared to the latter. The same goes for the group reporting moderate family harmony (FH = 111.41), which has the slope placed between the high and low groups. This trend was observed to be the same across all the dimensions of psychological well-being and family harmony. This suggests that when family harmony is lower, the impact of perceived stress on psychological well-being is stronger. As family harmony increases, this effect weakens. Therefore, it can be concluded that family harmony significantly moderates the relationship between perceived stress and psychological well-being. However, the interaction pattern stays the same, the only difference being the intensity of the relationship.

Discussion

The findings of this study showed that perceived stress predicts psychological well-being, and family harmony significantly moderates the relationship between perceived stress and psychological well-being. This supported both hypotheses, wherein perceived stress predicts the psychological well-being of male breadwinners (H1), and family harmony moderates the relationship between perceived stress and psychological well-being in male breadwinners (H2). Therefore, the results are consistent with past literature that found perceived stress could affect psychological well-being (see Ceri & Cicek, 2021; Chen et al., 2022; Nazir et al., 2020).

Furthermore, the findings from this study supported Kavikondala et al.'s (2016) implication that family harmony has a buffering effect against stress, protecting an individual's psychological well-being. However, their implication was drawn based on stressful events being weakly correlated with family harmony. In contrast, this study found family harmony to be significantly correlated with perceived stress. That being said, it is still in line with another study that found family support to be a protective factor that moderates the negative effects of stress, while also being significantly negatively correlated with it (Tselebis et al., 2020).

The transactional model of stress and coping (Lazarus & Folkman, 1984), one of the theoretical bases of this study, explains how stress affects well-being since it depends on the cognitive appraisal and coping resources in response to stress. It explains why the results of this study align with past literature despite being assessed on an unexplored demographic

(i.e. male breadwinners). The role of family harmony as a moderator is grounded in the social buffering hypothesis (Cohen & Wills, 1985), another one of the theoretical bases of this study, which posits that social relationships could mitigate the negative effects of stress. Although research focusing on the role of family harmony as a moderator toward stress is nonexistent, there is a high chance that this study could be generalized to other populations. However, variance might occur due to cultural differences between collectivists and individualists (Triandis, 1995).

While this study highlights family harmony as a key moderator between perceived stress and psychological well-being, an alternative explanation could be the role of economic security in shaping well-being. A stable income may reduce financial stress, provide a sense of achievement, and allow men to support their families, reinforcing their role as successful providers. This aligns with Erikson's psychosocial theory, where middle adulthood is characterized by generativity; in this context, the ability to contribute meaningfully to one's family.

Given that the study was conducted in the Jakarta Metropolitan Area, Indonesia's largest economic hub, participants likely have greater economic opportunities compared to those in smaller cities or rural areas. Furthermore, urban areas like Jakarta offer better infrastructure, healthcare access, and social services, which can improve quality of life and buffer the negative effects of stress. However, while economic security provides a foundational sense of stability, it does not necessarily replace the emotional and relational support provided by strong family bonds.

It should be noted that the scores from the participants of this study leaned more toward the positive spectrum. The vast majority of the sample's perceived stress levels were low to begin with, and their psychological well-being and family harmony were mostly high as well. This phenomenon might be explained by the aforementioned theory from the book "Troubled Men" (Fine, 1988), which mentions how men tend to be in denial of their problems; hence, they may minimize or dismiss their feelings altogether (Shepherd et al., 2023).

Moreover, the burden of feeling responsible for providing and holding the role of head in their family for Indonesian men (BPS RI, 2023), could have worsened their repression of stress (Adamson et al., 2020). The possibility of misreporting their feelings in the answers due to self-report bias was possible since this study utilized self-report questionnaires. Coupled with the tendency for Indonesians to highly value family relations (Serrato & Melnick, 1995), samples might have wished to rate their family in a positive light, leading to answers based on social desirability.

Limitations in this study include the exclusivity of male breadwinners who are at the age of peak productivity. Therefore, generalizability needs to be taken with caution. Husbands in general, especially those who are non-breadwinners, may result in different steepness in the graph between perceived stress, psychological well-being, and family harmony. The location of this study also focuses on the Jakarta metropolitan area, which is undoubtedly an urban area. Populations in rural areas might also yield different results considering the dissimilarity in culture, occupations, and limitations to structural and digital developments.

In addition, one of the criteria for participation was that men had to live with their nuclear family without any extended family members in the household. Therefore, the results do not reflect individuals who are considered the sandwich generation. This refers to "a generation of people who are caring for their aging parents while supporting their children" (Merriam-Webster, n.d.), a trend that is on the rise in Indonesia (Natalia, 2024).

Similarly, the age restriction for children only accounts for individuals with preschool to school-age children, a developmental period that contrasts with newborns and adolescents. Further limitations of the study's design include the aforementioned potential for self-report bias. Therefore, future research could consider exploring mixed-method approaches to provide a more comprehensive understanding of male breadwinners' experiences.

Future studies on this topic could enhance the generalizability of these findings by expanding the population to include breadwinning men of all ages, rather than limiting to a decade age span. It would be interesting to note how perception of family importance relates to their well-being depending on how far along they are in their career path. Addressing the geographical limitation, especially focusing on the difference in cultures, rural occupations (e.g. fieldwork, handicrafts, etc.), and the current state of developments, would surely enrich the perspective on this subject.

Moreover, their involvement with their chil-

dren as fathers should also be taken into account. Female breadwinners are often associated with dual responsibilities, that of being a breadwinner and a parent (Sánchez-Mira, 2021). Considering the increasing awareness of the importance of paternal involvement in a child's life, this aspect of family dynamic should also account for the men's evaluation of their family harmony and well-being.

As previously mentioned in the limitations, qualitative interviews mixed with quantitative findings could provide in-depth insights into participants' lived experiences. It would be even more ideal if the interviews included the breadwinner's spouse and children to uncover biases in self-reported data. Conducting longitudinal studies on this topic might distinguish correlation from causation in relationships like stress, well-being, and family dynamics. This approach can reveal how family harmony evolves and whether its moderating effect on stress strengthens or weakens over the years.

Conclusion

Based on the aforementioned data analysis and discussion, it could be concluded that perceived stress predicts the psychological well-being of male breadwinners, which supports this study's first hypothesis. Furthermore, family harmony moderates the relationship between perceived stress and psychological well-being in male breadwinners, which supports the second hypothesis. Although individuals who experience higher perceived stress typically see a reduction in psychological well-being, having higher harmony within their family can mitigate the effects of stress and lessen its impact on their psychological well-being.

This study could serve as a brief overview of the male breadwinner population regarding their perceived stress, psychological well-being, and family harmony. It could serve as an illustration on how families as a whole unit could support these men who typically hide their struggles and deal with their mental burden alone. Despite stress being an inevitable part of life, it does not have to be detrimental to one's well-being. Moreover, it adds to the body of research on family harmony by creating links towards perceived stress and psychological well-being, specifically for the male breadwinner population.

Practical implications from this study could be applied to family psychologists and the general public. By shedding light on the buffering effects of family harmony against the deleterious impact of stress, men who have taken a hit to their well-being and have started to lose meaning in their lives may benefit from turning to the closest interpersonal system with an individual, namely their family. Educators can offer psychoeducation to highlight the importance of fostering healthy family dynamics.

Family psychologists or therapists can focus on strengthening familial bonds as a form of stress reduction. Workplaces could also implement employee assistance programs that include family-centered counseling and design family-friendly policies to enhance the well-being of male breadwinners. Specifically on workplace mental health policies, employers could consider offering work-from-home options or flexible schedules to allow more family time, issuing paid parental leave for breadwinning fathers, and encouraging employees to invite their families to organizational events or recreational activities.

In conclusion, this study emphasizes the need to support the mental health of male breadwinners by strengthening family harmony as a buffer against stress. These findings call for greater collaboration between families, mental health professionals, and workplaces to foster supportive environments. Future research should further explore the diverse factors that shape male breadwinners' well-being across different life stages and contexts.

References

Adamson, M. M., Phillips, A., Seenivasan, S., Martinez, J., Grewal, H., Kang, X., Coetzee, J., Luttenbacher, I., Jester, A., Harris, O. A., & Spiegel, D. (2020). International prevalence and correlates of psychological stress during the global COVID-19 pandemic. *International Journal of Environmental Research and Public Health, 17*, 9248. https://doi.org/10.3390/ijerph17249248

Bates, C. R., Nicholson, L. M., Rea, E. M., Hagy, H. A., & Bohnert, A. M. (2021). Life interrupted: Family routines buffer stress during the COVID-19 pandemic. *Journal of Child and Family Studies, 30*, 2641–2651. https://doi.org/10.1007/s10826-021-02063-6

Bethell, C. D., Gombojav, N., & Whitaker, R. C. (2019). Family resilience and connection promote flourishing among US children, even amid adversity. *Health Affairs, 38*, 729–737. https://doi.org/10.1377/hlthaff.2018.05425

BPS RI. (2023). *Perumahan.* https://www.bps.go.id/subject/29/perumahan.html

Brannon, R. (1976). The male sex role: Our culture's blueprint for manhood and what it's done for us lately. In R. Brannon (Ed.), *The forty-nine percent majority: The male sex role* (pp. 1–49). Addison-Wesley.

Casipong, A. D. J., Ferolino, R. Y., Mendoza, S. M., & Bustamante-Paster, A. (2022). Perceived social support and subjective well-being of breadwinners: A correlational study. *International Journal of Multidisciplinary Research and Analysis, 5,* 1399–1408. https://doi.org/10.47191/ijmra/v5-i6-27

Ceri, V., & Cicek, I. (2021). Psychological well-being, depression and stress during COVID-19 pandemic in Turkey: A comparative study of healthcare professionals and non-healthcare professionals. *Psychology, Health & Medicine, 26,* 85–97. https://doi.org/10.1080/13548506.2020.1859566

Chen, C. Y. C., Byrne, E., & Vélez, T. (2022). A preliminary study of COVID-19-related stressors, parenting stress, and parental psychological well-being among parents of school-age children. *Journal of Child and Family Studies, 31,* 1558–1569. https://doi.org/10.1007/s10826-022-02321-1

Chen, J., & Zhou, X. (2021). Within-family patterns of intergenerational emotional closeness and psychological well-being of older parents in China. *Aging & Mental Health, 25,* 711–719. https://doi.org/10.1080/13607863.2020.1711867

Chuang, Y. C. (2005). Effects of interaction pattern on family harmony and well-being: Test of interpersonal theory, Relational-Models theory, and Confucian ethics. *Asian Journal Of Social Psychology, 8,* 272–291. https://doi.org/10.1111/j.1467-839x.2005.00174.x

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior, 24,* 385–396. https://doi.org/10.2307/2136404

Cohen, S., Kessler, R. C., & Gordon, L. U. (Eds.). (1997). *Measuring stress: A guide for health and social scientists*. Oxford University Press.

Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin, 98,* 310–357. https://doi.org/10.1037/0033-2909.98.2.310

Crowley, M. S. (1998). Men's self-perceived adequacy as the family breadwinner: Implications for their psychological, marital, and work-family well-being. *Journal of Family and Economic Issues, 19,* 7–23. https://doi.org/10.1023/a:1022933123471

Demirci, İ. (2021). Family harmony and flourishing in Turkey: The roles of interdependent happiness and harmony in life. *Journal of Happiness Studies, 23,* 985-1005. https://doi.org/10.1007/s10902-021-00437-7

Dyer, J. (2021). *Men and mental health*. https://www.mentalhealth.org.uk/explore-mental-health/a-z-topics/men-and-mental-health#:~:text=Society

Eiroa-Orosa, F. J. (2020). Understanding psychosocial wellbeing in the context of complex and multidimensional problems. *International Journal of Environmental Research and Public Health, 17,* 5937. https://doi.org/10.3390/ijerph17165937

Fauziah, N., Hartini, N., Hendriani, W., & Fajriyanthi. (2021). Confirmatory factor analysis pada pengukuran keharmonisan keluarga (FHS-24). *Jurnal Ilmu Keluarga & Konsumen, 14,* 227–240. https://doi.org/10.24156/jikk.2021.14.3.227

Fine, R. (1988). *Troubled men: The psychology, emotional conflicts, and therapy of men*. Jossey-Bass.

Gunarsa, S. D. (2002). *Psikologi perkembangan*. BPK *Gunung Mulia*.

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Publications.

Kavikondala, S., Stewart, S. M., Ni, M. Y., Chan, B. H. Y., Lee, P. H., Li, K.-K., McDowell, I., Johnston, J. M., Chan, S. S., Lam, T. H., Lam, W. W. T., Fielding, R., & Leung, G. M. (2016). Structure and validity of Family Harmony Scale: An instrument for measuring harmony. *Psychological Assessment, 28,* 307–318. https://doi.org/10.1037/pas0000131

Kaya, B., & Önder, F. C. (2023). Investigation of the mediating role of sense of coherence between family harmony and well-being among high school students in Turkey. *Journal of Family Issues, 45,* 2296-2321https://doi.org/10.1177/0192513x231204016

Keyes, C. L. M., Shmotkin, D., & Ryff, C. D. (2002). Optimizing well-being: The empirical encounter of two traditions. *Journal of Personality and*

Social Psychology, 82, 1007–1022. https://doi.org/10.1037/0022-3514.82.6.1007

Kwan, V. S. Y., Bond, M. H., & Singelis, T. M. (1997). Pancultural explanations for life satisfaction: Adding relationship harmony to self-esteem. *Journal of Personality and Social Psychology, 73,* 1038–1051. https://doi.org/10.1037/0022-3514.73.5.1038

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping.* Springer Publishing Company.

Levant, R. F., & Wong, Y. J. (Eds.). (2017). *The psychology of men and masculinities.* American Psychological Association.

Malone, J. C., Liu, S. R., Vaillant, G. E., Rentz, D. M., & Waldinger, R. J. (2016). Midlife Eriksonian psychosocial development: Setting the stage for late-life cognitive and emotional health. *Developmental Psychology, 52,* 496–508. https://doi.org/10.1037/a0039875

Mance, G. (2022). The growth of mental health awareness. *Howard Magazine.*

Merriam-Webster. (n.d.). *Sandwich Generation.* https://www.merriam-webster.com/dictionary/sandwich%20generation

Monat, A., & Lazarus, R. S. (1991). *Stress and coping: an anthology.* Columbia University Press.

Nadyastuti, S. C., Mularsih, H., & Tiatri, S. (2021). Peran perceived stress dan self-efficacy terhadap teacher burnout guru TK pada masa pandemi COVID-19. *Jurnal Muara Ilmu Sosial, Humaniora, Dan Seni, 5,* 475. https://doi.org/10.24912/jmishumsen.v5i2.12097.2021

Natalia, T. (2024). *Gen Z terancam jadi generasi sandwich: Hidupi keluarga-terjerat pinjol.* cnbcindonesia.com. https://www.cnbcindonesia.com/research/20240605124218-128-544030/gen-z-terancam-jadi-generasi-sandwich-hidupi-keluarga-terjerat-pinjol

Nazir, N., Hussain, H. A., Tanveer, F., Ullah, S., Khokar, M., & Sabri, A. A. (2020). Correlation of perceived stress and psychological well-being among doctors serving at various government and private hospitals of Faisalabad. *Rawal Medical Journal, 45,* 886–889. https://www.rmj.org.pk/?mno=112848

Ni, M. Y., Yao, X. I., Cheung, F., Wu, J. T., Schooling, C. M., Pang, H., & Leung, G. M. (2019). Determinants of physical, mental and social well-being: a longitudinal environment-wide association study.

International Journal of Epidemiology, 49, 380–389. https://doi.org/10.1093/ije/dyz238

Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology, 57,* 1069–1081. https://doi.org/10.1037/0022-3514.57.6.1069

Ryff, C. D. (1995). Psychological well-being in adult life. *Current Directions in Psychological Science, 4,* 99–104. https://doi.org/10.1111/1467-8721.ep10772395

Salamah, N., Roswiyani, & Soetikno, N. (2023). *Pengaruh depresi dan dukungan sosial pada psychological well-being tenaga kesehatan di masa pandemi COVID-19* [Master's Thesis, Tarumanagara University].

Sánchez-Mira, N. (2021). (Un)doing gender in female breadwinner households: Gender relations and structural change. *Gender, Work & Organization, 31*(4), 1196-1213. https://doi.org/10.1111/gwao.12775

Schwartzberg, N. S., & Dytell, R. S. (1996). Dual-earner families: The importance of work stress and family stress for psychological well-being. *Journal of Occupational Health Psychology, 1,* 211–223. https://doi.org/10.1037/1076-8998.1.2.211

Selye, H. (1978). *The stress of life.* Mcgraw-Hill.

Serrato, C., & Melnick, G. (1995). *The Indonesian family life survey: Overview and descriptive analysis of the population, health, and education data.* https://www.rand.org/pubs/drafts/DRU1191.html

Shepherd, G., Astbury, E., Cooper, A., Dobrzynska, W., Goddard, E., Murphy, H., & Whitley, A. (2023a). The challenges preventing men from seeking counselling or psychotherapy. *Mental Health & Prevention, 31,* 1-10. https://doi.org/10.1016/j.mhp.2023.200287

Shepherd, G., Astbury, E., Cooper, A., Dobrzynska, W., Goddard, E., Murphy, H., & Whitley, A. (2023b). The challenges preventing men from seeking counselling or psychotherapy. *Mental Health & Prevention, 31.* https://doi.org/10.1016/j.mhp.2023.200287

Smith, D. T., Mouzon, D. M., & Elliott, M. (2016). Reviewing the assumptions about men's mental health: an exploration of the gender binary.

American Journal of Men's Health, 12, 78–89. https://doi.org/10.1177/1557988316630953

Stone, J. (2022). *The male breadwinner's dilemma.* https://www.psychologytoday.com/gb/blog/the-souls-men/202203/the-male-breadwinner-s-dilemma

Thoburn, J. W., & Sexton, T. L. (2015). *Family psychology: Theory, research, and practice.* Praeger, Cop.

Triandis, H. C. (1995). *Individualism and collectivism (1st ed.).* Routledge. https://doi.org/10.4324/9780429499845

Tselebis, A., Lekka, D., Sikaras, C., Tsomaka, E., Tassopoulos, A., Ilias, I., Bratis, D., & Pachi, A. (2020). Insomnia, perceived stress, and family support among nursing staff during the pandemic crisis. *Healthcare, 8*(4), 434. https://doi.org/10.3390/healthcare8040434

Walgito, B. (1991). *Psikologi sosial (suatu pengantar).* Andy.

Wang, T., Jia, Y., You, X. Q., & Huang, X. T. (2019). Exploring well-being among individuals with different life purposes in a Chinese context. The *Journal of Positive Psychology, 16*, 60–72. https://doi.org/10.1080/17439760.2019.1663253

Wissing, M. P., Schutte, L., & Fadiji, A. W. (2019). Cultures of positivity: Interconnectedness as a way of being. *Handbook of Quality of Life in African Societies,* 3–22. https://doi.org/10.1007/978-3-030-15367-0_1

Xu, X., & Liu, H. (2023). Analysis of factors influencing people's well-being based on multi-source data fusion. *The Frontiers of Society Science and Technology, 5*(13), 94-101. https://doi.org/10.25236/fsst.2023.051316

Yeh, H.-H., Westphal, J., Hu, Y., Peterson, E. L., Williams, L. K., Prabhakar, D., Frank, C., Autio, K., Elsiss, F., Simon, G. E., Beck, A., Lynch, F. L., Rossom, R. C., Lu, C. Y., Owen-Smith, A. A., Waitzfelder, B. E., & Ahmedani, B. K. (2019). Diagnosed Mental Health Conditions and Risk of Suicide Mortality. *Psychiatric Services, 70*, 750–757. https://doi.org/10.1176/appi.ps.201800346

Figure 1

The Moderating Effect of Family Harmony on the Interaction Between Perceived Stress and Psychological Well-Being
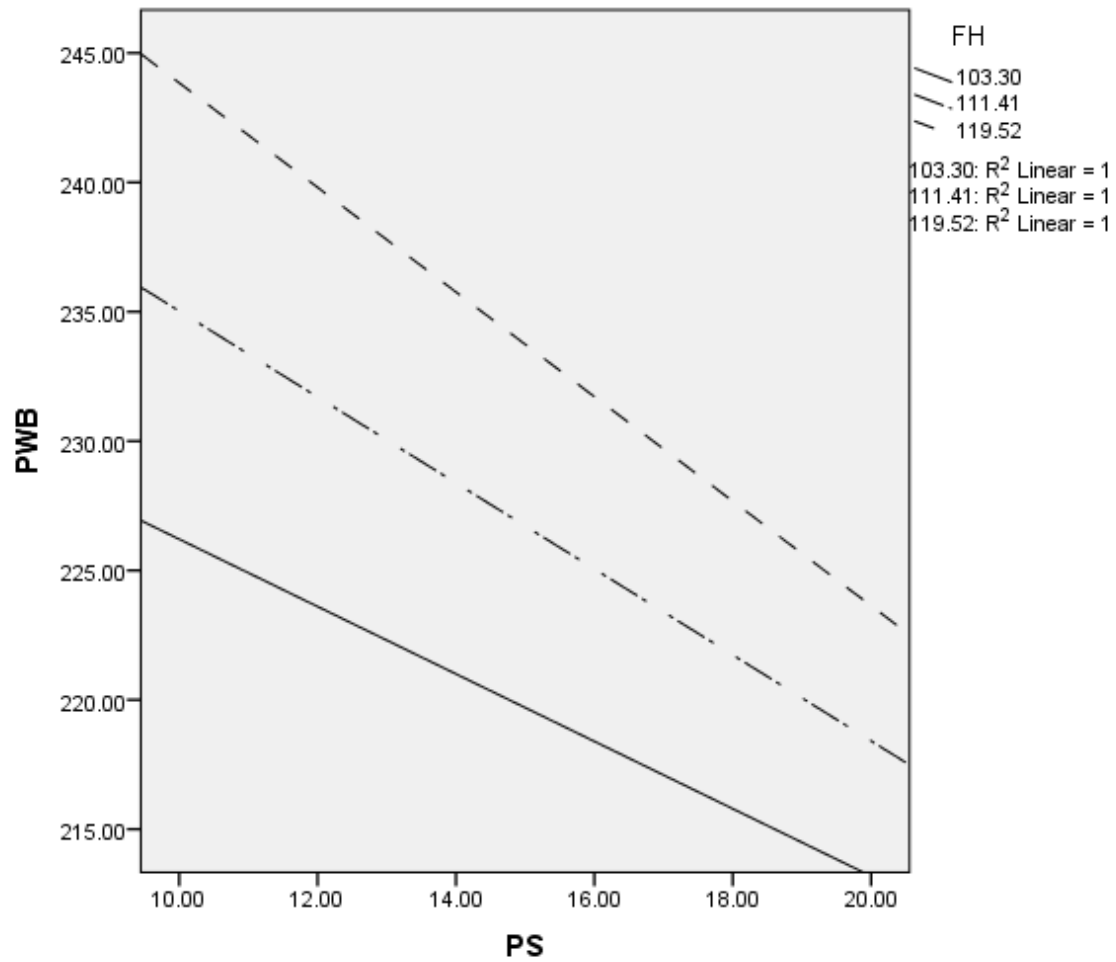
Note. PWB = Psychological well-being, PS = Perceived Stress, FH = Family Harmony

Appendix A

Table 1

Participant Categorization

Variable	Category	Frequency	Percentage
Perceived Stress	Low	298	98.0%
	Moderate	6	2.0%
	High	0	0.0%
Psychological Well-Being	Low	0	0.0%
	Moderate	34	11.2%
	High	270	88.8%
Family Harmony	Low	1	0.3%
	Moderate	3	1.0%
	High	300	98.7%

Note. $N = 304$

Appendix B

Table 2

Correlations

Variable	Psychological Well-Being	Perceived Stress	Family Harmony
Psychological Well-Being	1		
Perceived Stress	-.545**	1	
Family Harmony	.504**	-.538**	1

Note. **Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed).

Appendix C

Table 3

Moderated Regression Analysis with PROCESS©

Variable	β	t	R	R²	F	LLCI	ULCI
			.63	.40	67.48***		
Perceived Stress	3.28**	2.94				1.09	5.47
Family Harmony	1.53***	6.39				1.06	2.01
Perceived Stress*Family Harmony	-.04***	-4.45				-.06	-.02

Note. N = 304; dependent variable = Psychological Well-Being; ***p < .001, **p < .01 dan *p < .05; The significance of the estimates is based on a 95% confidence interval; Perceived Stress → Psychological Well-Being

Teaching with Purpose: How Calling Buffers Burnout's Impact on Teacher Behaviors

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Research consistently demonstrates that burnout is related to more counterproductive work behaviors (CWBs) and fewer organizational citizenship behaviors (OCBs). Nonetheless, there is limited research on the relationship between calling orientation (a sense of purpose and passion for one's work) and the behavioral outcomes of burnout, particularly within the context of teachers in the United States. The current cross-sectional study seeks to address this gap by investigating whether teachers' sense of calling moderates the relationship between burnout and both CWBs and OCBs. A total of 108 Kindergarten to 12th grade (K-12) teachers were recruited via Prolific to participate in an online survey. Participants answered questions about their calling orientation, burnout levels, CWBs, and OCBs. We hypothesized that burnout would be positively associated with CWBs and negatively associated with OCBs, and that a strong calling orientation would buffer these relationships. The survey results supported the prediction that teachers experiencing high levels of overall burnout were more likely to engage in CWBs. Importantly, teachers with a strong sense of calling were less likely to engage in CWBs, even when experiencing reduced personal accomplishment. Contrary to expectations, overall burnout was not associated with OCBs, nor did it interact with calling orientation to predict OCBs. The findings suggest that fostering a sense of calling could help minimize CWBs and enhance teachers' commitment to their work. Future research should explore how teacher recognition, professional development opportunities, and interventions that promote purpose or meaning can further support teacher well-being and reduce CWBs.

Keywords: burnout, calling orientation, counterproductive work behaviors, organizational citizenship behaviors, teaching

Burnout is a pervasive issue in the workplace and a key topic in Industrial-Organizational Psychology (Maslach et al., 2001). Burnout is detrimental to individual well-being and costly for businesses, with organizations losing $120 to $190 billion USD annually due to burnout and employee stress (Weiss, 2020). To address this issue, the present research explores whether a calling orientation—a sense of purpose and passion for one's work (Wrzesniewski et al., 1997)—buffers the effects of high levels of burnout prevalent among teachers (Marken & Agrawal, 2022). Despite extensive research on burnout, a notable gap remains in the literature regarding the moderating role of calling orientation in the relationship between burnout and engagement in counterproductive work behaviors (CWBs) and organizational citizenship behaviors (OCBs)— actions that harm and benefit an organization, respectively (Schnake, 1991; Spector et al., 2006). By understanding this relationship, organizations, and educational institutions can better tailor interventions to mitigate the consequences of burnout and foster more resilient and engaged workers.

Burnout and its Consequences

Burnout is a multidimensional concept comprised of emotional exhaustion, depersonalization, and reduced personal accomplishment (Maslach et al., 2001). Emotional exhaustion refers to feelings of being overextended and drained of one's emotional and physical resources. The second dimension of burnout is depersonalization, which refers to negative, callous, and detached behaviors. The last dimension of burnout is reduced personal accomplishment, which is a sense of reduced self-efficacy or accomplishment. All three dimensions are responses to prolonged exposure to job stressors (Maslach & Leiter, 2008).

Employees who are burned out are more likely to engage in counterproductive work behaviors (CWBs) and less likely to engage in organizational citizenship behaviors (OCBs; Turek, 2020). CWBs are a set of actions or conscious decisions intended to harm the organization and/or the organization's stakeholders (Spector et al., 2006). These include abuse, production deviance, sabotage, theft, and withdrawal. In the context of teaching, examples of teacher CWBs could include absenteeism, misusing resources, plagiarism, and overall lack of caring for their students. CWBs are costly to organizations and hurt morale. Given that CWBs and burnout are strongly linked (Liang & Hsieh, 2007), it is crucial for organizations to prevent burnout among their employees as this may not only reduce CWBs but may also increase OCBs (Turek, 2020).

OCBs and CWBs are often viewed as opposites, as CWBs hurt the organization while OCBs benefit it (Dalal, 2005). Therefore, it is advantageous for organizations to encourage OCBs, as these behaviors benefit the organization without incurring additional costs.

OCBs are defined as behaviors that are not formally required by a particular job but are desired by the organization, such as punctuality, helping others on work-related issues, and volunteering (Schnake, 1991). These behaviors can be directed toward the organization or coworkers (Spector et al., 2010). In the context of teaching, OCBs are vital not only to the educational institution but also to its students. Examples of teacher OCBs include volunteering for extracurricular activities or paying for their own school supplies. Despite not being part of the job description, these behaviors are typically expected from those in the teaching profession (Litvinov, 2023). However, research indicates that burnout reduces engagement in OCBs (Turek, 2020).

Combating Teacher Burnout

Teachers are burning out at an increased rate (Pressley, 2021). Widely used to understand teacher burnout, the job demands-resources model argues that burnout occurs when the demands of the job outweigh the available resources (Bakker & Demerouti, 2014; Van Droogenbroeck et al., 2021). Common sources of stress include teaching unmotivated students, maintaining classroom discipline, confronting time pressures and workload demands, exposure to significant changes, evaluations by others, difficult relationships with colleagues, administration or management, and poor working conditions (Kyriacou, 2001). Reports suggest that teachers in the United States experience reduced autonomy in the classroom, along with declining levels of support from administrators and school districts (Walker, 2016). The growing emphasis on standardized testing, coupled with recent political scrutiny of curricula, has further limited teachers' ability to make decisions about classroom management and instructional strategies (Heubeck, 2023; Stanford, 2023).

Research suggests that teachers can combat burnout by reducing job demands and increasing job resources. One way to do this is through job crafting (Wrzesniewski & Dutton, 2001), which allows teachers to customize their work environment to align with their skills, preferences, and values. This proactive approach helps buffer against burnout by promoting autonomy, fostering resilience, and enabling teachers to navigate challenges while preserving their sense of meaning and purpose (Van Wingerden & Poell, 2019).

Another approach is through perceived organizational support (Eisenberger et al., 1986). The negative effects of burnout are mitigated when employees perceive that their organization values their contributions and prioritizes their well-being (Turek, 2020). This support can come from various sources, such as the school district or administration, through measures such as open communication channels and formal recognition programs (e.g., Hsieh et al., 2022).

Teacher Calling Orientation

Given the documented decrease in autonomy and organizational support, we examine the role of personal resources in alleviating the negative effects of burnout. Specifically, the current research investigates teachers' sense of calling as a potential protective factor against burnout.

Teaching is one of the top three professions at high risk for burnout alongside human services and health care (Maslach & Goldberg, 1998). Notably, the common thread among these jobs is that they are socially valuable and fueled by workers' fulfillment. Socially valuable and fulfilling jobs are the two most important requirements for a *calling* orientation (Wrzesniewski et al., 1997). A *calling* is work that people feel true passion for and that brings a sense of fulfillment. Calling orientation refers to someone who feels called to do the work they do. In contrast to a calling, individuals can view their work as a *job or career* (Wrzesniewski et al., 1997). A *job* provides financial support and is based on necessity rather than passion. As such, it is not considered a major part of their life. Although a *career* could involve some passion for one's work, the main goal is to advance within the field.

Teaching is often thought of as a calling position due to its social value and potential to bring a deep sense of fulfillment. However, a calling orientation can be a double-edged sword. People who are driven by a passion for their work often encounter occupational hazards. For teachers, these occupational hazards may be physical or psychological, including workplace violence, disease transmission, and false accusations (Berlanda et al., 2019). Furthermore, teachers are often not well-compensated. Nevertheless, teachers commonly enter the profession because they feel a calling to inspire and shape young minds rather than being motivated by the expected payout (National Society of High School Scholars, 2020). Due to these conditions, passion can lead to increased rates of burnout (Vallerand et al., 2003).

Since teaching is an occupation at high risk for burnout— leading to more CWBs and fewer

OCBs— it is critical to explore these relationships. One key objective of education is to develop knowledgeable individuals who can contribute to society. Faced with rising teacher shortages (Schmitt & deCourcy, 2022) and high turnover (Carver-Thomas & Darling-Hammond, 2017), schools may hire unqualified teachers, increase class sizes, or cut programs, harming student learning. Therefore, school administrators should nurture and recognize teachers' sense of calling, as this ultimately benefits the workplace. Even when burned out, teachers with a strong sense of calling are less likely to engage in CWBs.

Present Research

Interestingly, much of the work on the behavioral outcomes of teacher burnout has been conducted outside of the United States (e.g., Kassandrinou et al., 2023). For example, a study conducted with both private and public school teachers in Pakistan found correlations between the different dimensions of burnout and CWBs (Makhdoom et al, 2019). However, the applicability of these findings may be limited, as teachers in the United States work longer hours than teachers in other countries, are paid less than their college-educated counterparts, and have experienced a steady and steep decline in wages over the past three decades (Schmitt & deCourcy, 2022).

Furthermore, there is little existing literature on the impact of teacher's calling orientation. Two separate studies conducted in China suggest that calling orientation may be a protective factor against burnout for university teachers (Lian et al., 2021) as well as for kindergarten, primary, secondary, and high school teachers (Zhao et al., 2022). However, neither of these studies directly examined CWBs or OCBs. The present research aims to bridge this research gap by examining the impact of calling orientation on the behavioral outcomes of burnout among teachers in the United States.

Teachers are subjected to numerous stressors in their jobs, which contribute to their high burnout rate (Maslach et al., 2001). As described above, employees who experience burnout are more likely to engage in CWBs and less likely to engage in OCBs (Turek, 2020). To address this issue, the current study explores whether teachers' level of calling orientation moderates the impact of burnout (Duffy et al., 2016). Specifically, we hypothesize that calling orientation helps buffer educators from the negative effects of burnout.

In the current study, we surveyed teachers across the United States to assess their calling orientation, burnout, and engagement in CWBs and OCBs, using a self-report survey with a cross-sectional design. Consistent with past research, we predict that teacher burnout will be associated with more CWBs and fewer OCBs, particularly among teachers with a low calling orientation. In contrast, we predict that teachers with a high calling orientation will be protected from the negative effects of burnout, which will result in fewer CWBs and more OCBs. In summary, we expect higher levels of burnout to be positively associated with counterproductive work behaviors (CWBs) and negatively associated with organizational citizenship behaviors (OCBs). Additionally, we propose that calling orientation will interact with burnout to predict both CWBs and OCBs.

Method

Participants

Participants were recruited from Prolific, an online research platform known for providing higher-quality data and more diverse participant samples compared to other common recruitment methods, such as Amazon's Mechanical Turk (Tang et al., 2022). Prolific participants typically outperform those on other platforms in terms of comprehension, attention, and honesty (Peer et al., 2017). Prolific's pre-screeners ensured that participants were kindergarten to 12th grade (K-12) teachers in the United States.

The final sample consisted of 108 teachers (38% male, 58.3% female, and 3.7% non-binary). Participants ranged in age from 23 to 78 years old (M = 38.38, SD = 11.64). The sample consisted of 83.3% White or European-American, 5.6% Hispanic, Latinx, or Spanish Origin, 3.7% Black or African-American, 3.7% Asian or Asian-American, 0.9% Native American or Alaska Native, 0.9% Native Hawaiian or other Pacific Islander, and 1.9% Other. Participants' length of tenure ranged from 1 year to 37 years (M = 10.04 years, SD = 6.76).

Procedure

After providing informed consent, participants completed four measures through a Qualtrics survey: calling orientation, burnout, counterproductive work behaviors, and organizational citizenship behaviors, followed by demographic questions on age, gender, race/ethnicity, and tenure. The measures were presented in a fixed order, with items randomized within each scale. Partic-

ipants were compensated two dollars for their time.

Measures

Calling Orientation

To determine each teacher's level of calling, participants completed Dik et al.'s (2012) Brief Calling Scale. This scale consists of four questions that ask participants if they have found their calling or if they are searching for their calling. Since we were interested in the general presence or search for a calling, we chose the Brief Calling Scale, which also helped minimize participant fatigue (Dik et al., 2012). Sample items include, "I have a calling to a particular kind of work," and "I am trying to figure out my calling in my career (reverse coded)." Participants rated their agreement with each statement on a 1 (Not at all true of me) to 5 (Totally true of me) Likert scale. The four items were averaged to determine participants' overall level of calling (α =.79).

Burnout

To measure burnout, participants completed the Maslach Burnout Inventory-Educator Survey. The Maslach Burnout Inventory has been validated and shown to be reliable across a wide range of settings and populations (Maslach et al., 1997). The 22-item inventory measures the three dimensions of burnout. Sample items include, "I feel emotionally drained by my work" and "I feel very energetic (reverse coded)." Participants responded to each statement using a 0 (Never) to 6 (Every day) Likert scale. The 22 items were averaged to determine participants' overall level of burnout (α = .93). We also calculated the scores for the three dimensions of burnout.

Emotional Exhaustion. We computed the average score across the nine corresponding items to determine participants' level of emotional exhaustion (α = .95).

Depersonalization. We computed the average score across the five corresponding items to determine participants' level of depersonalization (α = .76).

Reduced Personal Accomplishment. We computed the average score across the eight corresponding items to determine participants' level of reduced personal accomplishment (α= .86).

Counterproductive Work Behaviors

To measure engagement in CWBs, participants completed the 10-item Counterproductive Work Behaviors Checklist, which includes an equal number of organization- and person-focused items (Spector et al., 2010). The short form was selected to reduce time and response burden, while also aligning with the OCB measure. Sample items include, "Ignored someone at work" and "Came to work late without permission." Participants responded to each statement using a 1 (Never) to 5 (Every day) Likert scale. The 10 items were averaged to determine participants' level of engagement in CWBs (α = .79).

Organizational Citizenship Behaviors

To measure engagement in OCBs, participants completed the 10-item Organizational Citizenship Behaviors Checklist (Spector et al., 2010). The short form is parallel in structure to the CWB measure and was also chosen to minimize participant fatigue. Sample items include, "Volunteered for extra work assignments" and "Lent a compassionate ear when someone at work had a work problem." Participants responded to each statement using a 1 (Never) to 5 (Every day) Likert scale. The 10 items were averaged to determine participants' level of engagement in OCBs (α = .88).

Demographics

Participants provided demographic information at the end of the survey, including age, gender, race/ethnicity, and tenure in their current teaching position. Age was reported in years using a free-response field. Gender was reported in response to the question, "What is your gender?" with four options: Male, Female, Non-binary, and Other (with a request to specify). Race/ethnicity was reported in response to the question, "What is your race/ethnicity?" with the following options: White or European-American, Black or African-American, Asian or Asian-American, Hispanic, Latinx or Spanish Origin, Native American or Alaska Native, Native Hawaiian or other Pacific Islander, and Other (with a request to specify). Tenure was reported in response to the question, "How many years have you worked in this role?" with a free-response field.

Analytical Approach

Responses were analyzed using separate multiple linear regressions for CWBs and OCBs. Multiple linear regression analyses were conducted to assess the strength and direction of continuous predictor variables (American Psychological Association, 2018). Specifically, calling was examined as a moderator of the relationship between burnout and both CWBs and OCBs. Each set of behaviors was predicted from mean-centered burnout, mean-centered calling, and their interaction, with significant interactions followed up with simple slopes analyses at high and low levels of calling. Additionally, exploratory analyses were performed to examine the role of each of

the three dimensions of burnout on CWBs and OCBs (Bernhard, 2006; Van Droogenbroeck et al., 2021).

Results

Descriptive statistics and the interrelations among all the study variables are presented in Table 1.

Counterproductive Work Behavior

Overall Burnout

The variables accounted for 17% of the variance in CWBs ($R^2 = .17$, $F(3,104) = 6.98$, $p < .001$). As predicted, burnout was associated with more CWBs ($b = .12$, $t(104) = 2.60$, $p = .01$). However, calling was not associated with CWBs ($b = -.07$, $t(104) = -1.38$, $p = .17$). Additionally, the interaction between burnout and calling was not significant ($b = -.06$, $t(104) = -1.46$, $p = .15$), which might suggest that calling orientation does not moderate the effect of burnout on CWBs. For exploratory purposes, we repeated the same analysis with each of the three dimensions of burnout.

Emotional Exhaustion. The variables accounted for 12% of the variance in CWBs ($R^2 = .12$, $F(3,104) = 4.21$, $p < .01$). Emotional exhaustion was not associated with CWBs ($b = .04$, $t(104) = 1.41$, $p = .16$). However, calling was associated with fewer CWBs ($b = -.12$, $t(104) = -2.40$ $p = .02$). The interaction between emotional exhaustion and calling was not significant ($b = .001$, $t(104) = .05$, $p = .96$), which indicates that the effect of calling on CWBs is not dependent on levels of emotional exhaustion.

Depersonalization. The variables accounted for 19% of the variance in CWBs ($R^2 = .19$, $F(3,104) = 8.34$, $p < .001$). Depersonalization was associated with more CWBs ($b = .10$, $t(104) = 2.95$, $p < .01$). Additionally, calling was associated with fewer CWBs ($b = -.10$, $t(104) = -2.20$, $p = .03$). However, the interaction between depersonalization and calling was not significant ($b = -.05$, $t(104) = -1.56$, $p = .12$), which suggests that calling orientation does not moderate the effect of depersonalization on CWBs.

Reduced Personal Accomplishment. The variables accounted for 17% of the variance in CWBs ($R^2 = .17$, $F(3,104) = 6.94$, $p < .001$). Reduced personal accomplishment was not associated with CWBs ($b = .07$, $t(104) = 1.27$, $p = .21$). However, calling was associated with fewer CWBs ($b = -.11$, $t(104) = -2.16$, $p = .03$). Additionally, the interaction between reduced personal accomplishment and calling was significant ($b = -.11$, $t(104) = -2.27$, $p = .03$).

Simple slopes for the relationship between reduced personal accomplishment and CWBs were tested at low (one standard deviation below the mean) and high (one standard deviation above the mean) levels of calling. At low levels of calling, there was a positive relationship between reduced personal accomplishment and CWBs ($b = .17$, $t(104) = 2.67$, $p = .009$). However, at high levels of calling the relationship was no longer significant ($b = -.04$, $t(104) = -.54$, $p = .59$). The results demonstrate that high levels of calling may buffer against the negative effects of reduced levels of personal accomplishment on CWBs (see Figure 1).

Organizational Citizenship Behaviors

Overall Burnout

The model did not account for significant variance in OCBs ($R^2 = .04$, $F(3,104) = 1.54$, $p = .21$). Contrary to predictions, the results indicated that burnout was not associated with OCBs ($b = .01$, $t(104) = .13$, $p = .90$). Similarly, the relationship between calling and OCBs did not reach conventional levels of statistical significance ($b = .16$, $t(104) = 1.83$, $p = .07$). The interaction between burnout and calling was also not significant ($b = -.03$, $t(104) = -.43$, $p = .67$), which might suggest that calling orientation does not moderate the effect of burnout on OCBs. For exploratory purposes, we repeated the same analysis with each of the three dimensions of burnout.

Emotional Exhaustion. The model did not account for significant variance in OCBs ($R^2 = .06$, $F(3,104) = 2.05$, $p = .12$). Emotional exhaustion was not associated with OCBs ($b = .07$, $t(104) = 1.28$, $p = .21$). However, calling was associated with more OCBs ($b = .21$, $t(104) = 2.48$, $p = .02$). The interaction between emotional exhaustion and calling was not significant ($b = -.02$, $t(104) = -.37$, $p = .71$), which indicates that the effect of calling on OCBs is not dependent on the level of emotional exhaustion.

Depersonalization. The variables accounted for 8% of the variance in OCBs ($R^2 = .08$, $F(3,104) = 2.97$, $p = .04$). Depersonalization was not associated with OCBs ($b = .06$, $t(104) = 1.11$, $p = .27$). However, calling was associated with more OCBs ($b = .20$, $t(104) = 2.60$, $p = .01$). The interaction between depersonalization and calling did not reach conventional levels of significance ($b = -.10$, $t(104) = -1.71$, $p = .09$), which indicates that the effect of calling on OCBs is not dependent on the level of depersonalization.

Reduced Personal Accomplishment. The vari-

ables accounted for 14% of the variance in OCBs ($R^2 = .14$, $F(3,104) = 5.61$, $p < .01$). Reduced personal accomplishment was associated with fewer OCBs ($b = -.28$, $t(104) = -3.41$, $p < .001$). However, calling was not associated with OCBs ($b = -.003$, $t(104) = -.04$, $p = .97$). Additionally, the interaction between reduced personal accomplishment and calling was not significant ($b = .002$, $t(104) = .03$, $p = .98$), which suggests that calling orientation does not moderate the effect of reduced personal accomplishment on OCBs.

Discussion

While there is extensive research on burnout, CWBs, OCBs, and calling orientation separately, there is little research that integrates the four concepts, especially in samples of American teachers. The current study investigated the relationship between calling, burnout, CWBs, and OCBs among K-12 teachers. Consistent with predictions, teachers who experience greater overall burnout engaged in more CWBs. This effect may be explained by levels of depersonalization, as teachers who felt more depersonalized engaged in more CWBs. Contrary to predictions, overall burnout was not associated with OCBs, although exploratory analyses revealed a significant relationship between reduced personal accomplishment and OCBs. Although not explicitly hypothesized, exploratory analyses also revealed that calling was associated with more OCBs when the dimensions of emotional exhaustion or depersonalization were analyzed in place of overall burnout.

Although we did not find strong evidence for the moderating effect of calling on the relationship between overall burnout and CWBs and OCBs, exploratory analyses of the three burnout dimensions provided partial support for this moderating relationship, particularly between reduced personal accomplishment and CWBs. At low levels of calling, reduced personal accomplishment was associated with more CWBs. However, at high levels of calling, the relationship was no longer significant. The results suggest that even when faced with feelings of incompetence or a lack of achievement and productivity, having a calling orientation can act as a buffer against the negative effects on CWBs. Stated simply, individuals who are deeply committed to their profession are less likely to exhibit behaviors that harm their organization and its stakeholders even during times of self-doubt or feelings of inadequacy. These findings highlight the potential protective role of calling orientation in mitigating the adverse effects of reduced personal accomplishment, ultimately fostering a more positive and productive work environment among educators.

Limitations and Future Directions

We did not find strong support for our predictions, which may be due to several limitations that future research could address. First, some of the established measures used were short versions, and both the OCB and CWB scales were domain-general, rather than specifically designed for educators (e.g., many items assessed behaviors towards coworkers rather than students). Future research could develop more domain-specific scales to better capture counterproductive and extra-role behaviors in teaching, directed at both students as well as coworkers. Additionally, using the full-length versions of these scales may provide more nuanced insights.

Second, we combined different types of educators to achieve an adequate sample size. As a result, the findings may have masked challenges that are unique to specific contexts (e.g., school districts, grade levels, teacher education levels). Future research could include interviews with teachers to gather more qualitative insights into their work environments, offering richer data beyond what a survey alone can provide.

Third, our sample size was limited by the constraints of the Prolific platform, which had a small pool of active K-12 teachers. Future research could employ snowball sampling to recruit a larger and more representative sample of teachers. This approach could also improve generalizability, as financially stable educators may be less likely to participate in online crowdsourcing platforms offering low monetary incentives. Additionally, the sample may have excluded teachers who left the profession due to extreme burnout, potentially introducing bias by omitting the perspectives of those most affected.

Finally, the current study used a cross-sectional design, limiting the ability to draw causal conclusions. Additionally, all our measures relied on self-report, which could introduce common method bias and may have been influenced by social desirability. Future research could address this limitation by incorporating ratings from supervisors or peers alongside self-report data. A longitudinal approach would also be valuable to examine how burnout and a sense of calling evolve over time, and

to assess their long-term effects on OCBs and CWBs.

Theoretical Implications

In the current research, we focus on calling orientation, particularly among educators. The findings have the potential to inform multiple areas of research, with several opportunities for future studies on this topic, given the gap in the literature. Teaching is often intertwined with a sense of calling, which is associated with deep passion and internal motivation. While some research exists on the positive effects of calling orientation for teachers, most of these studies have been conducted outside the United States (Lian et al., 2021; Zhao et al., 2022).

The present study highlights the relationship between reduced personal accomplishment, calling, and CWBs. Specifically, teachers who experience a strong sense of calling may be less likely to engage in CWBs, even when faced with a sense of reduced personal accomplishment. At the same time, past research suggests that such passion can be exploited by organizations or supervisors, potentially leading to increased workloads and higher burnout (Kim et al., 2020). Therefore, we encourage researchers to examine both the beneficial and detrimental effects of a calling orientation (e.g., Cardador & Caza, 2012). Future research could explore similar relationships in other calling-oriented professions and further investigate the interplay between calling orientation, burnout, and engagement in CWBs and OCBs.

Practical Implications

Teachers regularly report being underpaid, overworked, and underappreciated. Educational institutions may attempt to address teacher burnout by identifying the stressors or reducing the strains of teaching (e.g., stress management workshops or fitness programs). As mentioned earlier, the job demands-resources model can be used to explain teacher burnout. To reduce CWBs and promote OCBs, organizations may attempt to balance the job demands and/or job resources. However, the demands and resources may not always be amenable to change. For instance, the COVID-19 pandemic presented a formidable challenge for educators, and teacher pay in the United States continues to remain low (Marken & Agrawal, 2022).

The current study introduces an alternative way for organizations to minimize the negative effects of burnout on the workplace by focusing on personal resources. To foster a calling orientation, adminis-

trators could invest in teacher recognition or professional development opportunities to actively engage teachers in their profession, or they could introduce interventions that focus on developing a teacher's sense of purpose and meaning (e.g., Hackman & Oldham, 1976). Our results suggest that educators with a strong sense of calling are less likely to engage in CWBs, even when experiencing feelings of reduced personal accomplishment. Therefore, it is crucial to foster educators' sense of calling to minimize engagement in CWBs and promote sustained engagement and commitment to their work. Together, these strategies would help teachers reconnect with their sense of purpose in the profession, while also supporting their physical, mental, and emotional well-being. Building on these findings, fostering a sense of calling in educators could strengthen their resilience and long-term commitment to the teaching profession. Connecting teachers to their sense of purpose may also improve the overall school climate and culture. Even in the face of burnout, teachers with a strong sense of calling are more likely to maintain professionalism and avoid behaviors that could disrupt students and staff. More practically, reigniting this passion could help reduce teacher attrition and further boost workplace engagement.

Conclusion

Research indicates that teachers face numerous stressors and are increasingly experiencing burnout (Pressley, 2021). This study found that teachers' sense of calling appeared to act as a buffer, mitigating the negative effects of reduced personal accomplishment on CWBs. These results suggest that a calling orientation may serve as a protective mechanism against burnout, emphasizing the importance of nurturing teachers' sense of purpose. These insights not only benefit student outcomes but also contribute to the overall well-being of educational institutions.

References

American Psychological Association. (2018). Multiple regression. *APA Dictionary of Psychology*. https://dictionary.apa.org/multiple-regression

Bakker, A. B., & Demerouti, E. (2014). Job demands-resources theory. In P. Y. Chen & C. L. Cooper (Eds.), *Work and wellbeing* (pp. 37-64). Wiley Blackwell. https://doi.org/10.1002/9781118539415.wbwell019

Berlanda, S., Fraizzoli, M., de Cordova, F., & Pedrazza, M. (2019). Psychosocial risks and violence against teachers. Is it possible to promote well-being at work? *International Journal of Environmental Research and Public Health, 16*(22), 1-13. https://doi.org/10.3390/ijerph16224439

Bernhard, H. C., II. (2006). A survey of burnout among elementary and secondary school music teachers. *Research Perspectives in Music Education, 10*(1), 7-13.

Cardador, M. T., & Caza, B. B. (2012). Relational and identity perspectives on healthy versus unhealthy pursuit of callings. *Journal of Career Assessment, 20*(3), 338-353. https://doi.org/10.1177/1069072711436162

Carver-Thomas, D., & Darling-Hammond, L. (2017). Teacher turnover: Why it matters and what we can do about it. *Learning Policy Institute*. https://learningpolicyinstitute.org/product/teacher-turnover-report

Dalal, R. S. (2005). A meta-analysis of the relationship between organizational citizenship behavior and counterproductive work behavior. *Journal of Applied Psychology, 90*(6), 1241-1255. https://doi.org/10.1037/0021-9010.90.6.1241

Dik, B. J., Eldridge, B. M., Steger, M. F., & Duffy, R. D. (2012). Development and validation of the calling and vocation questionnaire (CVQ) and brief calling scale (BCS). *Journal of Career Assessment, 20*(3), 242-263. https://doi.org/10.1177/1069072711434410

Duffy, R. D., Douglass, R. P., Autin, K. L., England, J., & Dik, B. J. (2016). Does the dark side of a calling exist? Examining potential negative effects. *Journal of Positive Psychology, 11*(6), 634-646. https://doi.org/10.1080/17439760.2015.1137626

Eisenberger, R., Huntington, R., Hutchison, S., & Sowa, D. (1986). Perceived organizational support. *Journal of Applied Psychology, 71*(3), 500-507. https://doi.org/10.1037/0021-9010.71.3.500

Hackman, J. R., & Oldham, G. R. (1976). Motivation through the design of work: Test of a theory. *Organizational Behavior and Human Decision Processes, 16*(2), 250-279. https://doi.org/10.1016/0030-5073(76)90016-7

Heubeck, E. (2023, September 20). Teacher autonomy isn't dead. Here's how to achieve it. *Education Week*. https://www.edweek.org/leadership/teacher-autonomy-isnt-dead-heres-how-to-achieve-it/2023/09

Hsieh, C. C., Chien, W. C., Yen, H. C., & Li, H. C. (2022). "Same same" but different? Exploring the impact of perceived organizational support at the school and teacher levels on teachers' job engagement and organizational citizenship behavior. *Frontiers in Psychology, 13*, 1-13. https://doi.org/10.3389/fpsyg.2022.1067054

Kassandrinou, M., Lainidi, O., Mouratidis, C., & Montgomery, A. (2023). Employee silence, job burnout and job engagement among teachers: the mediational role of psychological safety. *Health Psychology and Behavioral Medicine, 11*(1), 1-17, Article 2213302. https://doi.org/10.1080/21642850.2023.2213302

Kim, J. Y., Campbell, T. H., Shepherd, S., & Kay, A. C. (2020). Understanding contemporary forms of exploitation: Attributions of passion serve to legitimize the poor treatment of workers. *Journal of Personality and Social Psychology, 118*(1), 121-148. https://doi.org/10.1037/pspi0000190

Kyriacou, C. (2001). Teacher stress: Directions for future research. *Educational Review, 53*(1), 27-35. https://doi.org/10.1080/00131910120033628

Lian, L., Guo, S., Wang, Q., Hu, L., Yang, X., & Li, X. (2021). Calling, character strengths, career identity, and job burnout in young Chinese university teachers: A chain-mediating model. *Children and Youth Services Review, 120*, 1-7, Article 105776. https://doi.org/10.1016/j.childyouth.2020.105776

Liang, S. C., & Hsieh, A. T. (2007). Burnout and workplace deviance among flight attendants in Taiwan. *Psychological Reports, 101*(2), 457-468. https://doi.org/10.2466/pr0.101.2.457-468

Litvinov, A. (2023, August 31). Why are educators still buying their own school supplies? *NEA Today*. https://www.nea.org/nea-today/all-news-articles/why-are-educators-still-buying-their-own-school-supplies

Makhdoom, I. F., Atta, M., & Malik, N. I. (2019). Counterproductive work behaviors as an outcome of job burnout among high school teachers. *Bulletin of Education and Research, 41*(2), 79-92.

Marken, S., & Agrawal, S. (2022, June 8). *K-12 workers have highest burnout rate in U.S. Gallup*. https://news.gallup.com/poll/393500/workers-high-

est-burnout-rate.aspx

Maslach, C., & Goldberg, J. (1998). Prevention of burnout: New perspectives. *Applied and Preventive Psychology, 7*(1), 63-74. https://doi.org/10.1016/S0962-1849(98)80022-X

Maslach, C., Jackson, S. E., & Leiter, M. P. (1997). Maslach Burnout Inventory: Third edition. In C. P. Zalaquett & R. J. Wood (Eds.), *Evaluating stress: A book of resources* (pp. 191-218). Scarecrow Education.

Maslach, C., & Leiter, M. P. (2008). Early predictors of job burnout and engagement. *Journal of Applied Psychology, 93*(3), 498-512. https://doi.org/10.1037/0021-9010.93.3.498

Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology, 52*(1), 397-422. https://doi.org/10.1146/annurev.psych.52.1.397

National Society of High School Scholars. (2020, June 30). 5 ways educators can grow and sustain a passion for teaching. *NSHSS*. https://www.nshss.org/resources/blog/blog-posts/5-ways-educators-can-grow-and-sustain-a-passion-for-teaching/

Peer, E., Brandimarte, L., Samat, S., & Acquisti, A. (2017). Beyond the Turk: Alternative platforms for crowdsourcing behavioral research. *Journal of Experimental Social Psychology, 70*, 153-163. https://doi.org/10.1016/j.jesp.2017.01.006

Pressley, T. (2021). Factors contributing to teacher burnout during COVID-19. *Educational Researcher, 50*(5), 325-327. https://doi.org/10.3102/0013189X211004138

Schmitt, J., & deCourcy, K. (2022). The pandemic has exacerbated a long-standing national shortage of teachers. *Economic Policy Institute*. https://www.epi.org/publication/shortage-of-teachers/

Schnake, M. (1991). Organizational citizenship: A review, proposed model, and research agenda. *Human Relations, 44*(7), 735-759. https://doi.org/10.1177/001872679104400706

Spector, P. E., Bauer, J. A., & Fox, S. (2010). Measurement artifacts in the assessment of counterproductive work behavior and organizational citizenship behavior: Do we know what we think we know? *Journal of Applied Psychology, 95*(4), 781-790. https://doi.org/10.1037/a0019477

Spector, P. E., Fox, S., Penney, L. M., Bruursema, K., Goh, A., & Kessler, S. (2006). The dimensionality of counterproductivity: Are all counterproductive behaviors created equal? *Journal of Vocational Behavior, 68*(3), 446-460. https://doi.org/10.1016/j.jvb.2005.10.005

Stanford, L. (2023, September 1). Educators feel growing pressure for students to perform well on standardized tests. *Education Week*. https://www.edweek.org/teaching-learning/educators-feel-growing-pressure-for-students-to-perform-well-on-standardized-tests/2023/09

Tang, J., Birrell, E., & Lerner, A. (2022, August 8–9). Replication: How well do my results generalize now? The external validity of online privacy and security surveys. In *Proceedings of the Eighteenth Symposium on Usable Privacy and Security (SOUPS 2022)* (pp. 293–308). USENIX Association. https://www.usenix.org/conference/soups2022/presentation/tang

Turek, D. (2020). When does job burnout not hurt employee behaviours? *Journal of Organizational Effectiveness: People and Performance, 8*(1), 59-79. https://doi.org/10.1108/JOEPP-04-2020-0055

Vallerand, R. J., Blanchard, C., Mageau, G. A., Koestner, R., Ratelle, C., Léonard, M., Gagné, M., & Marsolais, J. (2003). Les passions de l'ame: on obsessive and harmonious passion. *Journal of Personality and Social Psychology, 85*(4), 756-767. https://doi.org/10.1037/0022-3514.85.4.756

Van Droogenbroeck, F., Spruyt, B., Quittre, V., & Lafontaine, D. (2021). Does the school context "really" matter for teacher burnout? Review of existing multilevel teacher burnout research and results from the Teaching and Learning International Survey 2018 in the Flemish- and French-speaking communities of Belgium. *Educational Researcher, 50*(5), 290-305. https://doi.org/10.3102/0013189X21992361

Van Wingerden, J., & Poell, R. F. (2019). Meaningful work and resilience among teachers: The mediating role of work engagement and job crafting. *PLoS ONE, 14*(9), 1-13. https://doi.org/10.1371/journal.pone.0222518

Walker, T. (2016). Teacher autonomy declined over past decade, new data shows. *NEA Today*. https://www.nea.org/nea-today/all-news-articles/teacher-autonomy-declined-over-past-decade-new-data-shows

Weiss, L. (2020, October 20). Burnout from an orga-

nizational perspective. *Stanford Social Innovation Review*. https://ssir.org/articles/entry/burnout_from_an_organizational_perspective

Wrzesniewski, A., & Dutton, J. E. (2001). Crafting a job: Revisioning employees as active crafters of their work. *Academy of Management Review, 26*(2), 179-201. https://doi.org/10.5465/amr.2001.4378011

Wrzesniewski, A., McCauley, C., Rozin, P., & Schwartz, B. (1997). Jobs, careers, and callings: People's relations to their work. *Journal of Research in Personality, 31*(1), 21-33. https://doi.org/10.1006/jrpe.1997.2162

Zhao, X., Wu, K., Sun, B., & Li, W. (2022). Teacher career calling reduces burnout: The mediation effects of work engagement and psychological capital. *Frontiers in Psychology, 13*, 1-8. https://doi.org/10.3389/fpsyg.2022.988467

Table 1

Descriptive Statistics and Correlations for Study Variables

	Variable	*M*	*SD*	1	2	3	4	5	6	7
1.	Calling	3.71	0.97	-						
2.	Burnout	3.32	1.08	-.56**	-					
3.	Emotional exhaustion	4.42	1.59	-.47**	.92**	-				
4.	Depersonalization	2.74	1.31	-.35**	.80**	.65**	-			
5.	Reduced personal accomplishment	2.45	0.97	-.55**	.70**	.44**	.42**	-		
6.	Counterproductive work behaviors	1.58	0.46	-.32**	.36**	.27**	.36**	.30**	-	
7.	Organizational citizenship behaviors	3.05	0.74	.20*	-.11	.01	.03	-.37**	.11	-

Note. $^{*}p < .05.$ $^{**}p < .01.$

Figure 1

Moderating Effect of Calling on the Relationship Between Reduced Personal Accomplishment and Counterproductive Work Behaviors
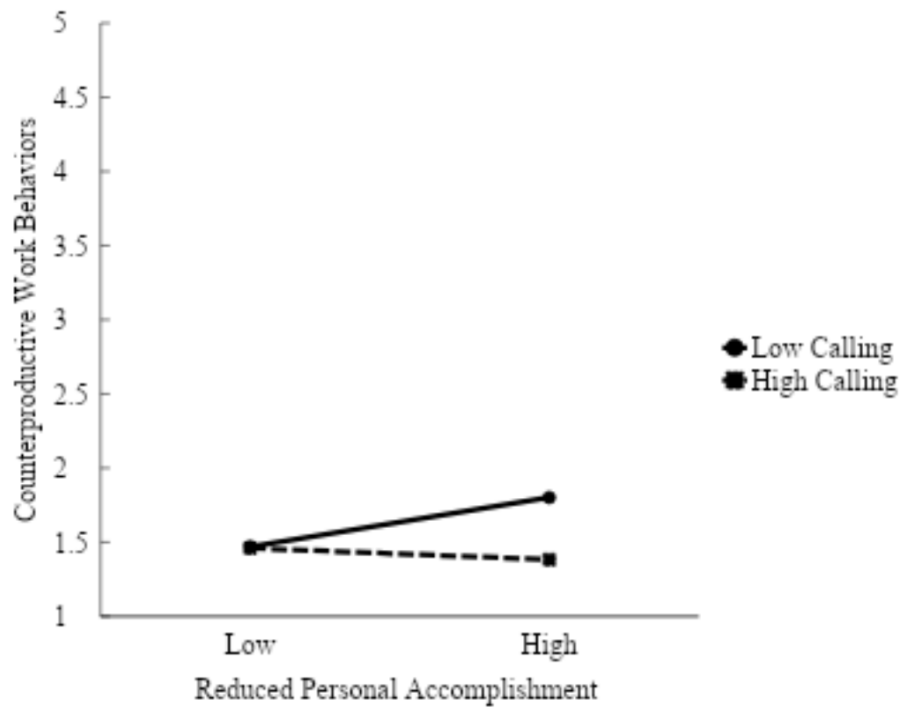
Effects of Anxiety on Attention-Based Tasks in a College Population

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Previous literature suggests that trait anxiety may lead to diminished global processing, and therefore, a local processing bias (Basso et al., 1996), which may contribute to a narrowed scope of attention and impaired cognitive flexibility. Additionally, there is conflicting data on how anxiety interacts with performance on the Stroop task (e.g., Ursache & Cybele Raver, 2014). To understand this relationship, the authors used the State-Trait Anxiety Inventory (STAI) to divide participants into groups based on their levels of anxiety. Specifically, the researchers explored the effects of state and trait anxiety on college students' attention using the Navon task and the Stroop task. The Navon task was used to compare the performance of people with high and low trait anxiety, utilizing two t-tests to analyze local and global processing. Four groups were created for the Stroop task: high trait/low state, low state/high trait, high trait/high state, and low state/low trait, which were compared through an ANOVA. No statistically significant differences were found in performance on the Stroop and Navon tasks based on state or trait anxiety. This may be due to the age range of participants and the lack of clinical elevation of these factors. The findings suggest that moderate levels of anxiety may not impact attention drastically in a college population.

Keywords: anxiety, attention, college, Stroop task, Navon task

The current study examines the potential relationship between anxiety as measured by the State-Trait Anxiety Inventory (STAI) and performance on the Navon and Stroop tasks, reflecting different aspects of attention that are crucial for academic success. These cognitive tasks measure different aspects of attention, including visual global and local processing, and executive inhibition (Miyake et al., 2000; Navon, 1977; Stroop, 1935). We measured two types of anxiety: trait anxiety and state anxiety. Trait anxiety can be defined as the general level of anxiety a person feels on an everyday basis, whereas state anxiety is the level of anxiety they feel in the current moment (Shilton et al., 2019; Spielberger et al., 1983). We aimed to examine how anxiety may impact a person's attention, executive functioning, and visual processing. If there is indeed a difference in performance based on anxiety, this could affect future treatment considerations for college students with anxiety diagnoses.

We hypothesized that individuals with high levels of trait anxiety would have a local processing bias in the Navon task, specifically demonstrated by slower reaction times on global processing than participants with low trait anxiety for the Navon task. Additionally, we hypothesized that participants with high trait anxiety would have faster reaction times on local processing than participants with low trait anxiety. For the Stroop task, we hypothesized that individuals high in state anxiety, those high in trait anxiety, and those who score high in both types of anxiety would have slower reaction times on the incongruent trials

of the Stroop task than those low in both types of anxiety. This study further explores the relationship that may exist between anxiety and interference in each of these tasks, leading to a better understanding of how state and trait anxiety impact performance on attention-based tasks in a college population.

Anxiety in College Students

College can be an emotional experience for students, with the potential for many first-time, unfamiliar experiences. While many of these experiences may be enjoyable and eye-opening, some aspects of college, such as academic expectations or financial concerns, may lead individuals to experience high stress and anxiety levels. In one study, 40% of undergraduate university students displayed anxiety symptoms (Beiter et al., 2015). Asher BlackDeer et al. (2021) collected a sample of 117,430 students from over 100 college institutions and found that 9.2% of the overall sample displayed symptoms of anxiety. These studies demonstrate how prevalent anxiety can be in college students across the United States and suggest that pressures regarding academic performance may be a contributing factor (e.g., Asher BlackDeer et al., 2021; Beiter et al., 2015).

Research frequently suggests an impact of state-level anxiety on performance in specific contexts, such as test anxiety or statistics anxiety (e.g., Cassady & Johnson, 2002; Chew & Dillon, 2014; Hoegler & Nelson, 2018). More broadly, literature on trait anxiety suggests an inconsistent impact on academic performance. For example, Vitasari et al. (2010) found that in university engineering students, there was a small

but significant correlation between high anxiety as measured by the STAI and low academic performance. Another study found a significant indirect correlation between low academic performance and trait anxiety in middle school students (Owens et al., 2012). However, Chaplin (1989) suggests that it may not be the anxiety itself but rather how an individual reacts to anxiety that determines the impact on academic achievement.

Anxiety and Attention

Attention may have an important impact on academic achievement. In addition to academic achievement, anxiety appears to impact attention (Najmi et al., 2012; Pacheco-Unguetti et al., 2010). The executive control network, or executive attention, consists of problem-solving, working memory, and managing conflicts. Executive attention is a part of the broader category of executive functioning and can be investigated using the Stroop task, which requires executive control when managing conflicting information.

The scope of attention involves the ability to expand or narrow one's visual focus relative to the size of an individual's visual environment (Kosslyn et al., 1999; Najmi et al., 2012). One study suggests that undergraduate students with high levels of trait anxiety had an impairment in expanding the scope of their attention compared to students with low levels of anxiety. The authors of this study suggest the scope of visual attention may be related to global and local processing (Najmi et al., 2012).

Global and Local Processing

When someone looks at a painting, do they start by recognizing the entire picture or by focusing on the detail within the painting? This question concerns the global and local elements found within the painting. Regarding visual perception, local processing focuses on the individual elements that make up a scene (Nayar et al., 2015). Global processing involves seeing all the individual elements that create the scene and using this information to create a comprehensive global image (Navon, 1977; Nayar et al., 2015). The theory of global precedence states that visual perception tends to start from seeing the big picture (the forest) first and then noticing the finer details (the trees) (Navon, 1977).

Research indicates that young children may rely mainly on local-level strategies and develop global-level strategies similar to the average adult between the ages of 7 and 10 (Nayar et al., 2015). This demonstrates that humans may naturally adapt global pro-

cessing strategies as their brains develop. This may be because a child's prefrontal cortex is still developing (Tsujimoto, 2008). As humans develop, there are instances where these global-level strategies may be beneficial. For example, Woltin et al. (2012) found that participants from a college sample correctly understood the communicative intent of a written message (sincere or sarcastic) more frequently when they were globally primed than when they were locally primed.

Anxiety and Global/Local Processing

High trait anxiety may impact an individual's scope of attention on global/local tasks, leading to a local-level processing bias (Basso et al., 1996; Becker et al., 2017; Najmi et al., 2012; Shilton et al., 2019). Shilton et al. (2019) found that participants with high trait anxiety were biased toward processing local-level visual stimuli in a global-local visual processing task, with less of a preference towards global-level processing. In contrast, their high state anxiety group displayed greater interference (slower reaction times) from global stimuli when attempting to process the local-level stimuli compared to their low state anxiety group. This would indicate that, unlike trait anxiety, no local processing preference appears to result from state anxiety (Shilton et al., 2019).

On the other hand, Basso et al. (1996) found that male participants exhibiting symptoms of depression or anxiety displayed a bias towards local processing, suggesting that these pathologies diminish global processing. Becker et al. (2017) used a Navon task to demonstrate that trait-level anxiety may lead to a local processing bias. According to Tyler and Tucker (1982), individuals with trait anxiety may rely more on their left hemisphere in visual perception, such as performing the Navon task. If this is true, this may explain some of the local processing bias. This detail-focused (local-level) perceptual bias may indirectly lead to maladaptive behaviors, such as an eating disorder (Becker et al., 2017).

Stroop Task and Executive Attention

If a student were to shout out an answer without raising their hand during a lecture, that would be an example of failing to inhibit a response. The ability to restrain one's unwanted responses is known as response inhibition (Albert et al., 2013). In this study, one task we used to measure attention was the Stroop task. In this task, participants are shown multiple trials of the color names in various colors of ink (e.g., the word blue in the ink color red) (Stroop, 1935). The

primary component measured in the Stroop task is managing the conflict of incongruency between color and word meaning through inhibition (Miyake et al., 2000; Stroop, 1935). The primary area of the brain involved in the Stroop task appears to be the dorsolateral prefrontal cortex (DLPFC), which may have a role in executive functioning (Milham et al., 2003).

Anxiety and Stroop Task

Some evidence suggests that state anxiety does not negatively affect but may actually improve performance on the Stroop task (see Ursache & Cybele Raver, 2014). However, there is mixed evidence. Rosa-Alcázar et al. (2021) found that higher scores on a generalized anxiety disorder (GAD) screening survey were associated with worse performance on the Stroop color-word test. Another study found that participants who met the criteria for GAD performed worse than the "healthy" control group (Hallion et al., 2017). The authors suggested that the presence of GAD predicted deficits in performance on the Stroop task. This study's results could indicate how participants with high trait anxiety may perform on the Stroop task. Data suggests that trait anxiety may impair the DLPFC's role in attentional control while processing conflicting information (Bishop, 2009).

Furthermore, Heller et al. (1997) found that individuals with high levels of trait anxiety (anxious apprehension) seem to have asymmetry in the frontal lobes. These findings could be seen in decreased activity in the right frontal lobe, which may lead to possible deficits in executive functioning tasks (Heller et al.,1997; Milham et al., 2003). Finally, one study found a positive correlation between academic achievement and activation of brain areas responsible for strong performance on the Stroop task (Veroude et al., 2013), suggesting that if anxiety harms an individual's performance on the Stroop task, it may also adversely affect their academic performance (Hallion et al., 2017; Saviola et al., 2020; Veroude et al., 2013).

Methods

Participants

One hundred and seventeen undergraduate and graduate students from a large university in the southeast United States completed our study. Participants were recruited through SONA, word of mouth, email, and social media (e.g., Facebook, Instagram, and Reddit). Golden and Freshwater (2002) suggest a shift in Stroop scores after the age of 25, so all participants were between 18-25. We also only included participants who completed every item of the anxiety scale and both attention tasks. This study was approved by Middle Tennessee State University's institutional review board, and all participants provided informed consent.

Of our 117 participants, 24 identified as male, 81 identified as female, 10 identified as non-binary or a third gender, and two preferred not to say. In the sample, 92 participants identified as white, 13 participants as Hispanic or Latino, 13 participants as Black or African American, four participants as Asian, one participant as Native Hawaiian or Pacific Islander, eight participants as mixed ethnicity, and four as Other Ethnicity. Participants also reported previous anxiety diagnoses. There were 27 GAD diagnoses, 13 unspecified anxiety diagnoses, seven social anxiety disorder diagnoses, six panic disorder diagnoses, two preferred not to say, and one agoraphobia diagnosis reported.

Additionally, 35 participants reported being prescribed medication for anxiety or attention-deficit/hyperactivity disorder, and one preferred not to say. 65 participants reported that they currently were or had previously received psychotherapy for anxiety or depression. Fifty-one participants reported having never received psychotherapy, and one preferred not to say. Lastly, 33 participants reported that they were currently taking prescribed or non-prescribed psychotropic medications, 18 participants reported a history of severe head injury (e.g., concussion, TBI), and 20 participants reported using recreational substances.

Measures

All data was collected using PsyToolkit, a browser-based data collection tool with a large collection of psychological tests. The program allows researchers to assemble these individual tasks, along with demographic questions, and distribute them virtually for cloud-based data collection (Stoet, 2010, 2017). Traditionally, reaction time data is collected via in-person testing methods; the gold standard for collecting this type of data is a program called E-prime 3.0, which does not have browser-based capabilities.

Kim et al. (2019) found a high degree of replicability in reaction time measurement between E-prime and PsyToolkit. No significant differences were observed in the response time results between the two, indicating that PsyToolkit is comparable to E-prime 3.0 for measuring reaction times (Kim et

al., 2019). Using PsyToolkit allowed participants to complete the study without any in-person interaction, minimizing any chance of spreading COVID-19 and allowing us to distribute the study more widely. PsyToolkit meets the standards of data protection laws in Europe and is supported by SONA.

There is currently no available reliability and validity on the Navon and Stroop task as measured through PsyToolkit. However, other studies have used PsyToolkit to measure reaction times and inhibitory control (e.g., Invernizzi et al., 2022; Utamatanin & Pariwatcharakul, 2022). Other theses and dissertations have utilized PsyToolkit in studies measuring the Stroop task (e.g., Ackerman, 2022; Anjomshoae, 2022; Bertleff, 2022). While there is limited data on these tasks as measured on PsyToolkit, PsyToolkit was the best option for collecting the data needed, considering our available resources.

The State-Trait Anxiety Inventory (STAI) form Y was used to measure state anxiety (in the present moment) and trait anxiety (general sense of anxiety). The STAI is a 4-point Likert scale ranging from "not at all" to "very much so" (Spielberger et al., 1983). STAI-S is the state anxiety subscale, consisting of 20 items about "how you feel right now, at this moment," and STAI-T is the trait anxiety subscale also consisting of 20 items about "how you generally feel."

In a sample of undergraduate students, the internal consistency reliability for males on the STAI-S was $\alpha = 0.91$, and on the STAI-T, $\alpha = 0.90$. For females, STAI-S was $\alpha = 0.93$, and for STAI-T, $\alpha = 0.91$ (Spielberger, 1983). In a meta-analysis, Barnes et al. (2002) reported an average internal consistency for STAI Form Y of $\alpha = .92$. In a sample of undergraduate students, Creamer et al. (1995) found moderate test-retest correlation coefficients between the STAI-T and the Beck Anxiety Inventory ($r = .57$ and .68), as well as the STAI-S with the Beck Anxiety Inventory ($r = .56$ and .64).

The Navon task measures participants' global and local processing. It was chosen because it has been used in previous literature on anxiety and global/local processing (Becker et al., 2017; Shilton et al., 2019). The Navon task measures response times and errors in processing global and local visual elements (Navon, 1977; Nayar et al., 2015). This task presents the participant with a global stimulus (i.e., a large letter). This global stimulus shape comprises many local stimuli (i.e., small letters). Participants are asked to decide if they see the

target letters (H or O) on either the global level or the local level of the stimuli (Stoet, 2010, 2017; Navon, 1977).

The PsyToolkit version of the task consists of 50 trials: 12-13 global congruent trials, 12-13 local congruent trials, and 24-26 trials that have neither H nor O in either the global or local elements and consist of only other letters. Each global-level figure is seven local-element letters tall and five letters wide. For the Navon task, one study on undergraduate students had an average test-retest reliability using Pearson correlation coefficients $r = .66$ for global-level processing and $r = .73$ for local-level processing, which suggests acceptable reliability (Dale & Arnell, 2013).

First, participants viewed a screen with instructions and examples of congruent and incongruent trials, with no practice trials. Upon clicking through the instructions, the task began. During each trial, participants viewed a large letter composed of small letters. Participants had to indicate whether the figure contained the letters H or O by pressing a key. Participants pressed the "b" key if either of these letters were present, and the "n" key if neither letter was included in the figure.

Participants had 4000 milliseconds to respond. A green smiling face would flash on the screen to alert participants if they correctly identified an H or O appearing on either the global or local level of the figure, and a red frowning face would appear if the participant incorrectly identified an H or O appearing. If participants exceeded the time limit without a response, the word "slow" would appear on the screen, leading to the next trial.

The Stroop task was chosen for this study because it is widely used to measure executive skills and functioning (Rueda et al., 2016). The Stroop color-word task provided by PsyToolkit measures inhibition in executive control through response times. For this study, we exclusively used the color-word trials where the participant was asked to only respond to the color of the ink the word is in while ignoring its meaning. Participants were expected to ignore the word's meaning in this task and respond only to its color.

There were congruent (e.g., the word blue in the ink color blue) and incongruent trials (e.g., the word red in the ink color blue). The PsyToolkit version of the Stroop color-word task consists of 40 trials of the color-word Stroop task while ignoring the word's meaning, with 11-12 congruent trials and 28-29 incongruent trials. The task began with

instructions and examples of congruent and incongruent trials, but there were no practice trials. Upon clicking through the instructions, the task began.

A fixation cross flashed on the screen for 250 milliseconds in these trials to direct the participant's attention. This was followed by the name of a color (blue, red, yellow, or green) in blue, red, yellow, or green ink flashing on the screen for 2000 milliseconds, during which the participants had to identify the color of the ink with a key press. The participant had to press the key on their keyboard that matched the corresponding color: b for blue, r for red, y for yellow, and g for green.

In each trial, the participant had to respond within 2000 milliseconds. If they chose the incorrect key or exceeded the time limit, the word "wrong" would appear on the screen, leading to the next trial. If they chose the correct key, the word "correct" would appear. One study using undergraduate students found retest reliability for the standard Stroop color-word task's congruent color-word $\alpha = .71$ ($p < .001$) and an incongruent color-word of $\alpha = .79$ ($p < .001$) (Strauss et al., 2005).

Procedures

To begin, the participants visited the URL and read the informed consent. After agreeing to participate, participants completed the state anxiety index of the STAI. Participants then completed both the Navon and Stroop tasks. We chose to put the state anxiety subscale before the two tasks to get as accurate a measurement of their current state as possible. We also chose to put the trait subscale after the tasks in an attempt to avoid inducing any additional anxiety in the participant.

The study was counterbalanced so that equal numbers of participants started with the Navon or the Stroop task. There were no breaks between the two tasks, with the next task following the completion of the first task. Upon completion of both tasks, the participants then completed the trait anxiety index of the STAI. This was followed by the collection of demographic information. Lastly, a debriefing statement appeared on screen thanking the participants for their participation and ending the experiment.

Results

Analysis Summary

All the data was analyzed using Jamovi (Version 2.4.1). Participants were split into low and high anxiety groups by their mean scores on the STAI-S and STAI-T subscales for each task. In the Navon

task, we divided participants into a low trait anxiety group and a high trait anxiety group using a mean split of the STAI-T scores. We conducted a t-test to compare median response times on global congruent trials between participants with high and low trait-anxiety. We used the same method to compare the two groups' response times for local congruent trials. For the Stroop task, we divided participants into four groups based on state and trait anxiety. We conducted an ANOVA to compare response times on incongruent trials across the four groups.

State-Trait Anxiety Inventory

We calculated each participant's state anxiety scores (STAI-S) and trait anxiety scores (STAI-T). Scores were calculated by summing the Likert responses (valued one to four) on each 20-item subscale, with some items being reverse-coded per the STAI manual (Spielberger et al., 1983). For each subscale (STAI-T, STAI-S), scores can range from 20 to 80. In the original normative data, their college sample was split into male and female groups. The male group's average score on the state subscale was ($M = 36.47$, $SD = 10.52$), and the female group's average score on the state subscale was ($M = 38.76$, $SD = 11.07$). The average male score on the trait subscale was ($M = 38.30$, $SD = 8.88$), and the average female score on the trait subscale was ($M = 40.40$, $SD = 9.31$) (Spielberger et al., 1983).

In our study, participants' scores on each subscale of the STAI were used to create a mean split to divide participants into high and low trait anxiety and high and low state anxiety groups as indicated. Participants' state anxiety subscale scores ($N = 117$, $M = 45.56$, $SD = 11.78$) were normally distributed, slightly skewed right with a .20 skewness, and platykurtic with kurtosis of -.73. Trait anxiety ($N = 117$, $M = 51.74$, $SD = 11.91$) was normally distributed, slightly skewed left with a -.21 skewness, and platykurtic with kurtosis of -.42.

Navon Task

Reaction times in each trial were measured in milliseconds, with a notation of whether the trial was a local or global congruent task. We calculated the median reaction time for each participant for global and local trials. We then divided participants into high-trait and low-trait anxiety groups using a mean split on their STAI-T scores. We calculated a mean global and local reaction time based on the median scores for each group and compared them using one-tailed t-tests. We conducted a t-test on median global pro-

cessing response times in milliseconds, comparing low and high trait anxiety groups to address our first hypothesis. We hypothesized that participants with high trait anxiety would have slower reaction times on global processing than those with low trait anxiety. Equality of variance was assumed $F_{(1,115)}$ = 0.979. We did not find a statistically significant difference, $t_{(115)}$ = -0.09, p = .464, d = -0.02 between our low trait anxiety (N = 58, M = 828.67, SD = 171.97) and high trait anxiety (N = 59, M = 831.60, SD = 180.98) groups in reaction times on global trials.

We also conducted a t-test on median local processing response times in milliseconds, comparing low trait and high trait anxiety groups to address our second hypothesis. We hypothesized that participants with high trait anxiety would have faster reaction times on local processing than low trait anxiety participants. Equality of variance was assumed, $F_{(1,115)}$ = .660. We did not find a statistically significant difference, $t_{(115)}$ = -1.15, p = .127, d = -0.21 between our low trait anxiety (N =58, M = 815.78, SD = 179.60) and our high trait anxiety (N = 59, M = 861.09, SD = 242.95) groups in reaction times on local trials.

Stroop Task

Lastly, we conducted a one-way ANOVA between the low state/low trait group (LL) (N = 43, M = 927.70, SD = 180.87), high state/low trait (HL) (N = 15, M = 1021.40, SD =225.63), low state/high trait (LH) (N = 22, M = 923.91, SD =177.71), and high state high trait group (HH) (N = 37, M = 942.38, SD = 162.84) on median Stroop incongruent trials. We did not find a statistically significant difference between groups, $F_{(3, 113)}$ = 1.12, p = .344. This addressed our last hypothesis, that the three groups of anxiety (HL, LH, and HH) would have slower reaction times on the incongruent trials of the Stroop task when compared to the control group (LL).

Discussion

This study explored the possible interactions between state and trait anxiety and attention in college students through performance on versions of the Navon and Stroop tasks available on PsyToolkit (Stoet, 2010, 2017). We measured the relationship of trait anxiety with global and local processing using the Navon task. We also measured the relationship between state anxiety and trait anxiety on cognitive inhibition of executive control through the Stroop task. We did not

find statistically significant results to support our three hypotheses: there was no association found between anxiety and performance on either task in this study.

Anxiety and Global/Local Processing

We hypothesized that participants with high trait anxiety would have slower reaction times on global processing trials than those with low trait anxiety. Additionally, based on previous findings, we hypothesized that participants with high trait anxiety would have faster reaction times on local processing trials than low-anxiety participants. However, our results showed no significant differences between groups on either task. Some evidence suggests the lack of a finding in our global processing t-test is not surprising (Shilton et al., 2019). There is considerable evidence from previous literature for our local processing hypothesis (Basso et al., 1996; Becker et al., 2017; Derryberry & Reed, 1998; Shilton et al., 2019).

Interestingly, although not statistically significant, our results went in the opposite direction of what was hypothesized for local processing: on average, for global trials, low trait anxiety participants (M = 828.67) had slightly faster reaction times than high trait anxiety participants (M = 831.60). For local trials, the high trait anxiety participants (M = 861.09) had slightly slower reaction times than those with low trait anxiety (M = 815.78). Our high trait anxiety participants did not display a local processing bias.

Variations between our design and previous studies may explain our findings (e.g., online study or having specific target letters). Some of the previous literature used different global and local processing paradigms (Basso et al., 1996; Shilton et al., 2019). Other variables could also explain the observed results, including variability due to uncontrolled testing environments, as participants completed the study online with no restrictions about the type of location where they completed the tasks.

There is a need to further investigate global and local processing in college samples. In a sample of undergraduate students, Tan et al. (2017) found evidence that their participants were more willing to take academic risks when globally primed than participants who were locally primed. This willingness to take more significant risks in an educational setting could lead to greater academic achievement. To our knowledge, the literature on global and local processing and academic success is sparse. One study used a global and

local processing paradigm to predict academic achievement. However, this study focuses on meta-motivation, and it was unclear how global and local processing affect academic achievement (Nguyen et al., 2023).

Another study found that in children with attention-deficit/hyperactivity disorder, the ability to shift between global and local stimuli was predictive of academic achievement. (Sjöwall & Thorell, 2014). In that same study, inhibition was also predictive of academic achievement (Sjöwall & Thorell, 2014). Additionally, the ability to efficiently process one's visual environment on the global level appears to be beneficial in understanding written communication (Woltin et al., 2012). This may translate to the ability to understand the information in a textbook while studying, suggesting that if anxiety does decrease global processing, high trait anxiety could impair reading ability while studying (Basso et al., 1996).

Anxiety and Stroop Task

We hypothesized that the HL group (M = 1021.40), LH group (M = 923.91), and the HH group (M = 942.38) would have slower reaction times on the incongruent trials of the Stroop task when compared to the LL group (M = 927.70). We found no significant impact of anxiety on response inhibition. Our groups' distributions may have contributed to our observed results (see Limitations for a more in-depth discussion). It is important to continue investigating how various factors influence executive attention. Studies have found a correlation between executive functioning and academic achievement from early childhood through college (Baars et al., 2015; Best et al., 2011).

Limitations

This study had several limitations, one of which was group dispersion. For our ANOVA, we would have preferred to have roughly 25 participants in each of our four groups. Instead, we had 43 participants in our LL group, 15 participants in our HL group, 22 participants in our LH group, and 37 participants in our HH group. This lack of dispersion may have prevented our groups from varying enough to observe any notable differences.

Collectively, our average STAI scores were roughly a standard deviation above the original normative sample (Spielberger et al., 1983). This may have contributed to a lack of lower levels of anxiety. Another limitation is the fact that we measured state anxiety without any stress induction or any way to control

it. This caused us to rely on participants already being in an anxious state when creating our groups.

The average age of participants in our study was only 19.85. Previous studies had participants ranging in age from 17 to 71. Many previous studies used participants with a wider range of ages; it is possible that age may contribute to the discrepancies between those studies and our results (Hallion et al., 2017; Pacheco-Unguetti et al., 2010; Rosa-Alcázar et al., 2021). Our study may better represent anxiety's effect on predominantly white college students between the ages of 18-25, but it may not be generalizable to other demographics or the general population. Preferably, we would have recruited more participants to allow us to exclude additional factors that may have affected their performance, such as the use of psychotropic medication, psychotherapy, and past head injury (e.g., traumatic brain injury, concussion).

As previously mentioned, the study was conducted entirely online, which limits our control of participants' machines and testing environments. Additionally, PsyToolkit versions of both tasks required the use of key inputs. This motor input might have unintentionally activated areas of the brain (Cramer et al., 1999), which would ultimately add additional variability. Despite this, Hallion et al. (2017) also used a computer-adapted version of the Stroop task and found evidence suggesting that the presence of GAD predicted Stroop task results. Previous studies that used the traditional Stroop Color Word Test design with word trials and color trials may also contribute to the observed differences (Hallion et al., 2017; Rosa-Alcázar et al., 2021).

The PsyToolkit version of the Stroop task required four different keystrokes, which might have made the task more confusing and possibly measured more than response inhibition. Additionally, we eliminated timed-out and incorrect trials, where the traditional Stroop Color Word Test asks the test taker to retry the item as the timer goes down. Our method requires the test taker to inhibit their response to every trial correctly. Differences between versions of the task may influence observed performance. We also used versions of these tasks that do not have normative data. Finally, we had more women in our high anxiety group than our low anxiety group, which could possibly impact scores.

Additionally, having a higher percentage of males in our low anxiety groups may have had an impact on the observed results. Males and females are known to

have neural structural differences (Ingalhalikar et al., 2013). Specifically, findings in other visual perception tasks that target the right parietal lobe show a difference in performance between males and females (Kalichman, 1988; Linn & Petersen, 1985). Given this, our findings on global processing, which targets the right parietal lobe, may be affected by gender differences between groups (Kimchi & Merhav, 1991).

Future Directions

In the future, studies should examine other areas we did not address, such as socioeconomic status, culture, or gender-related differences that may contribute to individual differences on these tasks. Future studies examining how emotions, mood, and anxiety may contribute to deficits in attention should consider a more general and comprehensive battery, such as tasks designed to measure the other two neural networks of attention, proposed by Posner and Petersen (1990) (alerting and orienting). In this study, only one aspect of executive attention was measured, which was response inhibition.

There are other parts of executive functioning and other tasks that measure these aspects (e.g., Tower of London, Trail Making Test, and Wisconsin Card Sorting Test) that could be used for future research (Etnier & Chang, 2009). Future studies comparing all-male to all-female participants may be beneficial in observing whether there are any gender differences in these tasks as measured by PsyToolkit. PsyToolKit is a free and readily available resource for psychological testing. This makes it ideal for use by students and others with limited funding and resources. Therefore, it is crucial to establish normative values and ecological validity for these specific versions of each task, which would enable future research and possibly clinical applications.

Conclusion

Our three hypotheses that global processing, local processing, and response inhibition would be impacted by elevated levels of anxiety were not supported. The results of this project are inconsistent with previous findings (Basso et al., 1996; Becker et al., 2017; Derryberry & Reed, 1998; Hallion et al., 2017; Pacheco-Unguetti et al., 2010; Rosa-Alcázar et al., 2021; Shilton et al., 2019). Anxiety symptoms appear prevalent in college students, and academic achievement has been observed as one of the most significant stressors in a student's life (Asher BlackDeer et al., 2021; Beiter et al., 2015).

Additionally, while not replicated in this study,

there is previous literature that suggests anxiety can harm not only attention but academic achievement, as well (Basso et al., 1996; Cassady & Johnson, 2002; Hoegler & Nelson, 2018; Pacheco-Unguetti et al., 2010; Rosa-Alcázar et al., 2021; Vitasari et al., 2010). Literature suggests that better performance on the tasks used in this study can predict academic achievement.

Future studies are needed to address the uncertainty of the effects state anxiety may have on the Stroop task, as there are mixed findings and conflicting theories about whether state anxiety is beneficial or detrimental to executive functioning (Eysenck et al., 2007; Pacheco-Unguetti et al., 2010; Ursache & Cybele Raver, 2014). Furthermore, future studies should continue to analyze the potential benefits of using software similar to PsyToolkit as a substitute for collecting data in a laboratory setting. Similarly, the clinical utility of online-based data collection of inhibitory control, global processing, and local processing should also be addressed in future research. Overall, our study did not find any statistically significant differences in the effect of anxiety on attention as measured by these two tasks. This study provides a valuable understanding of how state and trait anxiety affect performance on these two tasks as measured by PsyToolkit (Stoet, 2010, 2017) in this specific sample of students at Middle Tennessee State University.

References

Ackerman, S. (2022). *COVID-19 and Executive Functions*. [Bachelor's thesis, Eastern Kentucky University]

Albert, J., López-Martín, S., Hinojosa, J. A., & Carretié, L. (2013). Spatiotemporal characterization of response inhibition. *NeuroImage, 76*, 272-281. https://doi.org/10.1016/j.neuroimage.2013.03.011

Anjomshoae, F. (2022). *Testing Effects of Bilingualism on Inhibition, Shifting and Working Memory Ability in Adults*. [Master's thesis, University of Alberta]

Asher BlackDeer A., Patterson Silver Wolf D.A., Maguin E., & Beeler-Stinn S. (2023). Depression and anxiety among college students: Understanding the impact on grade average and differences in gender and ethnicity. *Journal of American College Health, 71*(4), 1091-1102. https://doi.org/10.1080/07448481.2021.1920954

Baars, M. A., Nije Bijvank, M., Tonnaer, G. H., & Jolles, J. (2015). Self-report measures of executive functioning are a determinant of academic performance in first-year students at a university of applied sciences. *Frontiers in Psychology, 6*, 1131. https://doi.org/10.3389/fpsyg.2015.01131

Banich, M. T., Milham, M. P., Atchley, R., Cohen, N. J., Webb, A., Wszalek, T., Kramer, A., Liang, Z., Wright, A., Shenker, J., & Magin, R. (2000). fMRI studies of Stroop tasks reveal unique roles of anterior and posterior brain systems in attentional selection. *Journal of Cognitive Neuroscience, 12*(6), 988-1000. https://doi.org/10.1162/08989290051137521

Barnes, L. L., Harp, D., & Jung, W. S. (2002). Reliability generalization of scores on the Spielberger state-trait anxiety inventory. *Educational and Osychological Measurement, 62*(4), 603-618. https://doi.org/10.1177/0013164402062004005

Basso, M., Schefft, B., Ris, M., & Dember, W. (1996). Mood and global-local visual processing. *Journal of the International Neuropsychological Society, 2*(3), 249-255. https://doi.org/10.1017/S1355617700001193

Becker, K. R., Plessow, F., Coniglio, K. A., Tabri, N., Franko, D. L., Zayas, L. V., Germine, L., Thomas, J. J., & Eddy, K. T. (2017). Global/local processing style: Explaining the relationship between trait anxiety and binge eating. *International Journal of Eating Disorders, 50*(11), 1264–1272. https://doi.org/10.1002/eat.22772

Beiter, R., Nash, R., McCrady, M., Rhoades, D., Linscomb, M., Clarahan, M., & Sammut, S. (2015). The prevalence and correlates of depression, anxiety, and stress in a sample of college students. *Journal of Affective Disorders, 173*, 90–96. https://doi.org/10.1016/j.jad.2014.10.054

Bertleff, A. J. (2022). *Automaticity in Musicians as Demonstrated by a Modified Stroop Task* [Doctoral dissertation, Kent State University].

Best, J. R., Miller, P. H., & Naglieri, J. A. (2011). Relations between executive function and academic achievement from ages 5 to 17 in a large, representative national sample. *Learning and Individual Differences, 21*(4), 327-336. https://doi.org/10.1016/j.lindif.2011.01.007

Bishop, S. J. (2009). Trait anxiety and impoverished prefrontal control of attention. *Nature Neuroscience, 12*(1), 92-98. https://doi.org/10.1038/nn.2242

Cassady, J. C., & Johnson, R. E. (2002). Cognitive test anxiety and academic performance. *Contemporary Educational Psychology, 27*(2), 270-295. https://doi.org/10.1006/ceps.2001.1094

Chaplin, T., (1989). The relationship of trait anxiety and academic performance to achievement anxiety: students at risk. *Journal of College Student Development, 30*, 229-236.

Chew, P. K. H., & Dillon, D. B. (2014). Statistics anxiety update: Refining the construct and recommendations for a new research agenda. *Perspectives on Psychological Science, 9*(2), 196–208. https://doi.org/10.1177/1745691613518077

Cramer, S. C., Finklestein, S. P., Schaechter, J. D., Bush, G., & Rosen, B. R. (1999). Activation of distinct motor cortex regions during ipsilateral and contralateral finger movements. *Journal of Neurophysiology, 81*(1), 383-387. https://doi.org/10.1152/jn.1999.81.1.383

Creamer, M., Foran, J., & Bell, R. (1995). The Beck Anxiety Inventory in a non-clinical sample. *Behaviour Research and Therapy, 33*(4), 477-485. https://doi.org/10.1016/0005-7967(94)00082-U

Dale, G., & Arnell, K. M. (2013). Investigating the stability of and relationships among global/local processing measures. *Attention, Perception, & Psychophysics, 75*, 394-406. https://doi.org/10.3758/s13414-012-0416-7

Derryberry, D., & Reed, M. A. (1998). Anxiety and attentional focusing: Trait, state and hemispheric influences. *Personality and Individual Differences, 25*(4), 745-761. https://doi.org/10.1016/S0191-8869(98)00117-2

Etnier, J. L., & Chang, Y. K. (2009). The effect of physical activity on executive function: a brief commentary on definitions, measurement issues, and the current state of the literature. *Journal of Sport and Exercise Psychology, 31*(4), 469-483. https://doi.org/10.1123/jsep.31.4.469

Eysenck, M. W., Derakshan, N., Santos, R., & Calvo, M. G. (2007). Anxiety and cognitive performance: attentional control theory. *Emotion, 7*(2), 336. https://doi-org.ezproxy.mtsu.edu/10.1037/1528-3542.7.2.336

Hallion, L. S., Tolin, D. F., Assaf, M., Goethe, J., & Diefenbach, G. J. (2017). Cognitive control in

generalized anxiety disorder: Relation of inhibition impairments to worry and anxiety severity. *Cognitive Therapy and Research, 41*(4), 610-618. https://doi.org/10.1007/s10608-017-9832-2

Heller, W., Nitschke, J. B., Etienne, M. A., & Miller, G. A. (1997). Patterns of regional brain activity differentiate types of anxiety. *Journal of Abnormal Psychology, 106*(3), 376. https://doi.org/10.1037/0021-843X.106.3.376

Hoegler, S., & Nelson, M. (2018). The Influence of anxiety and self-efficacy on statistics performance: A path analysis. *Psi Chi Journal of Psychological Research, 23*(5). https://doi.org/10.24839/2325-7342.JN23.5.364

Ingalhalikar, M., Smith, A., Parker, D., Satterthwaite, T. D., Elliott, M. A., Ruparel, K., Hakonarson, H., Gur, R., Gur, R., & Verma, R. (2014). Sex differences in the structural connectome of the human brain. *Proceedings of the National Academy of Sciences, 111*(2), 823-828. https://doi.org/10.1073/pnas.1316909110

Invernizzi, P. L., Rigon, M., Signorini, G., Colella, D., Trecroci, A., Formenti, D., & Scurati, R. (2022). Effects of varied practice approach in physical education teaching on inhibitory control and reaction time in preadolescents. *Sustainability, 14*(11), 6455. https://doi.org/10.3390/su14116455

Kalichman, S. C. (1988). Individual differences in water-level task performance: A component-skills analysis. *Developmental Review, 8*(3), 273-295. https://doi.org/10.1016/0273-2297(88)90007-X

Kim, J., Gabriel, U., & Gygax, P. (2019). Testing the effectiveness of the Internet-based instrument PsyToolkit: A comparison between web-based (PsyToolkit) and lab-based (E-Prime 3.0) measurements of response choice and response time in a complex psycholinguistic task. *PloS one, 14*(9), e0221802. https://doi.org/10.1371/journal.pone.0221802

Kimchi, R., & Merhav, I. (1991). Hemispheric processing of global form, local form, and texture. *Acta Psychologica, 76*(2), 133–147. https://doi.org/10.1016/0001-6918(91)90042-x

Kosslyn, S. M., Brown, H. D., & Dror, I. E. (1999). Aging and the scope of visual attention. *Gerontology, 45*(2), 102-9. https://doi.org/10.1159/000022071

Linn, M. C., & Petersen, A. C. (1985). Emergence and characterization of sex differences in spatial ability: A meta-analysis. *Child Development, 56*(6), 1479-1498. https://doi.org/10.2307/1130467

Milham, M. P., Banich, M. T., Claus, E. D., & Cohen, N. J. (2003). Practice-related effects demonstrate complementary roles of anterior cingulate and prefrontal cortices in attentional control. *Neuroimage, 18*(2), 483-493. https://doi.org/10.1016/S1053-8119(02)00050-2

Miyake, A., Friedman, N. P., Emerson, M. J., Witzki, A. H., Howerter, A., & Wager, T. D. (2000). The unity and diversity of executive functions and their contributions to complex "Frontal Lobe" tasks: A latent variable analysis. *Cognitive Psychology, 41*(1), 49–100. https://doi.org/10.1006/cogp.1999.0734

Najmi, S., Kuckertz, J. M., & Amir, N. (2012). Attentional impairment in anxiety: inefficiency in expanding the scope of attention. *Depression and Anxiety, 29*(3), 243-249. https://doi.org/10.1002/da.20900

Navon, D. (1977). Forest before trees: The precedence of global features in visual perception. *Cognitive Psychology, 9*(3), 353–383. https://doi.org/10.1016/0010-0285(77)90012-3

Nayar, K., Franchak, J., Adolph, K., & Kiorpes, L. (2015). From local to global processing: the development of illusory contour perception. *Journal of Experimental Child Psychology, 131*, 38–55. https://doi.org/10.1016/j.jecp.2014.11.001

Nguyen, T., Scholer, A. A., Miele, D. B., Edwards, M. C., & Fujita, K. (2023). Predicting academic performance with an assessment of students' knowledge of the benefits of high-level and low-level construal. *Social Psychological and Personality Science, 14*(2), 195-206. https://doi.org/10.1177/19485506221090051

Owens, M., Stevenson, J., Hadwin, J. A., & Norgate, R. (2012). Anxiety and depression in academic performance: An exploration of the mediating factors of worry and working memory. *School Psychology International, 33*(4), 433-449. https://doi.org/10.1177/0143034311427433

Pacheco-Unguetti, A. P., Acosta, A., Callejas, A., & Lupiáñez, J. (2010). Attention and anxiety: Different attentional functioning under state and trait anxiety. *Psychological science, 21*(2), 298-304. https://doi.org/10.1177/0956797609359624

Posner, M. I., & Petersen, S. E. (1990). The attention

system of the human brain. *Annual Review of Neuroscience, 13*(1), 25–42. https://doi.org/10.1146/annurev.ne.13.030190.000325

Posner, M.I., Rueda, M.R., & Kanske, P. (2007). Probing the mechanisms of attention. In J.T. Cacioppo, J.G. Tassinary & G.G. Berntson (eds), *Handbook of Psychophysiology*, Third Edition. Cambridge U.K.: Cambridge University Press (pp 410-432).

Rosa-Alcázar, A. I., Rosa-Alcázar, Á., Martínez-Esparza, I. C., Storch, E. A., & Olivares-Olivares, P. J. (2021). Response Inhibition, Cognitive Flexibility and Working Memory in Obsessive-Compulsive Disorder, Generalized Anxiety Disorder and Social Anxiety Disorder. *International Journal of Environmental Research and Public Health, 18*(7), 3642. https://doi.org/10.3390/ijerph18073642

Rueda, M. R., Posner, M. I., & Rothbart, M. K. (2016). The development of executive attention: Contributions to the emergence of self-regulation. In *Measurement of Executive Function in Early Childhood* (pp. 573-594). Psychology Press.

Saviola, F., Pappaianni, E., Monti, A., Grecucci, A., Jovicich, J., & De Pisapia, N. (2020). Trait and state anxiety are mapped differently in the human brain. *Scientific Reports, 10*(1), 1-11. https://doi.org/10.1038/s41598-020-68008-z

Shilton, A. L., Laycock, R., & Crewther, S. G. (2019). Different effects of trait and state anxiety on global-local visual processing following acute stress. Cognition, Brain, Behavior. *An Interdisciplinary Journal, 23*(3), 155–170. https://doi.org/10.24193/cbb.2019.23.09

Sjöwall, D., & Thorell, L. B. (2014). Functional impairments in attention deficit hyperactivity disorder: the mediating role of neuropsychological functioning. *Developmental Neuropsychology, 39*(3), 187-204. https://doi.org/10.1080/87565641.2014.886691

Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R., & Jacobs, G. A. (1983). *Manual for the State-Trait Anxiety Inventory*. Palo Alto, CA: Consulting Psychologists Press.

Stoet, G. (2010). PsyToolkit - A software package for programming psychological experiments using Linux. *Behavior Research Methods, 42*(4), 1096-1104. https://doi.org/10.3758/BRM.42.4.1096

Stoet, G. (2017). PsyToolkit: A novel web-based method for running online questionnaires and reaction-time experiments. *Teaching of Psychology, 44*(1), 24-31. https://doi.org/10.1177/0098628316677643

Strauss, G. P., Allen, D. N., Jorgensen, M. L., & Cramer, S. L. (2005). Test-retest reliability of standard and emotional Stroop tasks: an investigation of color-word and picture-word versions. *Assessment, 12*(3), 330-337. https://doi.org/10.1177/1073191105276375

Stroop, J. R. (1935). Studies of interference in serial verbal reactions. *Journal of Experimental Psychology, 18*(6), 643-662. https://doi.org/10.1037/h0054651

Tan, E. W., Lim, S. W. H., & Manalo, E. (2017). Global-local processing impacts academic risk taking. *Quarterly Journal of Experimental Psychology, 70*(12), 2434-2444. https://doi.org/10.1080/17470218.2016.1240815

Tsujimoto, S. (2008). The prefrontal cortex: Functional neural development during early childhood. *The Neuroscientist, 14*(4), 345-358. https://doi.org/10.1177/1073858408316002

Tyler, S. K., & Tucker, D. M. (1982). Anxiety and perceptual structure: individual differences in neuropsychological function. *Journal of Abnormal Psychology, 91*(3), 210. https://doi-org.ezproxy.mtsu.edu/10.1037//0021-843x.91.3.210

Ursache, A., & Raver, C. C. (2014). Trait and state anxiety: Relations to executive functioning in an at-risk sample. *Cognition & Emotion, 28*(5), 845-855. https://doi.org/10.1080/02699931.2013.855173

Utamatanin, N., & Pariwatcharakul, P. (2022). The Effect of Caffeine and Sleep Quality on Military Pilot Students' Flight Performance-Related Cognitive Function. *The International Journal of Aerospace Psychology, 32*(2-3), 152-164. https://doi.org/10.1080/24721840.2022.2034505

Veroude, K., Jolles, J., Knežević, M., Vos, C. M., Croiset, G., & Krabbendam, L. (2013). Anterior cingulate activation during cognitive control relates to academic performance in medical students. *Trends in Neuroscience and Education, 2*(3-4), 100-106. https://doi.org/10.1016/j.tine.2013.10.001

Vitasari, P., Wahab, M. N. A., Othman, A., Herawan, T., & Sinnadurai, S. K. (2010). The relationship between study anxiety and academic performance

among engineering students. *Procedia-Social and Behavioral Sciences, 8*, 490-497. https://doi.org/10.1016/j.sbspro.2010.12.067

Woltin, K. A., Corneille, O., & Yzerbyt, V. Y. (2012). Improving communicative understanding: The benefits of Global Processing. *Journal of Experimental Social Psychology, 48*(5), 1179–1182. https://doi.org/10.1016/j.jesp.2012.03.004

Adverse Childhood Experiences and Familial Factors in Adolescent Suicidality

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Purpose: Adverse childhood experiences (ACEs) are risk factors for adolescent suicidal ideation (SI), but the influence of immediate family factors on this association remains understudied. This study examines how family functioning (FF) and perceived parental criticism (PPC) moderate the relationship between ACEs and SI. **Methods:** 46 community-based adolescents between the ages of 15 and 19 (M_{age} = 17.43 years, 69.57% female) participated in a study examining cognitive risk factors for SI. Several self-report measures were administered: the Suicidal Ideation Questionnaire to assess SI severity, the Adverse Childhood Experiences Questionnaire to measure ACEs, the McMaster Family Assessment Device – General Functioning Scale to evaluate FF, and the Perceived Criticism Measure to determine PPC. **Results:** Neither the presence (β = .26, p = .09) nor the count of ACEs (β = .24, p = .12) significantly predicted SI severity. SI severity was significantly associated with specific ACEs such as emotional abuse, emotional neglect, and mental illness or suicide attempts in the household (β = .39-.65, p = .00-.04), but not with others (β = -.21-.40, p = .08-.99). Furthermore, FF (β = .28, p < .01) and PPC (β = .19, p =.04) independently moderated the association between ACEs and SI severity, while their combined interaction was not significant (β = -.03, p = .74). **Conclusion:** Specific ACEs predicted SI severity. Moreover, lower FF and higher PPC independently amplified the impact of ACEs on SI severity in adolescents, highlighting the need for interventions that enhance FF and address PPC to mitigate adolescent suicide risk.
Keywords: Suicide, Adolescent, Adverse Childhood Experiences, Family Functioning, Perceived Parental Criticism

Suicide is a major public health concern across the lifespan (Centers for Disease Control and Prevention [CDC], 2023). In particular, adolescents between the ages of 10 and 19 are especially vulnerable, with suicide ranking as the second leading cause of death in this age group in the United States (American Academy of Child and Adolescent Psychiatry [AACAP], 2019). In this developmental stage, parents or primary caregivers have a unique psychosocial influence, as children are legally, emotionally, and developmentally dependent on them (Armsden & Greenberg, 1987; Delgado et al., 2022; Moretti & Peled, 2004). For this reason, when examining adolescent suicidal thoughts and behaviors (STBs; e.g., suicide attempts, suicidal ideation, and suicide plan), familial factors are often considered (Cha et al., 2018; Shain et al., 2016; Wang et al., 2022). Furthermore, efforts are often made to include parents and families in treating depressed and suicidal youth, and parents can play a key role in connecting youth with mental healthcare services (Adrian et al., 2023; Curry, 2001; Diamond et al., 2003; Sander & McCarty, 2005).

Suicide is a multifaceted phenomenon shaped by the interplay of diverse risk and protective factors (De Berardis et al., 2018). Among various risk and protective factors, the current study focuses on the following: suicidal ideation (SI), adverse childhood experiences (ACEs), family functioning (FF), and perceived parental criticism (PPC).

Suicidal Ideation

Suicidal ideation (SI) refers to the contemplation of suicide with or without the intent, or hope for death by self-inflicted means (De Leo et al., 2021). Individuals experiencing SI may have varying degrees of intensity and frequency in these thoughts, ranging from fleeting wishes to die without the intention of engaging in corresponding behaviors (i.e., passive SI) to current, persistent, suicidal thoughts with detailed plans (i.e., active SI; Harmer et al., 2024). This construct is a well-established risk factor for suicide and is prevalent among youth (Buitron et al., 2016; Chu et al., 2015; Saffer et al., 2015). Specifically, approximately 22% of female and 12% of male high school students in the United States have contemplated suicide (Kann et al., 2018). While some research suggests that SI alone (i.e., SI without specific plans, intent, actual preparatory behaviors, or access to lethal means) may not indicate high suicide risk (Joiner et al., 2003), it remains a significant risk factor as individuals who have expressed thoughts of killing oneself has a higher risk of completing suicide than people who had not (Hubers et al., 2018). Thus, the severity of SI plays a crucial role in risk formulation for both adolescents and adults.

Adverse Childhood Experiences

Adverse childhood experiences (ACEs) refer to potentially traumatic and stressful life events or circumstances

that occur during childhood or adolescence, which can have lasting negative effects on an individual's well-being (Sahle et al., 2022). These adverse experiences typically encompass various events that can be classified into three categories: abuse (i.e., physical, emotional, or sexual), neglect (i.e., physical or emotional), and household dysfunction (i.e., substance abuse or mental health issues in the family, domestic violence, incarceration, or parental separation; Sahle et al., 2022). The association between ACEs and the severity of SI and suicide attempts has been consistently demonstrated in both community and high-risk adolescent samples (Dunn et al., 2013; Miller et al., 2013; Sahle et al., 2017).

In a nationally representative sample of 10,914 participants, the cumulative lifetime counts of ACEs influenced the prevalence of SI and suicide attempts in adulthood (Thompson & Kingree, 2022). Specifically, one ACE increased the odds of endorsing active SI by 1.5 times, two ACEs increased the odds of SI by 2 times and a suicide attempt by 3 times, and three ACEs increased the odds of SI by 3 times and a suicide attempt by 5 times. Notably, interventions such as parenting education, mental health counseling, social service referrals, and social support are shown to effectively reduce behavioral and mental health problems in children who have experienced such potentially traumatic events (Marie-Mitchell & Kostolansky, 2019).

Family Functioning

Various family-related variables have been recognized as both protective and risk factors in adolescent suicidality (Wang et al., 2022). Family cohesion and the adolescent-parent connection were identified as protective factors against the current SI turning into later suicide attempts (Shain et al., 2016; Sun et al., 2020). In a study involving 852 Chinese outpatient adolescents and adults, parental emotional warmth and less punitive mothers were recognized to be protective against the development of STBs (Wang et al., 2022).

On the contrary, negative family functioning (FF), impaired parent-child relationships, family breakdown, low paternal attachment, apathetic and severe child-rearing style, adolescents not talking to family adults about concerns, domestic violence, arguing at home, low familial adaptability and cohesion, and low parental care have been identified as significant risk factors (Ohtaki et al., 2019; Saffer et al., 2015; Shain et al., 2016; Sheftall et al., 2013; Wang et al., 2022;; Weissinger et al., 2023). Among 5,557 adolescents in Hong Kong aged 11 to 18, lower levels of family functioning and parent–adolescent communication were significantly associated with depression and suicidal ideation (Kwok & Shek, 2011). Notably, the improvement of interpersonal relation-

ships with family members has been identified as a helpful recovery factor following SI (Grimmond et al., 2019).

Perceived Parental Criticism

Perceived parental criticism (PPC) is a construct in expressed emotion literature (i.e., critical or hostile attitudes expressed by family members or caregivers toward a person with a psychiatric disorder) that has a crucial role in family relationships (Hooley & Miklowitz, 2017). In adolescents, PPC captures how much parental criticism is perceived, internalized, and affects the individual. It is hypothesized that PPC has an impact on SI and suicide attempts through its connection to constructs in the interpersonal theory of suicide (Chu et al., 2017), such as thwarted belongingness or perceived burdensomeness (Hagan & Joiner, 2017).

Adolescence, a developmental stage from ages 10 to 19, is characterized by the emergence of independence, the development of sexuality, the formation of new meaningful relationships, and accompanying vulnerabilities (Berenbaum et al., 2015; Remschmidt, 1994; World Health Organization [WHO], 2025). During this crucial and delicate period, adolescents' sensitivity to parental criticism may intensify their feelings of loneliness or distort their perception of their worth to others. For instance, when parental criticism is interpreted as rejection or disapproval of their inherent value, it can undermine their sense of belonging within the family. Moreover, if adolescents begin to view themselves as a burden as a result of PPC, this perception may reinforce feelings of burdensomeness, increasing the risk of suicidal ideation or self-destructive behaviors. Thus, the importance of protective social networks and trusted adults during this period has been highlighted by many (Pringle et al., 2018).

However, there are conflicting findings on the association between PPC and suicidality. Some studies report PPC as a significant indicator of depression, SI, and suicide attempt (Hagan & Joiner, 2017; Muyan & Chang, 2015; Rapp et al., 2021; Wang et al., 2017), while others suggest that PPC only has an indirect effect on non-suicidal self-injury (NSSI) through self-criticism (Baetens et al., 2015), or find no significant association between NSSI and PPC altogether (Daly & Willoughby, 2019). Further investigation is warranted to clarify the association between PPC and adolescent suicidality.

Aims and Hypotheses

Previous research has established that SI, ACEs, FF, and PPC individually contribute to adolescent suicidality. Although the predictive relationship between ACEs and SI is well established, the moderating influence of FF and PPC on this association remains largely unexplored. By delving into the moderating effects of FF and PPC, we aim to identify

nuanced pathways through which ACEs may or may not translate into SI later in adolescence. Since the family environment plays a pivotal role in adolescents' emotional and psychological development, investigating these interactions can offer insights into how familial factors exacerbate or mitigate the risk of adolescent suicidality in the presence of ACEs.

Thus, the current study examines how ACEs predict the severity of SI in adolescents, and to what extent this association is moderated by FF and PPC. Understanding this intricate relationship may offer valuable insights into protective and risk factors of adolescent suicidality, contributing to the design of targeted interventions and support systems for at-risk youth.

First, this study will investigate the association between ACEs and the severity of SI in adolescents, positing the following hypotheses: Hypothesis 1a: Adolescents with at least one ACE will endorse a higher severity of SI than those without ACEs. Hypothesis 1b: Subcategories of ACEs will correspond with SI severity in adolescents, such that those adolescents with a history of each type of ACE report more severe SI than their respective non-ACE comparison group. Hypothesis 1c: A higher count of ACEs will predict a higher severity of SI in adolescents.

Second, the moderating effects of FF and PPC on the association between ACEs and the severity of SI in adolescents will be examined. The following hypotheses are posited: Hypothesis 2a: ACEs will be more strongly associated with SI severity among adolescents with lower FF. Hypothesis 2b: ACEs will be more strongly associated with SI among adolescents with higher PPC. Hypothesis 2c: ACEs will be more strongly associated with SI among adolescents with higher PPC and lower FF.

Methods

Sample

Participants were recruited from the urban community in the greater New York metropolitan area via in-person (e.g., street fairs and flyers) and online (e.g., social media advertisement and ResearchMatch) recruitment efforts for a study examining cognitive risk factors associated with SI. Post-baccalaureate- and masters-level research assistants conducted screenings via phone to determine eligibility. Eligibility was determined based on the presence of STBs in adolescence, while (1) challenges in the adolescent's and parent/guardian's understanding of informed consent and study procedure, (2) self-disclosure of immediate suicidal intent, (3) the occurrence of violent and agitated behaviors, (4) limited proficiency in the English language, and (5) psychiatric symptoms of adolescents which would hinder consent or participation in the study were used as grounds for exclusion.

Out of 176 community-based adolescents who enrolled in the study, 46 completed the Adverse Childhood Experience Questionnaire (ACE-Q). Relatively few adolescents completed the ACE-Q because its administration was discontinued mid-study in an effort to shorten the baseline protocol. Thus, only this subgroup of adolescents ($n = 46$) between the ages of 15 and 19 ($M_{age} = 17.43$ years, 69.6% female; Table 1) was analyzed. The participants were racially diverse, with 45.7% identifying as white, 23.9% identifying as Black or African American, 21.7% identifying as Asian, and 4.3% identifying as multiracial or other. Additionally, 17.4% of the adolescents identified as Hispanic. The majority (67.4%) of the adolescents reported heterosexual sexual orientation, followed by bisexual (19.6%), homosexual (8.7%), questioning (2.2%), and other (2.2%).

Measures

Suicidal Ideation Questionnaire (SIQ)

The severity of both passive and active suicidal ideation in adolescents over the past month was assessed using the SIQ (Reynolds, 1987), a 30-item self-report measure rated on a seven-point Likert scale (0 = "I never had this thought," 6 = "Almost every day"). An elevated score on the SIQ suggests a frequent and pervasive presence of SI (Boege et al., 2014). The SIQ is scored by summing responses to each question, and a score of 41 or higher is considered clinically significant. The SIQ was validated among 226 adolescents aged 13 to 18 years, with a Cronbach's $\alpha = .98$ (Pinto et al., 1997).

Adverse Childhood Experiences Questionnaire (ACE-Q)

The ACE-Q (Felitti et al., 1998) was administered to assess and quantify adverse or traumatic experiences encountered throughout the participants' lifetime. The ACE-Q consists of 10 yes-no items and addresses the following domains: emotional, physical, and sexual abuse, emotional and physical neglect, parental separation, domestic violence, household substance abuse, mental illness or suicide attempts in the household, and incarceration of family members. Moreover, scores of four or higher (i.e., the presence of four or more distinct ACEs) are deemed clinically significant. A high ACE-Q score has been associated with an increased risk for depression, suicide attempts, smoking, drug abuse, adolescent pregnancy, and impaired work performance in adulthood (Anda et al., 2004; Dube et al., 2003; Edwards et al., 2007; Felitti et al., 1998; Hillis et al., 2004). This questionnaire has been validated among 79 adolescents, with intraclass correlation coefficient values exceeding or being equal to .65 (i.e., good to excellent agreement) across all 10 items (Pinto et al., 2014).

McMaster Family Assessment Device – General Functioning Scale (FAD-GF)

The McMaster Family Assessment Device (FAD; Epstein et al., 1983) is a 60-item self-report questionnaire that assesses an individual's perception of their family across domains of problem-solving, communication, roles, affective responsiveness, affective involvement, behavior control, and general functioning. Each item is scored on a four-point Likert scale ranging from "Strongly Agree" to "Strongly Disagree." In the current study, only 12 questions from the general functioning domain were utilized to gauge adolescents' perceptions of how their families work together on essential tasks (Byles et al., 1988). Lower scores on the FAD-GF indicate better general FF, and it has been validated for standalone use in 1,869 families with children between 4 to 16 years of age (Cronbach's α = .86; Byles et al., 1988).

Perceived Criticism Measure (PCM)

Two items from the Perceived Criticism Measure (PCM; Hooley & Teasdale et al., 1989) were employed to assess adolescent's PPC (i.e., "*How critical do you think your parent or guardian is of you?*" and "*When your parent or guardian criticizes you, how upset do you get?*"). Each item is scored on a 10-point Likert scale ranging from "not at all critical" to "very critical." Responses to these two items were summed to derive the total PCM score for analysis. The PCM has robust test-retest reliability ($r = .75$) over a five-month period (Hooley & Teasdale et al., 1989). Some argue that the construct and assessment of the PCM merely reflect negatively biased perceptions influenced by individuals' moods. However, it was observed that the PCM scores did not change significantly after successful positive and negative mood inductions in 150 undergraduate students ($r = -.12$ and $r = -.09$, respectively; Gerlsma et al., 2014).

Procedure

Adolescents and their families who met the eligibility criteria participated in assessments during an initial laboratory visit and subsequent follow-up evaluations conducted online via email at 3 and 6 months. Compensation included a $35 gift card for baseline assessments, with opportunities to win $50 and $100 gift cards in raffles for completing the 3- and 6-month follow-ups, respectively. Notably, the final 18.75% of the total 176 participants ($n = 33$) completed baseline visits virtually due to the impact of the COVID-19 pandemic. Furthermore, suicidal participants who were recruited during the pandemic indicated elevated levels of SI severity when contrasted to suicidal participants recruited before the onset of the pandemic ($R^2 = .04$; $p = .04$). However, data collection for the 46 participants under examination in this study occurred before the pandemic, with the last participant completing the baseline visit on December 8th, 2018. Thus, this difference in the severity of SI in suicidal adolescents did not impact current analyses. All study procedures were approved by the Institutional Review Board at Teachers College, Columbia University.

Statistical Analyses

All analyses were conducted with Statistical Package for the Social Sciences (SPSS; version 29; IBM SPSS Inc., Chicago, Illinois).

Linear Regression

To examine whether adolescents with at least one ACE will endorse a higher severity of SI than those without ACEs (Hypothesis 1a), linear regression was utilized. Given the slightly right-skewed distribution of both SI and ACEs, linear regression was chosen for analysis due to its robustness against mild violations of assumptions (Ernst & Albers, 2017). Adolescents with a score of one or more on the ACE-Q were assigned to the *ACEs group*, while those with a score of zero on the ACE-Q were assigned to the *non-ACES group*. Subsequently, the analysis was completed while examining this dichotomous classification of ACEs as an independent variable and the severity of SI as a dependent variable.

Furthermore, linear regression was employed to examine whether subcategories of ACEs corresponded with SI severity in adolescents, such that adolescents with a history of each type of ACE reported more severe SI than their respective non-ACE comparison group (Hypothesis 1b). 10 discrete linear regressions were conducted between individual items in ACE-Q and the severity of SI. Linear regression was employed once more to assess whether a higher count of ACEs predicted a higher severity of SI in adolescents (Hypothesis 1c). This potential predictive relationship was assessed by examining the total score of ACE-Q as an independent variable and the total score of SIQ as a dependent variable.

Moderation Analysis

PROCESS Macro version 4.2 (Hayes, 2022) was used to conduct moderation analysis while examining ACEs as an independent variable, severity of SI as a dependent variable, and FF and PPC as discrete and composite moderators. PROCESS is an observed variable, Ordinary Least Squares (OLS), and logistic regression path analysis modeling tool, often used in the fields of social, business, and health sciences. It supports both mediation and moderation analyses by generating 5000 bootstrapped samples, automatically mean-centering continuous variables, establishing product terms, and presenting confidence intervals.

Results

Demographic Characteristics

Participants with at least one ACE accounted for approximately 67% (n = 31) of the sample. Furthermore, around 13% (n = 6) of the sample indicated experiencing four or more ACEs (i.e., clinically significant levels) in their lifetime. In terms of ACEs, this sample was representative of the population as approximately 64% of U.S adults report having at least one ACE, and 17% report having four or more ACEs (Swedo et al., 2023).

Hypothesis 1a: Adolescents with at least one ACE will endorse a higher severity of SI than those without ACEs.

There was no significant association between the history of ACE (i.e., presence of at least one ACE vs. no ACE) and SI severity ($ß$ = 0.26, p = .09).

Hypothesis 1b: Subcategories of ACEs will correspond with SI severity in adolescents, such that those adolescents with a history of each type of ACE report more severe SI than their respective non-ACE comparison group.

Out of 10 subcategories of ACEs measured by ACE-Q, a significant regression was found in emotional abuse ($ß$ = 0.49, p = .01; Table 2), emotional neglect ($ß$ = 0.65, p < .001), and mental illness or suicide attempt in the household ($ß$ = 0.39, p = .04) with severity of SI. For emotional abuse, R^2 = 0.24, indicating that emotional abuse explained approximately 24% of the variance in SI severity. In the case of emotional neglect, R^2 = 0.43, signifying that approximately 43% of the variability in SI severity can be accounted for by emotional neglect. For mental illness or suicide attempt in the household, R^2 = 0.15, indicating that being in a household with a family member who has a mental illness or who has made a suicide attempt explained 15% of the variance in SI severity. On the contrary, no significant regression was observed for physical abuse ($ß$ = 0.37, p = .08), sexual abuse ($ß$ = 0.40, p = .09), physical neglect ($ß$ = 0.22, p = .40), parental separation ($ß$ = -0.02, p > .99), witnessing domestic violence ($ß$ = 0.29, p = .20), household substance and alcohol abuse ($ß$ = -0.21, p = .40), and incarceration of household members ($ß$ = 0.39, p = .10).

Hypothesis 1c: A higher count of ACEs will predict a higher severity of SI in adolescents.

There was no significant association between the count of ACEs and the severity of SI in adolescents ($ß$ = 0.24, p = .12).

Hypothesis 2a: ACEs will be more strongly associated with SI severity among adolescents with lower FF.

The moderation analysis revealed that approximately 68% of the variability in SI severity in adolescents was predicted by ACEs and FF (R^2 = 0.68, F(3, 20) = 13.90, p < .001; Table 3). Additionally, the results indicated that ACEs ($ß$ = 0.21, p = .04) had a significant positive effect on SI severity. While FF did not have significant effects on SI severity independently ($ß$ = 0.19, p = .12), it was revealed that there was a significant interaction between ACEs and FF ($ß$ = 0.28, p < .01). This significant interaction indicated that FF moderated the effect of ACEs on SI severity.

This moderating effect is displayed in Figure 1. The graph demonstrates that the association between ACEs and SI severity is stronger for adolescents with lower FF ($ß$ = 0.49, p < .01; Table 4), and weaker for adolescents who have moderate FF ($ß$ = 0.20, p = .04). Furthermore, the graph suggested that ACEs had a negative impact on the severity of SI for adolescents with high FF. Specifically, adolescents in the high ACEs group within the high FF category endorsed lower SI than those in the low ACEs group. However, this decline in SI within the high FF group was not found to be statistically significant upon further investigation ($ß$ = -0.08, p = .46). In interpreting this result, it should be noted that a significant correlation was found between ACEs and FF (r(25) = .48, p = .02). Upon further investigation, it was revealed that only one subcategory of ACEs was correlated to FF (i.e., emotional abuse; r(23) = .55, p < .01). To address the potential issues of multicollinearity both ACEs and FF were mean-centered. This pre-processing step aimed to reduce the correlation between ACEs and FF, enhancing the precision of the results and contributing to a more reliable examination of their relationship (Iacobucci et al., 2017).

Hypothesis 2b: ACEs will be more strongly associated with SI among adolescents with higher PPC.

Approximately 47% of the variability in SI severity in adolescents was predicted by ACEs and PPC (R^2 = 0.47, F(3, 22) = 6.42, p < .01; Table 3). The results indicated that both ACEs ($ß$ = 0.48, p < 001) and PPC ($ß$ = 0.29, p = .02) had a significant positive effect on SI severity. Furthermore, there was a significant interaction between ACEs and PPC ($ß$ = 0.19, p = .04), indicating that PPC moderated the effect of ACEs on the severity of SI. Figure 2 visualizes this interaction. The prevalence of ACEs exhibited a significant positive impact on the severity of SI within all three groups of PPC, with the most pronounced association observed among adolescents with high PPC ($ß$ = 0.67, p < .01; Table 5). A less pronounced association was observed for adolescents with moderate levels of PPC ($ß$ = 0.47, p < .001), followed by adolescents with low PPC ($ß$ = 0.28, p = .01). A significant correlation between ACEs and PPC was not observed (r(23) = -0.29, p = .15).

Hypothesis 2c: ACEs will be more strongly associated with SI among adolescents with higher PPC and lower FF.

This model explained approximately 72% of the variability in SI severity ($R^2 = 0.72$, $F(4, 19) = 5.89$, $p < .01$; Table 3). The analysis revealed that ACEs ($\beta = 0.18$, $p = .38$), PPC ($\beta = 0.12$, $p = .29$), and FF ($\beta = 0.17$, $p = .41$) did not have a significant independent effect on the severity of SI. Interactions between ACEs x PPC ($\beta = -0.11$, $p = .41$), PPC x FF ($\beta = 0.06$, $p = .64$), and ACEs x PPC x FF ($\beta = -0.03$, $p = .77$) were also not found to be significant. Nonetheless, the interaction between ACEs and FF remained significant ($\beta = 0.32$, $p = .02$).

The interactions are visualized in Figure 3. The figure showed that ACEs had a negative impact on the severity of SI for adolescents with high FF, irrespective of varying levels of PPC. However, upon further investigation, these interactions were not significant (i.e., High FF x Low PPC ($\beta = -0.06$, $p = .72$; Table 6), High FF x Moderate PPC ($\beta = -0.15$, $p = .60$), High FF x High PPC ($\beta = -0.23$, $p = .58$). Lastly, out of nine slopes visualized in Figure 3, two showed significant associations: Low PPC x Low FF ($\beta = 0.64$, $p = .01$; Table 6) and Moderate PPC x Low FF ($\beta = 0.50$, $p = .01$).

Discussion

The current study examined how ACEs predict the severity of SI in adolescents, and to what extent this relationship was moderated by familial factors such as FF and PPC. The results indicated that low FF and high PPC independently exacerbated the impact of childhood adversity on the severity of adolescent SI. This moderating effect, however, was not observed when examining FF and PPC compositely. Furthermore, specific forms of ACEs were significantly associated with the severity of SI in adolescents. Nonetheless, the presence and counts of ACEs were not significantly associated with the severity of SI.

Moderating Role of FF and PPC

As hypothesized, ACEs were more strongly associated with SI among adolescents who had lower FF. This finding suggests that the combined impact of ACEs and lower FF exacerbates the risk of SI in adolescents. Visualizing the moderating effects of FF revealed intriguing patterns (Figure 1). Prior to conducting post hoc analysis, positive associations between the count of ACEs and severity of SI were expected for all three groups of FF (i.e., low, moderate, and high). Indeed, this pattern was observed among adolescents in both low- and moderate-FF groups.

Although the impact was more pronounced in the low FF group than the moderate FF group, this finding indicated that adolescents with moderate FF face comparable risks to those with low FF. Given that not talking to family adults about concerns or lacking a trusted adult in one's life has

been linked to an elevated risk of teen suicidality (Weissinger et al., 2023), it is plausible that adolescents from families with low and moderate functioning may not perceive their parents or guardians as trusted adults with whom they can discuss concerns when experiencing potentially traumatic life events. This inability to openly share the experiences of adverse events could exacerbate SI among adolescents and prevent them from receiving timely and appropriate help.

In contrast, the opposite trend was observed in the high FF group; the severity of SI decreased as the count of ACEs increased. This unanticipated trajectory can be attributed to several plausible explanations. In families with high FF, children may generally perceive their parents or guardians as trusted adults and be more inclined to seek help from them when faced with potentially traumatic events. Additionally, families characterized by high general FF may be better equipped to provide appropriate assistance when adolescents experience crises and reach out for help. Adolescents' willingness to seek help, coupled with the family's competency in providing necessary support, may act as a buffer against the exacerbation of SI associated with childhood adverse events.

Furthermore, the increased severity of SI observed in adolescents with fewer ACEs within the high FF group could be attributed to these adolescents perceiving their few ACEs as not substantial enough to justify seeking help, despite the less apparent but surely debilitating negative consequences of ACEs. As the count of ACEs rises, adolescents may feel more justified and validated in seeking support from their families, which can diminish the detrimental effects of ACEs. However, the downward trend observed in the high FF group should be interpreted with caution, as the slopes are not statistically significant (Table 4).

As predicted, ACEs were more strongly associated with SI among adolescents with higher PPC. This finding suggests that the risk of SI is exacerbated when ACEs are conjoined with a higher level of adolescents' perception of parental criticism. As visualized in Figure 2, across all varying levels of PPC, the severity of SI increased as ACEs experienced by adolescents increased. The most prominent association was observed in the high PPC group, followed by the moderate, and then the low PPC groups.

There may be several reasons why higher levels of PPC intensify the association between adverse events in childhood and SI in adolescence. Parental criticism is associated with the development of internalizing symptoms (i.e., sadness, anxiety, and loneliness) in children (Ahmadzadeh et al., 2022; Ehrenreich & Underwood, 2016). In a longitudinal study conducted by Piqueras and colleagues (2019), inter-

nalizing symptoms (e.g., symptoms of depression) had a significant association with current suicidal behaviors in 239 adolescents. Given this body of research, it can be speculated that persistent parental criticisms may significantly shape adolescents' self-perception. The internalization of critical messages from a caregiver may lead to the cultivation of a more pessimistic self-view. This curtailed self-esteem in youth may intensify feelings of thwarted belongingness and perceived burdensomeness (Eades et al., 2019). Thus, adolescents may experience heightened feelings of isolation and a diminished sense of emotional support from their parents. Consequently, both thwarted belongingness and perceived burdensomeness can compound emotional distress, amplifying the impact of ACEs and further elevating the risk of adolescent STBs (Ogrodniczuk et al., 2023; Roeder & Cole, 2019).

Given that PPC is a construct designed to gauge adolescents' perception of parental criticism, there is ambiguity regarding its direct correlation with the frequency or actual intensity of criticism received. It is conceivable that PPC does not solely reflect the objective frequency or severity of parental reproach, but rather encompasses a subjective element influenced by individual interpretations. This suggests that certain adolescents may be more prone to interpreting their parents' feedback as highly critical, irrespective of the actual tone or intention of such expressions. Likewise, it is plausible that certain adolescents exhibit greater resilience in the face of potentially unwarranted and harsh parental criticism. While PPC captures external factors (i.e., how critical the parents are), it also encompasses the subjective filters through which adolescents interpret and process parental behaviors.

Finally, there was insufficient evidence to conclude that FF and PPC compositely moderate the association between ACEs and adolescent SI. Thus, we could not conclude that ACEs are more strongly associated with SI among adolescents with both lower FF and higher PPC. Since FF and PPC independently moderated the association between ACEs and adolescent SI, the absence of a significant result in evaluating FF and PPC as composite moderators raises questions. Potentially, the interplay between FF, PPC, ACEs, and SI may have been more complex than initially hypothesized. It is also possible that other variables or interactions that were not accounted for in the study design could have contributed to the observed outcomes.

In this composite model, while all other interactions were not significant, the interaction between ACEs and FF remained significant, once again validating the finding in Hypothesis 2a. This finding becomes clearer when inspecting Figure 3. Among the nine interactions depicted in the figure, statistical significance was exclusively observed in the interactions involving the low FF group (i.e., low FF x low PPC and low FF x moderate PPC). This illustrates the pivotal role of FF as a moderating variable in the complex interplay between adverse events in childhood and SI in adolescence.

Moreover, the intriguing pattern depicted in Figure 1 reemerged in Figure 3. The figure displayed that ACEs had a negative impact on the severity of SI for adolescents with high FF, irrespective of varying levels of PPC. Once again, this suggested that adolescents in the high ACEs group with high FF endorsed lower SI than those in the lower ACEs group. While these interactions were not significant (Table 6), this recurring trend warrants further investigation.

Association Between ACEs and SI

Select forms of childhood adversity were associated with the severity of SI in adolescents. These include emotional abuse, emotional neglect, and mental illness or suicide attempts in the household. In contrast, physical abuse, sexual abuse, physical neglect, parental separation, witnessing domestic violence, household substance and alcohol abuse, and incarceration of household members did not correspond to SI severity in adolescents. This finding is partially aligned with the current literature and the hypothesis. Most studies examining the association between ACEs and SI report that the majority, if not all, subcategories of ACEs predict later suicidality (Wang et al., 2019). While there is conflicting evidence regarding the consistent prediction of suicidality by household challenges, such as parental separation or incarceration of a family member (Sahle et al., 2022), a more robust body of research consistently associates emotional, physical, and sexual abuse, as well as emotional and physical neglect during childhood with later STBs (Miller et al., 2013; Pournaghash-Tehrano et al., 2021; Wang et al., 2022).

Given this evidence, it is worth noting that only three out of 10 subcategories of ACEs were significantly associated with SI severity in the current study. The nonsignificant results across seven subcategories of ACEs should be interpreted with caution, as significant outcomes were identified solely within the three most prevalent categories of ACEs in the sample, with parental separation being the only exception (i.e., parental separation was prevalent, but the interaction was not significant; Table 2). Hence, the lack of significant results in the remaining seven ACE categories associated with SI severity may be due to insufficient representation of adolescents who experienced those specific adversities in the sample. Moreover, subcategories of ACEs that are consistently associated with SI severity, such as physical and sexual abuse, exhibited potential significance. While

not significant at $p = .05$, both physical abuse ($\beta = 0.37$, $p = .08$; Table 2) and sexual abuse ($\beta = 0.40$, $p = .09$) were significant at $p = .10$. The detection of some significance despite the small sample size may suggest a moderate association between the adolescent SI severity and specific ACE types.

Contrary to the hypothesis, the result did not suggest that adolescents with at least one ACE endorse a higher severity of SI than those without ACEs. This finding is not aligned with the existing literature and should be interpreted with caution for several reasons. Scoring one on the ACE-Q may not definitively indicate the presence of adverse events in childhood. For instance, question six on the ACE-Q evaluates parental separation or divorce, which is generally associated with various negative mental health outcomes in children (Çaksen, 2022). However, the impact of divorce depends on factors such as the intensity and duration of the separation process, as well as the availability of familial or non-familial support (Spremo, 2020). Since the ACE-Q lacks detailed assessments of these nuanced aspects, it is difficult to determine whether an affirmative response to question six or other questions signifies an adverse event experienced in childhood.

Moreover, Spremo (2020) suggests that family dynamics typically stabilize two to four years after divorce. Without knowing the timing of parental divorce relative to the date of assessment, we lack the temporal context to accurately gauge how the presence of at least one ACE, especially parental separation, predicts adolescent SI. Lastly, it is plausible that the negative impact of ACEs may not fully manifest itself when assessed in close proximity to the occurrence of the adverse event. However, this explanation appears less likely as a large body of research suggests that ACEs are generally associated with an increased risk of SI and suicide attempts across community, clinical, and high-risk samples of adolescents (Miller et al. 2013).

Once again, contrary to the hypothesis, no significant association was observed between the count of ACEs and the severity of SI. This finding should also be interpreted with caution, considering a body of research that suggests an alternative perspective. For instance, a study with a sample of 989 Chinese college students concluded that a cumulative effect was observed between ACEs and SI, indicating that a higher count of ACEs corresponded to an increased likelihood of endorsing SI (Wang et al., 2019). While Chinese society has increasingly integrated elements of individualism through Western influence, it remains more collectivistic than the U.S., particularly in its emphasis on family interdependence (Kolstad & Gjesvik, 2014).

Cultural factors like these may influence how individuals perceive and respond to adversity within the family context (Oyserman & Lee, 2008). However, cultural explanations alone appear insufficient to account for the discrepancy between the current findings and those from studies conducted in collectivistic contexts. Notably, similar associations between the cumulative negative impact of ACEs on SI have been observed in a sample of 1,532 U.S.-based adolescents (Meeker et al., 2021). It is possible that the absence of a significant association in the current study is attributable, at least in part, to the limited sample size.

Limitations and Future Directions

There are several limitations to consider in interpreting the findings. Although the current sample was ethnically diverse, the small sample size may impact the generalizability of the findings. Several negative findings did not align with the existing literature (i.e., nonsignificant association between the presence of one ACE, counts of ACEs, and selected forms of ACEs with SI severity). The analyses should be replicated in a larger sample for more precise and representative findings. .

Furthermore, although not statistically significant, the recurring pattern of negative association between counts of ACEs and severity of SI in high FF warrants future investigation in a larger sample. If replicating this analysis in a larger sample reveals a statistically significant decrease in SI for adolescents from families with high FF, it would suggest that not only are the negative effects of ACEs on adolescent suicidality potentially more pronounced in those with lower FF, but also that higher FF could serve as a protective factor. Lastly, FF and PPC should be evaluated as composite moderators in a larger sample, as the current study may have lacked the statistical power in the analysis to detect a significant interaction effect.

Additionally, the study did not include measures of psychiatric disorders (e.g., major depressive disorder, generalized anxiety disorder, or posttraumatic stress disorder), which are known to be closely associated with both ACE exposure (Daníelsdóttir et al., 2024) and SI (Gilmour, 2016; Panagioti et al., 2015; Rihmer & Rihmer, 2019). Due to limitations in available data, key demographic variables such as household income, single-parent status, and parental education level were not included in the analyses either. The absence of these variables limits the ability to assess potential confounding effects or to better contextualize the observed association.

The cross-sectional design of the study also limits our ability to explore the dynamic changes in adolescent experiences with ACEs over time. Future research could benefit from longitudinal investigations which capture the evolving impact of ACEs throughout adolescents' lives. Additionally, the use of self-report measures intro-

duces potential biases. Recall bias, along with individual differences in how adolescents define events as adverse, may impact the accuracy of reported ACEs. Relatedly, FF and PPC assessments may have been influenced by transient factors such as recent adolescent-parent conflicts (e.g., arguing with parents right before the assessments).

The utilization of the Ecological Momentary Assessment (EMA) has the potential to address both concerns. With the use of appropriate questions, the EMA methodology may enable the capture of real-time fluctuations in family interactions. This includes assessing the frequency, intensity, and content of parental criticism, as well as adolescents' corresponding STBs. Finally, despite both variables being mean-centered to improve the interpretability of the regression model, the multicollinearity between ACEs and FF should be noted in interpreting results.

Clinical Implications

Given that FF and PPC are found to independently amplify and attenuate the effects of ACEs in adolescent suicidality, strategies focused on enhancing FF while simultaneously mitigating PPC should be considered. Clinically, targeted interventions can be developed to achieve the desired goal. When treating youth with suicidal thoughts, clinicians can assess for ACEs, FF, and PPC to identify at-risk individuals and provide appropriate early prevention support within the family context (e.g., implementing targeted family therapy, providing specific parenting support, or designing programs that address FF and PPC). Evidence-based treatment targeting family cohesion can also be employed (e.g., Attachment-Based Family Therapy; ABFT; Diamond et al., 2010; Diamond et al., 2003).

Fostering an environment that promotes open communication and supportive family relationships becomes crucial at home. Encouraging positive interactions, active listening, and constructive dialogue can enhance FF and mitigate potential PPC issues. Implementing structured family activities such as shared meals may further strengthen familial bonds (Utter et al., 2013). Additionally, educational initiatives can be extended to parents and caregivers to raise awareness about the impact of ACEs and the role of FF and PPC in adolescent mental health.

Providing resources and guidance on effective parenting strategies and communication skills can empower families to create a nurturing and resilient environment. While it is ideal for parents or guardians to be involved in treating adolescents for their STBs, there are situations in which this is not feasible (e.g., intense family conflict, abuse, neglect, or when caregivers are unavailable or unwilling to participate). Cultural stig-

ma or differing beliefs about mental health treatment may also limit caregiver involvement. In such cases, treatment can focus on building adolescents' skills (e.g., emotion regulation, distress tolerance) to help them manage their well-being independently. This approach may still be effective, as both FF and PPC reflect not only the objective reality of familial dynamics but also adolescents' subjective perceptions of them.

Conclusion

The present study found that family functioning (FF) and perceived parental criticism (PPC) independently moderated the relationship between adverse childhood experiences (ACEs) and suicidal ideation (SI) in an ethnically diverse adolescent sample. This novel contribution to the literature highlights how specific family dynamics may either buffer or exacerbate the impact of early adversity on youth suicidal thoughts. Several unexpected null findings also emerged: (1) only certain forms of ACEs were significantly associated with adolescent SI; (2) the presence of at least one ACE and the total number of ACEs were not significantly associated with SI; and (3) the moderation model was nonsignificant when FF and PPC were assessed as a composite variable. These findings should be interpreted with caution, particularly considering the study's limitations, as they diverge from previous research. To gain a more nuanced understanding of the critical role of family in adolescent development in the context of ACEs and suicidality, future studies should replicate this research in a larger sample and collect more detailed information on adolescents' perceptions and reports of ACEs, FF, and PPC.

References

American Academy of Child and Adolescent Psychiatry. (2019). *Suicide Prevention*. Retrieved December 12, 2022, from https://www.aacap.org/AACAP/Policy_Statements/2019/AACAP_Policy_Statement_on_Suicide_Prevention.aspx

Adrian, M., McCauley, E., Gallop, R., Stevens, J., Jobes, D. A., Crumlish, J., Stanley, B., Brown, G. K., Green, K. L., Hughes, J. L., & Bridge, J. A. (2023). Advancing Suicide Intervention Strategies for Teens (ASSIST): study protocol for a multisite randomised controlled trial. *BMJ Open, 13*(12), e074116. https://doi.org/10.1136/bmjopen-2023-074116

Ahmadzadeh, Y. I., Eley, T. C., Hannigan, L., Creswell, C., Lichtenstein, P., Spotts, E., Ganiban, J., Neiderhiser, J., Rijsdijk, F., & McAdams, T. A.

(2022). Parental criticism and adolescent internalising symptoms: using a Children-of-Twins design with power calculations to account for genetic influence. *Journal of Child Psychology and Psychiatry, and Allied Disciplines, 63*(5), 599–607. https://doi.org/10.1111/jcpp.13498

Anda, R. F., Fleisher, V. I., Felitti, V. J., Edwards, V. J., Whitfield, C. L., Dube, S. R., & Williamson, D. F. (2004). Childhood Abuse, Household Dysfunction, and Indicators of Impaired Adult Worker Performance. *The Permanente Journal, 8*(1), 30–38. https://doi.org/10.7812/TPP/03-089

Armsden, G. C., & Greenberg, M. T. (1987). The inventory of parent and peer attachment: Individual differences and their relationship to psychological well-being in adolescence. *Journal of Youth and Adolescence, 16*(5), 427–454. https://doi.org/10.1007/BF02202939

Baetens, I., Claes, L., Hasking, P. Smits, D., Grietens, H., Onghena, P., & Martin, G. (2015). The Relationship Between Parental Expressed Emotions and Non-suicidal Self-injury: The Mediating Roles of Self-criticism and Depression. *Journal Child and Family Studies 24*, 491–498. https://doi.org/10.1007/s10826-013-9861-8

Berenbaum, S. A., Beltz, A. M., & Corley, R. (2015). The importance of puberty for adolescent development: conceptualization and measurement. *Advances in child development and behavior, 48*, 53–92. https://doi.org/10.1016/bs.acdb.2014.11.002

Boege, I., Corpus, N., Schepker, R., & Fegert, J. M. (2014). Pilot study: feasibility of using the Suicidal Ideation Questionnaire (SIQ) during acute suicidal crisis. *Child and Adolescent Psychiatry and Mental Health, 8*(1), 28. https://doi.org/10.1186/1753-2000-8-28

Buitron, V., Hill, R. M., Pettit, J. W., Green, K. L., Hatkevich, C., & Sharp, C. (2016). Interpersonal stress and suicidal ideation in adolescence: An indirect association through perceived burdensomeness toward others. *Journal of Affective Disorders, 190*, 143–149. https://doi.org/10.1016/j.jad.2015.09.077

Byles, J., Byrne, C., Boyle, M. H., & Offord, D. R. (1988). Ontario Child Health Study: reliability and validity of the general functioning subscale of the McMaster Family Assessment Device. *Family Process, 27*(1), 97–104. https://doi.org/10.1111/j.1545-5300.1988.00097.x

Çaksen, H. (2022). The effects of parental divorce on children. *Psychiatrike, 33*(1), 81–82. https://doi.org/10.22365/jpsych.2021.040

Centers for Disease Control and Prevention. (2023). *Suicide Data and Statistics*. U.S. Department of Health and Human Services. https://www.cdc.gov/suicide/suicide-data-statistics.html

Cha, C. B., Franz, P. J., M Guzmán, E., Glenn, C. R., Kleiman, E. M., & Nock, M. K. (2018). Annual Research Review: Suicide among youth - epidemiology, (potential) etiology, and treatment. *Journal of Child Psychology and Psychiatry, 59*(4), 460–482. https://doi-org.ezproxy.cul.columbia.edu/10.1111/jcpp.12831

Chu, C., Buchman-Schmitt, J. M., Stanley, I. H., Hom, M. A., Tucker, R. P., Hagan, C. R., Rogers, M. L., Podlogar, M. C., Chiurliza, B., Ringer, F. B., Michaels, M. S., Patros, C. H. G., & Joiner, T. E. (2017). The interpersonal theory of suicide: A systematic review and meta-analysis of a decade of cross-national research. *Psychological Bulletin, 143*(12), 1313–1345. https://doi-org.ezproxy.cul.columbia.edu/10.1037/bul0000123

Chu, C., Klein, K. M., Buchman-Schmitt, J. M., Hom, M. A., Hagan, C. R., & Joiner, T. E. (2015). Routinized Assessment of Suicide Risk in Clinical Practice: An Empirically Informed Update. *Journal of Clinical Psychology, 71*(12), 1186–1200. https://doi.org/10.1002/jclp.22210

Curry J. F. (2001). Specific psychotherapies for childhood and adolescent depression. *Biological Psychiatry, 49*(12), 1091–1100. https://doi-org.ezproxy.cul.columbia.edu/10.1016/s0006-3223(01)01130-1

Daly, O., & Willoughby, T. (2019). A longitudinal study investigating bidirectionality among non-suicidal self-injury, self-criticism, and parental criticism. *Psychiatry Research, 271*, 678–683. https://doi.org/10.1016/j.psychres.2018.12.056

Daníelsdóttir, H. B., Aspelund, T., Shen, Q., Halldorsdottir, T., Jakobsdóttir, J., Song, H., Lu, D., Kuja-Halkola, R., Larsson, H., Fall, K., Magnusson, P. K. E., Fang, F., Bergstedt, J., & Valdimarsdóttir, U. A. (2024). Adverse Childhood Experiences and Adult Mental Health Outcomes. *JAMA psychiatry, 81*(6), 586–594. https://doi.org/10.1001/jamapsychiatry.2024.0039

Delgado, E., Serna, C., Martínez, I., & Cruise, E. (2022). Parental Attachment and Peer Relationships in Adolescence: A Systematic Review. *International Journal of Environmental Research and Public Health, 19*(3), 1064. https://doi.org/10.3390/ijerph19031064

De Berardis, D., Martinotti, G., & Di Giannantonio, M. (2018). Editorial: Understanding the Complex Phenomenon of Suicide: From Research to Clinical Practice. *Frontiers in Psychiatry, 9*, 61. https://doi.org/10.3389/fpsyt.2018.00061

De Leo, D., Goodfellow, B., Silverman, M., Berman, A., Mann, J., Arensman, E., Hawton, K., Phillips, M. R., Vijayakumar, L., Andriessen, K., Chavez-Hernandez, A. M., Heisel, M., & Kolves, K. (2021). International study of definitions of English-language terms for suicidal behaviours: a survey exploring preferred terminology. *BMJ Open, 11*(2), e043409. https://doi.org/10.1136/bmjopen-2020-043409

Diamond, G., Siqueland, L., & Diamond, G. M. (2003). Attachment-based family therapy for depressed adolescents: programmatic treatment development. *Clinical Child and Family Psychology Review, 6*(2), 107–127. https://doi-org.ezproxy.cul.columbia.edu/10.1023/a:1023782510786

Diamond, G. S., Wintersteen, M. B., Brown, G. K., Diamond, G. M., Gallop, R., Shelef, K., & Levy, S. (2010). Attachment-Based Family Therapy for Adolescents with Suicidal Ideation: A Randomized Controlled Trial. *Journal of the American Academy of Child & Adolescent Psychiatry, 49*(2), 122–131. https://doi.org/10.1016/j.jaac.2009.11.002

Dube, S. R., Felitti, V. J., Dong, M., Chapman, D. P., Giles, W. H., & Anda, R. F. (2003). Childhood abuse, neglect, and household dysfunction and the risk of illicit drug use: the adverse childhood experiences study. *Pediatrics, 111*(3), 564–572. https://doi.org/10.1542/peds.111.3.564

Dunn, E. C., McLaughlin, K. A., Slopen, N., Rosand, J., & Smoller, J. W. (2013). Developmental timing of child maltreatment and symptoms of depression and suicidal ideation in young adulthood: results from the National Longitudinal Study of Adolescent Health. *Depression and Anxiety, 30*(10), 955–964. https://doi.org/10.1002/da.22102

Eades, A., Segal, D. L., & Coolidge, F. L. (2019). Suicide Risk Factors Among Older Adults: Exploring Thwarted Belongingness and Perceived Burdensomeness in Relation to Personality and Self-Esteem. *International Journal of Aging & Human Development, 88*(2), 150–167. https://doi.org/10.1177/0091415018757214

Edwards, V. J., Anda, R. F., Gu, D., Dube, S. R., & Felitti, V. J. (2007). Adverse childhood experiences and smoking persistence in adults with smoking-related symptoms and illness. *The Permanente Journal, 11*(2), 5–13. https://doi.org/10.7812/TPP/06-110

Ehrenreich, S. E., & Underwood, M. K. (2016). Adolescents' Internalizing Symptoms as Predictors of the Content of Their Facebook Communication and Responses Received from Peers. *Translational Issues in Psychological Science, 2*(3), 227–237. https://doi.org/10.1037/tps0000077

Epstein N.B., Baldwin L.M., Bishop D.S. (1983). The McMaster Family Assessment Device. *Journal of Marital and Family Therapy, 9*(2), 171–180. https://doi.org/10.1111/j.1752-0606.1983.tb01497.x

Ernst, A. F., & Albers, C. J. (2017). Regression assumptions in clinical psychology research practice-a systematic review of common misconceptions. *PeerJ, 5*, e3323. https://doi.org/10.7717/peerj.3323

Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., Koss, M. P., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences (ACE) Study. *American Journal of Preventive Medicine, 14*(4), 245–258. https://doi.org/10.1016/s0749-3797(98)00017-8

Gerlsma, C., de Ruiter, N. M., & Kingma, W. (2014). Mood dependence of perceived criticism: a significant null finding. *Psychiatry Research, 220*(3), 1102–1105. https://doi.org/10.1016/j.psychres.2014.08.061

Gilmour H. (2016). Threshold and subthreshold Generalized Anxiety Disorder (GAD) and suicide ideation. *Health reports, 27*(11), 13–21.

Grimmond, J., Kornhaber, R., Visentin, D., & Cleary, M. (2019). A qualitative systematic review of experiences and perceptions of youth suicide. *PloS*

One, 14(6), e0217568. https://doi.org/10.1371/journal.pone.0217568

Hagan, C. R., & Joiner, T. E. (2017). The Indirect Effect of Perceived Criticism on Suicide Ideation and Attempts. *Archives of Suicide Research, 21*(3), 438–454. https://doi.org/10.1080/13811118.2016.1218398

Harmer, B., Lee, S., Duong, T. V. H., & Saadabadi, A. (2024). Suicidal Ideation. In StatPearls. *StatPearls* Publishing.

Hayes, A. F. (2022). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York: The Guildford Press.

Hillis, S. D., Anda, R. F., Dube, S. R., Felitti, V. J., Marchbanks, P. A., & Marks, J. S. (2004). The association between adverse childhood experiences and adolescent pregnancy, long-term psychosocial consequences, and fetal death. *Pediatrics, 113*(2), 320–327. https://doi.org/10.1542/peds.113.2.320

Hooley, J. M., & Miklowitz, D. J. (2017). Perceived Criticism in the Treatment of a High-Risk Adolescent. *Journal of Clinical Psychology, 73*(5), 570–578. https://doi.org/10.1002/jclp.22454

Hooley, J. M., & Teasdale, J. D. (1989). Predictors of relapse in unipolar depressives: expressed emotion, marital distress, and perceived criticism. *Journal of Abnormal Psychology, 98*(3), 229–235. https://doi.org/10.1037//0021-843x.98.3.229

Hubers, A. A. M., Moaddine, S., Peersmann, S. H. M., Stijnen, T., van Duijn, E., van der Mast, R. C., Dekkers, O. M., & Giltay, E. J. (2018). Suicidal ideation and subsequent completed suicide in both psychiatric and non-psychiatric populations: a meta-analysis. *Epidemiology and Psychiatric Sciences, 27*(2), 186–198. https://doi.org/10.1017/S2045796016001049

Iacobucci, D., Schneider, M. J., Popovich, D. L., & Bakamitsos, G. A. (2017). Mean centering, multicollinearity, and moderators in multiple regression: The reconciliation redux. *Behavior Research Methods, 49*(1), 403–404. https://doi.org/10.3758/s13428-016-0827-9

Kann, L., McManus, T., Harris, W. A., Shanklin, S. L., Flint, K. H., Queen, B., Lowry, R., Chyen, D., Whittle, L., Thornton, J., Lim, C., Bradford, D., Yamakawa, Y., Leon, M., Brener, N., & Ethier, K. A. (2018). Youth Risk Behavior Surveillance - United States, 2017. *Morbidity and Mortality Weekly Report, 67*(8), 1–114. https://doi.org/10.15585/mmwr.ss6708a1

Kolstad, A., & Gjesvik, N. (2014). Collectivism, individualism, and pragmatism in China: implications for perceptions of mental health. *Transcultural psychiatry, 51*(2), 264–285. https://doi.org/10.1177/1363461514525220

Kwok, S. Y., & Shek, D. T. (2011). Family processes and suicidal ideation among Chinese adolescents in Hong Kong. *The Scientific World Journal, 1*1, 27–41. https://doi.org/10.1100/tsw.2011.2

Marie-Mitchell, A., & Kostolansky, R. (2019). A Systematic Review of Trials to Improve Child Outcomes Associated With Adverse Childhood Experiences. *American Journal of Preventive Medicine, 56*(5), 756–764. https://doi.org/10.1016/j.amepre.2018.11.030

Meeker, E. C., O'Connor, B. C., Kelly, L. M., Hodgeman, D. D., Scheel-Jones, A. H., & Berbary, C. (2021). The impact of adverse childhood experiences on adolescent health risk indicators in a community sample. *Psychological trauma: theory, research, practice and policy, 13*(3), 302–312. https://doi.org/10.1037/tra0001004

Miller, A. B., Esposito-Smythers, C., Weismoore, J. T., & Renshaw, K. D. (2013). The relation between child maltreatment and adolescent suicidal behavior: a systematic review and critical examination of the literature. *Clinical Child and Family Psychology Review, 16*(2), 146–172. https://doi.org/10.1007/s10567-013-0131-5

Moretti, M. M., & Peled, M. (2004). Adolescent-parent attachment: Bonds that support healthy development. *Pediatrics & Child Health, 9*(8), 551–555. https://doi.org/10.1093/pch/9.8.551

Muyan, M., & Chang, E.C. (2015) Perfectionism as a Predictor of Suicidal Risk in Turkish College Students: Does Loneliness Contribute to Further Risk? *Cognitive Therapy and Research, 39*(6), 776–784. https://doi.org/10.1007/s10608-015-9711-7

Ogrodniczuk, J. S., Sivagurunathan, M., Kealy, D., Rice, S. M., Seidler, Z. E., & Oliffe, J. L. (2023). Suicidal ideation among men during COVID-19: Examining the roles of loneliness, thwarted belongingness, and personality impairment. *Scan-*

dinavian Journal of Psychology, 64(4), 401–408. https://doi.org/10.1111/sjop.12904

Ohtaki, Y., Doki, S., Kaneko, H., Hirai, Y., Oi, Y., Sasahara, S., & Matsuzaki, I. (2019). Relationship between suicidal ideation and family problems among young callers to the Japanese crisis hotline. PloS One, 14(7), e0220493. https://doi.org/10.1371/journal.pone.0220493

Oyserman, D., & Lee, S. W. (2008). Does culture influence what and how we think? Effects of priming individualism and collectivism. Psychological bulletin, 134(2), 311–342. https://doi.org/10.1037/0033-2909.134.2.311

Panagioti, M., Gooding, P. A., Triantafyllou, K., & Tarrier, N. (2015). Suicidality and posttraumatic stress disorder (PTSD) in adolescents: a systematic review and meta-analysis. Social psychiatry and psychiatric epidemiology, 50(4), 525–537. https://doi.org/10.1007/s00127-014-0978-x

Pinto, R., Correia, L. & Maia, Â. Assessing the Reliability of Retrospective Reports of Adverse Childhood Experiences among Adolescents with Documented Childhood Maltreatment. Journal of Family Violence, 29, 431–438 (2014). https://doi.org/10.1007/s10896-014-9602-9

Pinto, A., Whisman, M. A., & McCoy, K. J. M. (1997). Suicidal ideation in adolescents: Psychometric properties of the suicidal ideation questionnaire in a clinical sample. Psychological Assessment, 9(1), 63–66. https://doi.org/10.1037/1040-3590.9.1.63

Pournaghash-Tehrani, S. S., Zamanian, H., & Amini-Tehrani, M. (2021). The Impact of Relational Adverse Childhood Experiences on Suicide Outcomes During Early and Young Adulthood. Journal of Interpersonal Violence, 36(17-18), 8627–8651. https://doi.org/10.1177/0886260519852160

Piqueras, J. A., Soto-Sanz, V., Rodríguez-Marín, J., & García-Oliva, C. (2019). What is the Role of Internalizing and Externalizing Symptoms in Adolescent Suicide Behaviors?. International Journal of Environmental Research and Public Health, 16(14), 2511. https://doi.org/10.3390/ijerph16142511

Pringle, J., Whitehead, R., Milne, D., Scott, E., & McAteer, J. (2018). The relationship between a trusted adult and adolescent outcomes: a protocol of a scoping review. Systematic Reviews, 7(1), 207.

https://doi.org/10.1186/s13643-018-0873-8

Rapp, A. M., Chavira, D. A., Sugar, C. A., & Asarnow, J. R. (2021). Incorporating family factors into treatment planning for adolescent depression: Perceived parental criticism predicts longitudinal symptom trajectory in the Youth Partners in Care trial. Journal of Affective Disorders, 278, 46–53. https://doi.org/10.1016/j.jad.2020.09.028

Remschmidt H. (1994). Psychosocial milestones in normal puberty and adolescence. Hormone research, 41 Suppl 2, 19–29. https://doi.org/10.1159/000183955

Reynolds, W. M. (1987). About my life: The suicidal ideation questionnaire. Psychological Assessment Resources, Inc.

Rihmer, Z., & Rihmer, A. (2019). Depression and suicide - the role of underlying bipolarity. Psychiatria Hungarica : A Magyar Pszichiatriai Tarsasag tudomanyos folyoirata, 34(4), 359–368.

Roeder, K. M., & Cole, D. A. (2019). Simultaneous Longitudinal Examination of Hopelessness, Thwarted Belongingness, and Perceived Burdensomeness as Predictors of Suicide Ideation. Suicide & Life-Threatening Behavior, 49(4), 1058–1071. https://doi.org/10.1111/sltb.12508

Saffer, B. Y., Glenn, C. R., & David Klonsky, E. (2015). Clarifying the Relationship of Parental Bonding to Suicide Ideation and Attempts. Suicide & Life-Threatening Behavior, 45(4), 518–528. https://doi.org/10.1111/sltb.12146

Sahle, B. W., Reavley, N. J., Li, W., Morgan, A. J., Yap, M. B. H., Reupert, A., & Jorm, A. F. (2022). The association between adverse childhood experiences and common mental disorders and suicidality: an umbrella review of systematic reviews and meta-analyses. European Child & Adolescent Psychiatry, 31(10), 1489–1499. https://doi.org/10.1007/s00787-021-01745-2

Sander, J. B., & McCarty, C. A. (2005). Youth depression in the family context: familial risk factors and models of treatment. Clinical Child and Family Psychology Review, 8(3), 203–219. https://doi-org.ezproxy.cul.columbia.edu/10.1007/s10567-005-6666-3

Shain, B., COMMITTEE ON ADOLESCENCE, Braverman, P. K., Adelman, W. P., Alderman, E. M., Breuner, C. C., Levine, D. A., Marcell, A. V., & O'Brien, R. F. (2016). Suicide and Sui-

cide Attempts in Adolescents. *Pediatrics, 138*(1), e20161420. https://doi.org/10.1542/peds.2016-1420

Sheftall, A. H., Mathias, C. W., Furr, R. M., & Dougherty, D. M. (2013). Adolescent attachment security, family functioning, and suicide attempts. *Attachment & Human Development, 15*(4), 368–383. https://doi.org/10.1080/14616734.2013.782649

Spremo M. (2020). Children and Divorce. *Psychiatria Danubina, 32*(Suppl 3), 353–359.

Sun, R., Ren, Y., Li, X., Jiang, Y., Liu, S. and You, J. (2020), Self-compassion and family cohesion moderate the association between suicide ideation and suicide attempts in Chinese adolescents. *Journal of Adolescence, 79*: 103-111. https://doi.org/10.1016/j.adolescence.2019.12.010

Swedo, E. A., Aslam, M. V., Dahlberg, L. L., Niolon, P. H., Guinn, A. S., Simon, T. R., & Mercy, J. A. (2023). Prevalence of Adverse Childhood Experiences Among U.S. Adults - Behavioral Risk Factor Surveillance System, 2011-2020. *Morbidity and Mortality Weekly Report, 72*(26), 707–715. https://doi.org/10.15585/mmwr.mm7226a2

Thompson, M. P., & Kingree, J. B. (2022). Adverse childhood experiences, sexual victimization, and suicide ideation and attempts: A longitudinal path analysis spanning 22 years. *The American Journal of Orthopsychiatry, 92*(3), 302–309. https://doi.org/10.1037/ort0000613

Utter, J., Denny, S., Robinson, E., Fleming, T., Ameratunga, S. and Grant, S. (2013), Family meals and adolescent well-being. *Journal of Pediatrics and Child Health, 49*: 906-911. https://doi.org/10.1111/jpc.12428

Wang, B., You, J., Lin, M. P., Xu, S., & Leung, F. (2017). Developmental Trajectories of Nonsuicidal Self-Injury in Adolescence and Intrapersonal/Interpersonal Risk Factors. *Journal of Research on Adolescence, 27*(2), 392–406. https://doi.org/10.1111/jora.12273

Wang, W., Guo, X., Kang, L., Zhang, N., Ma, S., Cheng, J., Fang, L., & Liu, Z. (2022). The Influence of Family-Related Factors on Suicide in Major Depression Patients. *Frontiers in Psychiatry, 13*, 919610. https://doi-org.ezproxy.cul.columbia.edu/10.3389/fpsyt.2022.919610

Wang, Y. R., Sun, J. W., Lin, P. Z., Zhang, H. H., Mu, G. X., & Cao, F. L. (2019). Suicidality among young adults: Unique and cumulative roles of 14 different adverse childhood experiences. *Child Abuse & Neglect, 98*, 104183. https://doi.org/10.1016/j.chiabu.2019.104183

Weissinger, G., Myhre, K., Ruan-Iu, L., Van Fossen, C., & Diamond, G. (2023). Adolescent suicide risk, firearm access, and family functioning: Screening in primary care. *Families, Systems & Health, 41*(1), 16–25. https://doi.org/10.1037/fsh0000680

World Health Organization (2025). *Adolescent Health*. https://www.who.int/health-topics/adolescent-health#tab=tab_1

Table 1

Demographic Characteristics of the Participants

Sample Characteristics	*M (SD)*	Min	Max	*n*	%
Age (years)	17.43 (1.36)	15	19		
Sex					
Male				12	26.09
Female				32	69.57
Transgender Male				1	2.17
Other				1	2.17
Race					
White				21	45.65
Black				11	23.91
Asian				10	21.74
Other				2	4.35
Unknown				2	4.35
Ethnicity (% Hispanic)				8	17.39
Sexual Orientation					
Heterosexual				31	67.39
Homosexual				4	8.70
Bisexual				9	19.57
Questioning				1	2.17
Other				1	2.17

Note. N = 46

Table 2

Linear Regression Analyses: Severity of Suicidal Ideation (SI) and Subcategories of Adverse Childhood Experiences (ACEs)

Variable	n	β	SE	LL	UL	t	p
Emotional Abuse	11	0.49	3.98	2.44	18.90	2.44	**.01***
Physical Abuse	8	0.37	4.15	-1.11	16.15	1.81	.08
Sexual Abuse	4	0.40	5.11	-1.52	20.05	1.81	.09
Emotional Neglect	12	0.65	5.04	10.88	31.66	4.22	**<.001***
Physical Neglect	2	0.22	5.49	-6.93	16.47	0.87	.40
Parental Separation	16	-0.02	2.88	-5.93	5.89	-0.01	>.99
Witnessing Domestic Violence	6	0.29	4.44	-3.37	15.24	1.34	.20
Household Substance Abuse	3	-0.21	3.96	-11.80	5.00	-.86	.40
Household Mental Illness and SA	13	0.39	5.43	0.42	22.79	2.14	**.04***
Incarceration of Family Member	4	0.39	4.52	-1.78	17.31	1.72	.10

Note. SE = Standard Error; LL = Lower Limit; UL = Upper Limit; SA = Suicide Attempts.
*$p < .05$

Table 3

Summary of Moderated Regression Analyses Predicting Suicidal Ideation (SI) Severity in Adolescents

Variable	Estimate (β)	SE	LL	UL	t	p
Hypothesis 2a (Model 1)[a]						
Constant		1.23	2.02	7.14	3.74	**<.01***
ACEs	0.21	0.68	0.07	2.90	2.19	**.04***
FF	0.19	2.74	-1.25	10.19	1.63	.12
ACEs x FF	0.28	1.06	1.53	5.95	3.53	**<.01***
Hypothesis 2b (Model 1)[b]						
Constant		1.49	3.99	10.15	4.76	**<.001***
ACEs	0.48	0.85	1.68	5.19	4.06	**<.001***
PPC	0.29	0.36	0.18	1.69	2.58	**.02***
ACEs x PPC	0.19	0.15	0.18	0.63	2.20	**.04***
Hypothesis 2c (Model 3)[c]						
Constant		1.83	-0.07	7.70	2.08	.05
ACEs	0.18	1.42	-1.71	4.29	0.91	.38
PPC	0.12	0.39	-0.40	1.26	1.09	.29
FF	0.17	3.71	-4.00	11.72	1.04	.31
ACEs x PPC	-0.11	0.22	-0.66	0.29	-0.84	.41
ACEs x FF	0.32	1.57	0.89	7.56	2.69	**.02***
PPC x FF	0.06	0.78	-1.27	2.01	0.48	.64
ACEs x PPC x FF	-0.03	0.26	-0.63	0.46	-0.33	.74

Note. ACEs = Adverse Childhood Experiences; FF = Family Functioning; PPC = Perceived Parental Criticism; SE = Standard Error; LL = Lower Limit; UL = Upper Limit.

[a]ACEs will be more strongly associated with SI among adolescents who have lower family functioning; $n = 24$, $R^2 = .68$.

[b]ACEs will be more strongly associated with SI among adolescents who have higher perceived parental criticism; $n = 26$, $R^2 = .47$.

[c]ACEs will be more strongly associated with SI among adolescents who have higher perceived parental criticism and lower family functioning; $n = 24$, $R^2 = .72$.

*$p < .05$

Table 4

Conditional Effects of Adverse Childhood Experiences (ACEs) at Values of Family Functioning (FF)

FF[a]	Effect (β)	SE	*LL*	*UL*	*t*	*p*
-1 *SD*	-0.08	0.79	-2.24	1.06	-0.75	.46
Mean	0.20	0.68	0.07	2.90	2.19	**.04***
+1 *SD*	0.49	0.99	1.49	5.63	3.58	**<.01***

Note. SD = Standard Deviation; SE = Standard Error; LL = Lower Limit; UL = Upper Limit; FAD-GF = The McMaster Family Assessment Device – General Functioning.
[a]Higher score in FAD-GF indicates worse FF. This table based on the results of FAD-GF.
*$p < .05$

Table 5

Conditional Effects of Adverse Childhood Experiences (ACEs) at Values of Perceived Parental Criticism (PPC)

PPC	Effect (β)	SE	*LL*	*UL*	*t*	*p*
-1 *SD*	0.28	0.74	0.60	3.57	2.74	**.01***
Mean	0.47	0.85	1.68	5.19	4.06	**<.001***
+1 *SD*	0.67	1.30	2.14	7.54	3.71	**<.01***

Note. SD = Standard Deviation; SE = Standard Error; LL = Lower Limit; UL = Upper Limit.
*$p < .05$

Table 6

Conditional Effects of Adverse Childhood Experiences (ACEs) at Values of Family Functioning (FF) and Perceived Parental Criticism (PPC)

PPC	FF	Effect	SE	*LL*	*UL*	*t*	*p*
-1 *SD*	-1 *SD*	-0.06	1.24	-3.09	2.19	-0.36	.72
-1 *SD*	Mean	0.29	1.01	-0.04	4.23	2.08	.05
-1 *SD*	+1 *SD*	0.64	1.59	1.26	8.02	2.91	**.01***
Mean	-1 *SD*	-0.15	1.99	-5.27	3.17	-0.53	.60
Mean	Mean	0.18	1.42	-1.71	4.29	0.91	.38
Mean	+1 *SD*	0.50	1.25	0.98	6.29	2.90	**.01***
+1 *SD*	-1 *SD*	-0.23	2.94	-7.88	4.58	-0.56	.58
+1 *SD*	Mean	0.07	2.19	-4.16	5.14	0.22	.83
+1 *SD*	+1 *SD*	0.37	1.85	-1.29	6.56	1.42	.17

Note. SD = Standard Deviation; SE = Standard Error; LL = Lower Limit; UL = Upper Limit.
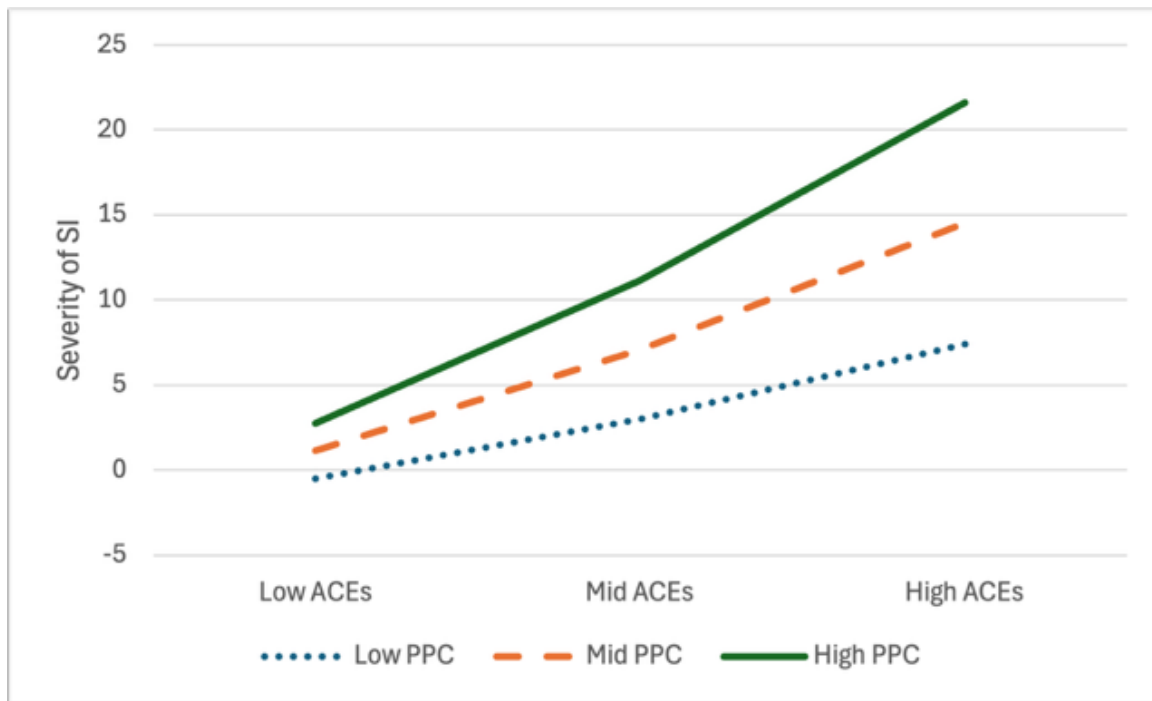*$p < .05$

Figure 1

Moderating Effects of Family Functioning (FF) on the Association Between Adverse Childhood Experiences (ACEs) and Adolescent Suicidal Ideation (SI)
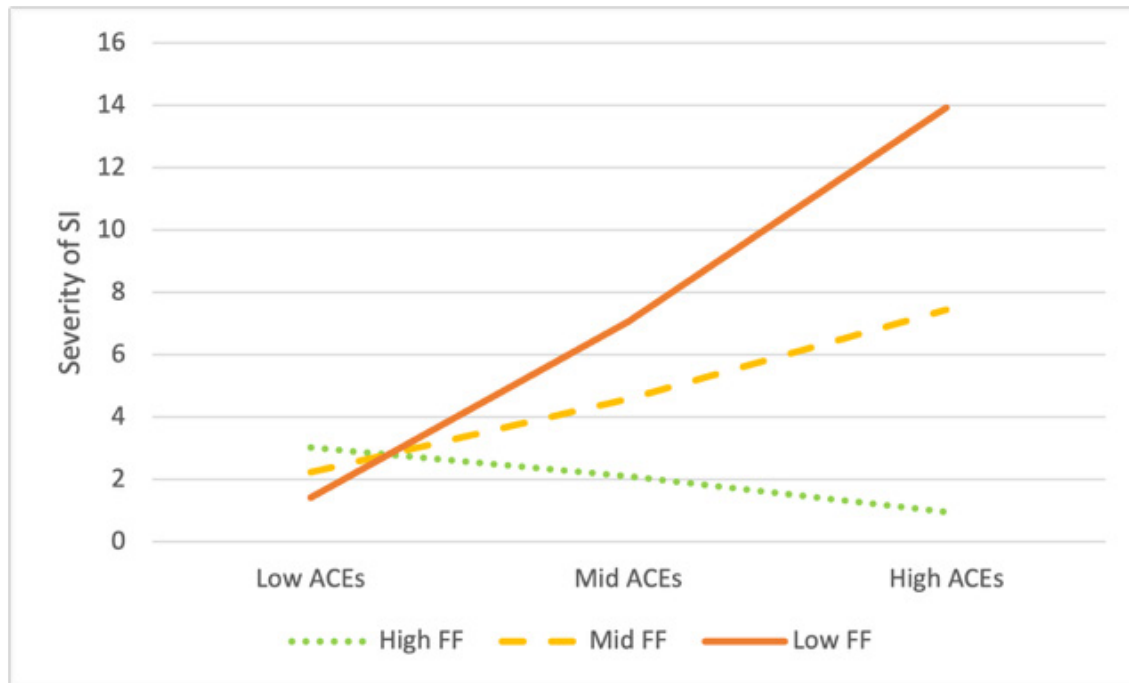
Note: The interactions between variables are statistically significant ($p < .05$) for Low FF and Mid FF. However, the downward trend observed in High FF was not significant. Additional details are available in Table 4.

Figure 2

Moderating Effects of Perceived Parental Criticism (PPC) on the Association Between Adverse Childhood Experiences (ACEs) and Adolescent Suicidal Ideation (SI)
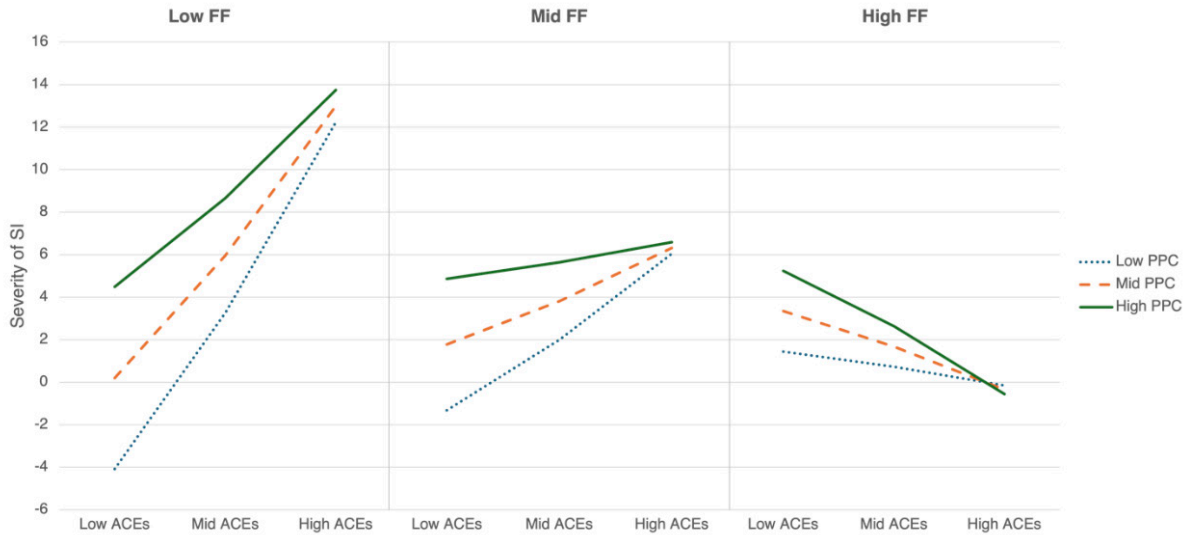

Note: The interactions between variables are statistically significant ($p < .05$) for all categories of PPC. Additional details are available in Table 5.

Figure 3

Moderating Effects of Family Functioning (FF) on the Association Between Adverse Childhood Experiences (ACEs) and Adolescent Suicidal Ideation (SI)

Note: Among the nine slopes depicted in the figure, only Low PPC x Low FF and Moderate PPC x Low FF were statistically significant at *p* < .05. Additional details are available in Table 6.

"Where Did All the Lesbians Go?"
A Content Analysis of the Sense of Community within Lesbian Spaces on TikTok

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As physical lesbian spaces continue to diminish, platforms like TikTok have become essential for queer women seeking community. This study uses deductive content analysis, guided by McMillan and Chavis' (1986) sense of community framework, to examine how membership, influence, fulfillment of needs, and shared emotional connection are expressed in these digital spaces. By analyzing the top 100 comments on two videos from 11 popular lesbian TikTok creators, whose followers range from 340 thousand to 9 million, the research explores how a sense of community is fostered online. A total of 22 videos were analyzed, with comments coded into key themes. The findings reveal how users express solidarity through mutual support and validation, often rooted in shared language and collective experiences unique to lesbian identity. Commenters navigate issues such as relationships and societal marginalization, fostering a sense of belonging. However, tensions emerge as users grapple with inclusivity and representation, particularly around race, gender identity, and the evolving definition of lesbian identity. These discussions highlight both the unifying aspects of digital lesbian spaces and the challenges of ensuring diverse voices are heard. This research underscores TikTok's evolving role in shaping lesbian identity and community, spotlighting both opportunities and challenges for fostering belonging.

Keywords: Lesbian, TikTok, Social Media, Community

A sense of community is a critical component in facilitating well-being in lesbian, gay, bisexual, transgender, and queer + (LGBTQ+) individuals (McLaren., 2009; Meyer & Frost, 2013). Research in the past 20 years has highlighted the LGBTQ+ community's ability to create a sense of community in virtual spaces (Cavalcante, 2018; Gorkemli, 2012; Gross, 2003). Most recently, the social media platform "TikTok" has appeared to resonate with the LGBTQ+ community as a whole (Hiebert & Kortes-Miller, 2023; Simpson & Seeman, 2020), and subgroups within the larger community, including the lesbian community (Gray, 2018; Hanmer, 2013).

However, research examining how this subset of the LGBTQ+ community uses social media to build a sense of community online is sparse and virtually nonexistent when examining TikTok. Due to previous research establishing the importance of a sense of community for LGBTQ+ individuals, as well as research indicating that the community as a whole can benefit from virtual spaces that produce an online sense of community, the present study aimed to identify how a sense of community is created by lesbians on TikTok.

It has been well documented that the LGBTQ+ community experiences higher frequencies of discrimination and victimization due to their LGBTQ+ identity, contributing to higher frequencies of mental health concerns (Hendricks & Testa, 2012; Meyer, 2003). Resilience factors, such as a sense of community, have been identified as a buffer against these outcomes for the community (Frost & Meyer, 2012; McLaren et al., 2013) as well as enhance protective factors, such as social support and self-esteem (Doyle & Molix, 2014; Petruzzella et al., 2019). A sense of community has been defined as "a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members' needs will be met through their commitment to be together," (McMillan & Chavis, 1986, p. 9).

Fostering a sense of community is important for LGBTQ+ people, as it serves as an access point for both tangible and intangible resources (APA Task Force on Psychological Practice with Sexual Minority Persons, 2021; de Lira & de Morais, 2018). Connection to the LGBTQ+ community and its culture also serves as a mechanism to facilitate identity development, with individuals claiming that the community's support results in stronger identity development (Closson & Comeau, 2021; Parmenter et al., 2020). However, the impact of a sense of community appears to vary depending on one's sexual identity, with bisexual people reporting feeling a reduced sense of belonging when compared to lesbian and gay individuals, which may speak to experiencing biphobia within the larger LGBTQ+

community (Kertzner et al., 2009; Lambe et al., 2017), and suggests that the impact of a sense of community may vary across different sexual and gender identities.

Lesbians have actively contributed to facilitating community connectedness in the larger LGBTQ+ community, specifically regarding their role in the contribution of blood donations amidst the HIV-AIDS epidemic during the 1980s (Hutchison, 2015). Although there is less research on lesbian and queer women, some research has found that a sense of community provides a buffer against adverse mental health outcomes and enhances protective factors for the lesbian community (Busby et al., 2020; McLaren, 2009; McLaren & Castillo, 2021; Zimmerman et al., 2015). Spaces exclusive to lesbians have been valued by the community, with lesbian bars being a cornerstone of lesbian culture and a facilitator of community connectedness (Faderman, 1991). These spaces serve a dual purpose of being a place for in-person connection and the flourishing of lesbian identities while also providing a safe environment against potential discrimination from the larger community (Brown-Saracino, 2019; Corteen, 2002; Hankin, 2002; Hartless, 2018).

There has been a concerning trend of a diminishment of lesbian-specific spaces for the community to meet. In 2021, almost 200 lesbian bars shut down, with 20 remaining (Compton, 2021). Reasoning for these closures may speak to various changes, such as the COVID-19 pandemic (Rieger, 2020) and the undermining of women-specific spaces in the interest of appearing non-trans-exclusionary (Stryker & Bettcher, 2016). This is concerning when considering that lesbian bars have historically had either the lowest or second-lowest prevalence rate of all LGBTQ+ bars, second only to bars catering to LGBTQ+ POC (Mattson, 2019).

These closures leave the lesbian community to either gather in unwelcoming heterosexual spaces or try to integrate into LGBTQ+ spaces dominated by white, cisgender gay men, with a recent study examining that the remaining 15 owners of lesbian or LGBTQ+ bar in the USA do not prioritize female-only spaces (Mattson, 2020). There is a sense of loss associated with this decrease in lesbian-specific spaces, with multiple documentaries and memorials being created by the community to represent this mourning (Brown-Saracino, 2020; Clements, 2019; Denny, 2015). Moreover, physical spaces that facilitate a sense of community, such as LGBTQ+ bars, have experienced high closure rates due to the COVID-19 shutdown of businesses (Mattson, 2023).

The COVID-19 pandemic's impact on LGBTQ+ spaces cannot be understated. Scrogg and colleagues' (2020) examination of the impact of social distancing guidelines on LGBTQ+ emerging adults revealed that the guidelines resulted in lower levels of hope and community connectedness as well as higher alcohol use. The pandemic also had a unique impact on LGBTQ+ youth, as many noted that they were restricted to staying in home environments deemed unsafe to express their LGBTQ+ identity (Fish et al., 2020). These numbers have started to rebound as more lesbian bars reopen (Glassman-Hughes, 2023; Hoeffer, 2023); however, they have not recovered to their numbers before the pandemic (Mattson, 2023). These reductions of spaces for lesbians are concerning, as this loss of a sense of community leads LGBTQ+ individuals to be more vulnerable to detrimental mental health outcomes as a result of minority stress due to being unable to benefit from the protective factors and buffers that a sense of community provides.

The need and benefit of establishing spaces that form a sense of community online has been an endeavour that the LGBTQ+ community has historically been invested in, with Gross (2003) noting LGBTQ+ individuals were pioneers in utilizing the internet to find community. For example, drag performers have utilized social media to replace in-person performances to combat isolation (Rieger, 2020). Virtual spaces which bring a sense of community have also been established in response to large-scale discrimination, as illustrated by one study which examined the impact of a virtual forum facilitating open discussion for LGBTQ+ students following the 2016 Orlando mass shooting, an event that has been understood as an LGBTQ+ hate crime (Jackson, 2017). Students from this study noted that the form helped them receive support, disclose their distress associated with the event, and emotionally process the event. These attempts to connect online speak to the resilience and adaptability of the community, as well as the inherent importance of a sense of community.

Research indicates that LGBTQ+ individuals use social media in several ways, including obtaining romantic connections and friendships (Miller, 2015), accessing resources (McInroy et al., 2019),

and existing in accepting spaces they may not have in their offline lives (Higa et al., 2014). In particular, online gay and lesbian associations have been cited as a source of activism, support, and a way to facilitate an online sense of community (Gorkemli, 2012). There is a small body of research examining this phenomenon of internet usage in lesbian communities. However, these findings are promising, as multiple studies state that lesbians also find this sense of community online (Gray, 2018; Hanmer, 2013).

Burke's (2000) study notes that personal advertisements online in the lesbian community facilitate connection and community engagement. Burke suggests that the internet may be unique for lesbian community engagement, as this space may feel safer than a traditional lesbian bar. In recent research, lesbian social media content creators note that their audiences feel more connected and represented when the creators discuss their lesbian identity in their content (Ladegaard, 2023).

In recent years, "TikTok," a social media application focused on video sharing, has gained increased usage (Unni & Weinstein, 2020) and has been identified as a space for LGBTQ+ individuals to feel connected with their community (Simpson & Semaan, 2020). LGBTQ+ youth note that during the COVID-19 pandemic, TikTok was a powerful tool for managing family relations, facilitating LGBTQ+ identity development and community belongingness, and sharing resources (Hiebert & Kortes-Miller, 2023). Similar to other online gay and lesbian communities, TikTok appears to have the potential to be a space for activism, possibly through its LGBTQ+ oriented content being an inspiration for users to consider a future where discrimination against the community is eliminated (Duguay, 2023). Explorations on how lesbian and queer women use the platform are minimal; however, there is a small body of research suggesting that the platform can be used for identity expression and activism for this group, particularly through the presence of "sapphic pop" on the platform (McEwan, 2023) and the community label of "Lesbian TikTok". For the purposes of this study, "Lesbian TikTok" is operationally defined as content and interactions on TikTok that specifically focus on lesbian identities, experiences, and issues, including videos created by and for lesbian individuals that promote community engagement, support, and activism.

Methods
Researcher Reflexivity Statement

The research team was composed of several individuals with various backgrounds and experiences with the study's subject matter. The first author identifies as a white, pansexual demigirl who was a first-year Master's student during the data collection process and served as a coder. The second author is a white, lesbian, cisgender woman who was an assistant professor and provided consultation and support with the methods and writing process. The third author identifies as a lesbian autistic woman, was also a first-year Master's student during the data collection and served as the first auditor of the project.

The fourth author identifies as a queer Indigenous person, was also a first-year Master's student, and served as a second coder. The final author is a white queer woman who was a social media consultant at the time of data collection. Our team consisted of members with varying degrees of involvement with social media, with some members being frequent users of LGBTQ+ TikTok in particular and others being more passive consumers of LGBTQ+ social media in general. These varying engagement levels allowed the team to consult and review the data from multiple vantage points.

We approached this study with a shared interest in the importance of a sense of community for lesbians, specifically exploring how social media can play a role in facilitating this sense of community. The research team extensively discussed how our experience with social media and the LGBTQ+ community would impact the study. Despite all researchers sharing an LGBTQ+ identity, their experience with social media varied, specifically with TikTok. Due to their first-hand experience of being LGBTQ+ and engaging in social media, as well as their previous work examining the LGBTQ+ community's experience with social media, the first author approached the study with the belief that social media can function as a way for lesbians to obtain a sense of community. However, they also acknowledged that social media can also be a space for LGBTQ+ content creators to experience discrimination from other users, which they remained cognizant of throughout the coding process.

Data Sources

The research team collected the top 100 comments on two videos from 11 popular lesbian TikTok content creators. These accounts predominantly featured

individual creators; however, two accounts featured lesbian couples who shared ownership of the account. During data collection, these videos had a subscriber range of 340 thousand to 9 million. There were no pre-established relationships between commenters, content creators, or the research team. However, one member was familiar with the content creators through their usage of TikTok, which helped inform the coding team of current events on the platform and provided context to certain comment sections.

Procedure

Prior to any data collection, the team received an exemption from the Research Ethics Board for analyzing the comments due to all data being publicly available. The team's criteria for the video was that (1) the video was made within the last year prior to analysis (from February 2022 to February 2023), and (2) the video directly addressed lesbian/queer women's experiences. The third author (primary auditor) then selected fifteen lesbian TikTok content creators by cross-referencing four online articles that listed popular lesbian influencers for review. Then, the auditor looked up the creators to determine if their content met the aforementioned criteria. Four creators from the original list were excluded from the analyses because their content did not meet the criteria or their account was removed from the platform, resulting in a final list of eleven content creators who produced content that met the study's criteria.

Following this review, we identified a maximum of two videos from each content creator. In situations where more than two videos from the creator fit the criteria, the videos with the most comments were selected, based on rationale that these videos had the most user engagement. This resulted in a final 22 videos being analyzed by the coding team. We then extracted the top 100 comments pre-sorted by TikTok with comments with the most likes or responses using Apify's TikTok Comments Scraper software program. The program scraped comments from TikTok videos, including comment text, user ID, timestamp, number of replies, replies content, and number of likes. In instances where videos had fewer than 100 comments, all comments were extracted and analyzed on NVivo, a qualitative data analysis software. Neither the content creators nor commenters were engaged at any point in the selection and collection process.

Analysis
Guiding Theory

The purpose of this study was to better understand how a sense of community is demonstrated on Lesbian TikTok. While different theoretical models exist for conceptualizing community, we selected McMillan and Chavis' (1986) sense of community framework due to its longstanding application in both offline and digital spaces. Their model, which identifies four key components—membership, influence, integration and fulfillment of needs, and shared emotional connection—provided a structured foundation for analyzing community building in an online context. This framework has been widely applied to digital communities, including social media, online support groups, and virtual activism spaces, demonstrating its adaptability to non-traditional, technology-mediated interactions (Blanchard, 2008; Obst et al., 2002).

Prior research has shown that McMillan and Chavis' model effectively captures how users express belonging and influence within online platforms, making it particularly relevant for examining Tik-Tok's role in fostering community among lesbian users (Chen et al., 2013). The model's emphasis on shared emotional connection is especially applicable in digital spaces, where community members rely on text, video content, and interactive comment sections to build social bonds and validate identities (Oh et al., 2014). Recognizing the unique affordances of TikTok, including its algorithm-driven engagement and participatory culture, we adapted McMillan and Chavis' framework to analyze how community manifests in this dynamic online space. The coding team conducted a close reading of McMillan and Chavis' original article (1989), carefully aligning its four core components with observable user behaviours on Tik-Tok. Through a series of three iterative discussions, the research team refined the codebook to ensure that the framework adequately captured the nuances of online interaction, identity expression, and community-building behaviours specific to Lesbian TikTok.

Deductive Content Analysis

Deductive content analysis (Neuendorf, 2017) is a type of content analysis in which the coding framework originates from a theory, operationalizing the theory within the coding process (Hsieh & Shannon, 2005). Deductive content analysis' utility for the present study resides in its ability to analyze data on a previous-

ly identified framework (Elo & Kyngäs, 2008). Initially, the first auditor created a codebook of 22 potential subthemes based on McMillan and Chavis' (1986) sense of community framework and a preliminary review of the data. During the coding process, the first auditor and two coders engaged in discussions to refine the definitions and applicability of the subthemes.

Through this iterative process, two additional subthemes emerged that were not fully captured by the original 22 subthemes. Specifically, the team identified a need to differentiate between explicit expressions of identity affirmation and implicit forms of community validation, leading to the addition of the subthemes "Identity Affirmation" and "Community Rituals." The final codebook consisted of 24 subthemes, reflecting a more nuanced representation of how users engaged with the content. Additionally, comments where the intended meaning could not be determined—either due to language barriers or ambiguity in context—were categorized under a 25th code titled "Unknown." This ensured that un-codable data was systematically accounted for without forcing interpretations that could misrepresent user intent.

After establishing the codebook and coding the videos, it was decided that comments could be coded two to five times to capture the nuances of the established subthemes. The two coders were then assigned different comment sections to code independently. In this process, the coders also used memoing to document and reflect on the process during each coding session, which helped inform several discussion points. Upon finishing the coding, the auditor and two coders met to discuss the findings and the process, informing the initial results.

Methodological Integrity

Perspective management in data collection was established through ongoing discussions between the coding team about how their own identities and perspectives may influence the analysis, maintaining awareness of these perspectives throughout the process. As recommended by Levitt and colleagues (2018), we utilized memoing and engaged in extensive conversations before and during the analysis process. These conversations included establishing agreement on the codebook between the two coders and the auditor before analysis and reviewing all coding by the first auditor to ensure the codes aligned with the subthemes.

While a formal interrater reliability check (e.g.,

Cohen's kappa) was not conducted, the research team took multiple steps to ensure coding consistency through these discussions and ongoing reflection. The second author, who served as a consultant, also suggested restructuring the findings. Given the constructivist paradigm of this study, which emphasizes the co-construction of knowledge and subjective meaning-making, these changes significantly modified the results section to reduce the emphasis on the frequency of each subtheme. Instead, they emphasized how the most common subthemes manifested in the comments. This restructuring was discussed extensively by the research team and was agreed upon as being best aligned with the study's goal of better understanding how a sense of community is presented in lesbian TikTok content creators' comment sections.

Results

Through the results, we identified codes aligning with each of the original four tenets established by McMillan and Chavis' (1986) theory of a sense of community: membership, shared emotional connection, influence and integration, and fulfillment of needs. All subthemes in our codebook guided by this theory were identified in some capacity, with prominence varying greatly between subthemes. A total of 2,070 comments were coded. However, we elected to explain the most salient subthemes from each theme to illustrate better how commenters experienced more prominent subthemes of a sense of community.

Membership

Membership was exhibited through commenters' sense of belonging within the lesbian TikTok community and expressed feelings of belongingness. Specific methods that commenters expressed this theme included users disclosing their own experiences, their investment in current events relevant to the lesbian community, and noting that they felt accepted by content creators and fellow commenters. To illustrate this, we selected three of the most salient subthemes that arose through our analysis: an investment of the self, shared importance of events and tasks, and emotional safety.

Investment

The subtheme of investment of the self was presented through users expressing personal sentiments regarding their lesbian identity and lived experiences. In comments with this subtheme, users often provided insight into their own experiences of being a lesbian

and mentioned their struggles with coming out. These conversations were often extensions of the video content itself, with users contributing their narratives and similarities to the lesbian experiences that the videos highlighted as well as their attraction to the content creators. For example, one user mentioned their previous same-sex attraction before coming out with the comment, "haha! my friend and I would play house at 10yrs & my mom caught us kissing like parents do. she freaked! I didn't get to play with her anymore after." (AveryCyrusV1, reference 16). Overall, this sub-theme reflected the relationship between user and creator experiences and their vulnerability in expressing these experiences online. This subtheme occurred 196 times and was found in 9.47% of all comments.

Shared Importance of Events and Tasks

The subtheme of shared importance of events and tasks was demonstrated through users expressing their sentiments regarding current topics of interest regarding popular topics amongst the lesbian community both on and off TikTok. Relationship speculation was highlighted as an important topic for users. In particular, one creator, speculated to be in a relationship with another popular creator in the videos extracted during the analysis, resulted in many users discussing this rumoured relationship in their comment sections. This discussion was also had on the other content creator's videos, with one user stating "It's my favourite drama show....Jojo, if u see this... we need u to stop for the sake of all lesbians...u know the lesbians are lesbianing too hard when king princess says so" (Kingprincessofficial69V1) on a video that referenced this situation. This overlap of discussion across videos demonstrates how prevalent the shared importance of events and tasks relevant to the community is expressed throughout multiple creators' videos. In total, the shared importance of events and tasks was mentioned in comments 132 times, making up 6.38% of comments.

Emotional Safety

Emotional safety refers to the security that users felt and expressed within the comment sections explicitly. Emotional safety consisted of the overt disclosure of the users in the comment sections feeling secure and a space for inclusion, which helped facilitate moments of investment by disclosing their personal experiences. One user expressed their adoration for a creator being a safe space for them by saying, "You're such a safe person I love this." Another comment also addressed how they

appreciated that a creator made a video about going no contact with family due to their lesbian identity as the content itself became a space to alleviate their isolation in the matter. They expressed this gratitude with the following comment: "i always have felt so uncomfortable about this topic and alone. this helps so much."

This sub-theme described the level of security that users felt when engaging with creators and other users on the platform. This subtheme often overlapped with the previous two subthemes, yet was distinct in that it facilitated users expressing themselves. In particular, emotional safety was intertwined with the level of comfort and vulnerability users stated when expressing their connection with creators and their content on TikTok. This sub-theme occurred 130 times, accounting for 6.28% of all comments.

Influence

The key component of influence refers to the degree to which community members are able to impact and shape the community's decisions, activities, and outcomes. It reflects the extent of individual and collective power and control within the community. In the current dataset, influence was represented by members extrapolating their own lesbian/queer woman identity from the video content in the form of comments, expressing their own opinions and views within the context of the video, and meshing into the larger lesbian TikTok community by expressing the same sentiment as a larger theme of comments on the video. By doing this, users expressed personal sentiment and conformity to the video's messages. The three most common themes identified included consensual validation, personal stake, and conformity.

Consensual Validation

The subtheme of consensual validation was displayed through members expressing validation or approval of the creator, which was not predatory in nature. Some of these comments spoke to the physical appearance of the creator, such as "You look so cute, Avery! Hope you are doing well," and "You are like a female young Ralph Macchio in the best way possible." Additionally, consensual validation was illustrated by the praise of users for the content creators' relationships, with some comments stating, "You are a stunning beautiful gorgeous couple and very jealous off you both ❤️❤️❤️❤️❤️🤗," and "All my love to you, you're a beautiful soul with a beautiful partner. 🥰🥺." Consensual validation in this

context appeared to speak to approval of the "fit" of the couple, as well as their attractiveness to the commenters. Consensual validation was identified 290 times, encompassing 14.01% of all comments.

Personal Stake

Users depicted the subtheme of personal stake by expressing personal opinions of their investment and attraction to creators. One user expressed their attraction on a video with a creator mentioning that they would "spoil" the viewer if they were in a romantic relationship with them by stating, "I'm not spoiled, but I'd definitely get spoiled by you." Additionally, the deep commitment to the TikTok creators' lives was illustrated by the quote: "The courage you have shown has been such an inspiration to so many of us! Life after no contact can be beautiful! Thank you for proving that." Personal stake was also illustrated by creators expressing their own opinions regarding lesbian TikTok creator "drama." One specific example of this iteration of personal stake was through the quote of one commenter who felt sympathy for one of the creators amidst the drama, stating:

> "it's not funny she's trying her best hopefully you don't take this offensively but some things get hard so remember if you We're in the situation and someone thought it was funny you wouldn't be very thankful about that so just remember what you say can hurt someone but if they were to say to you you would really be hurt also don't take this offensively I'm sorry just supporting"

Another user retorted to this comment with their personal opinion, stating, "No. You don't get out of a two year relationship and go date someone else the week after..... I don't care if you're hurting, you don't do that." Overall, users felt that they were valid in expressing their personal stake in the content creators' lives through the comment sections of their videos. This subtheme was enlightening, as it demonstrated the vulnerability the community held in expressing their opinions associated with content creators on a public platform. This subtheme was seen 175 times, which reflected 8.45% of all comments.

Conformity

The subtheme of conformity was often coded with the phenomenon of "atting(@)" oneself by saying, "This is totally me," or "Me." These comments would include commenters announcing their conformity with the video's content, suggesting that the video was

a representation of themselves and their views. Other comments would feature their conformity to the opinions within the comment section, with several members expressing similar sentiments. One example of this was a video containing a lesbian couple who falsely teased a pregnancy announcement to reaffirm their childfree status, with multiple commenters reaffirming the video by stating "you tell em!! your entitled your privacy and your own life outside of social media!" and "I understand where you're coming from in wanting to be apart of their journey and we've all come to enjoy that yes...but EVERYONE deserves privacy too." Overall, conformity was illustrated through the consensus of opinion displayed in each comment section and occurred 196 times, representing 9.47% of all comments.

Integration and Fulfillment of Needs

The key component of integration and fulfillment of needs refers to the extent to which individuals feel a sense of belonging and connection within a community and the degree to which their social and psychological needs are met within that community. Although the sub-themes of integration and fulfillment of needs were less prominent than the sub-themes exhibited throughout the other four themes, all sub-themes occurred at least once. This theme manifested through commenters expressing how the content has helped them become well-versed in topics relevant to the lesbian TikTok community and users expressing willingness to provide and accept support from other users or the creators in the comment sections. The three sub-themes that will be explained further include group and individual competence, need fulfillment, and mutual aid.

Group and Individual Competence

This sub-theme encompasses commenters knowing relevant community-specific information. In the comment sections, group and individual competence were shown through users responding to current TikTok drama. For example, several users shared their knowledge and opinions associated with a relevant TikTok lesbian influencer couple who was experiencing controversy by saying "I mean the last 24 hours alone is enough to fill the 2022 drama quota. Period." and "i think they lesbian'd a little too close to the sun." Additionally, commenters also expressed that the content they consumed helped them maintain their insight of relevant news for the community on TikTok, with another commenter saying, "This is

pretty accurate and needed because I am in my mid-20s and so busy with work to get the TEA." These comments highlight the inherent desire for users to stay connected to culturally relevant events, such as influencer drama, as well as express their opinions surrounding these recent events. This subtheme was identified 99 times, making up 4.78% of all comments.

Need Fulfillment

The sub-theme of need fulfillment was exhibited, with commenters expressing how the content consumed benefited them. Examples include expressions of what content engagement means to the commenter, such as "I'm following u because Im inspired and that's it.. Idc about your marriage or relationship." Users also expressed gratitude for the content, as one user said, "I always have felt so uncomfortable about this topic and alone. this helps so much. thank you." Lastly, some comments specifically mentioned how the creators' video will benefit the user in real life, with one comment stating, "Coming out soon and needed this reminder that it will get better 🤍." This sub-theme helped demonstrate the utility of creator videos in validating and fulfilling emotional needs. Needs Fulfillment was coded in 33 comments, or 1.59% of the total comments analyzed.

Mutual Aid

Lastly, the sub-theme of mutual aid featured commenters who were both willing to receive and provide help to other group members. Some of this aid manifested in the form of emotional support offered by other members, with one commenter expressing, "I'm a 40-year-old mother with three kids. I have a grandchild on the way. I am a part of the community. Please do not hesitate to message me about anything." A noteworthy interaction was when one creator voiced their desire to help a commenter when they requested a video on tips to come out, saying, "I would love to talk about this more, I'll pin your comment in a video soon 😅." Other commenters expressed their need for aid, "I need tips. My whole biological and foster family are toxic, but I always end up talking to them again. But I can't keep doing this to myself." These comments highlighted the community's ability to provide and accept support, as well as their comfort of doing so in the comment sections. Mutual aid was seen in 14 comments, equating to 0.68% of comments analyzed.

Shared Emotional Connection

The key component of shared emotional con-nection refers to the degree to which community members feel emotionally connected to one another. It reflects the extent to which community members experience a sense of empathy, caring, and support from others within the community. Commenters exhibited this theme through their investment in the lesbian TikTok community, connections with others in the community through comment sections, and the positivity expressed in their comments. The three most salient sub-themes that were identified included personal investment in the shared lived experience, peer relations, and positive regard.

Personal Investment in the Shared Lived Experience

This sub-theme refers to the shared lived experience, referring to the commitment that the community has (and will continue to share) a history, common places, shared events, time together, and similar experiences. Commenters expressed this sub-theme through their investment in both the content of the video and the creators' lesbian identity. On a video that spoke about familial rejection, users shared the commonalities in their experiences with the creator, saying "Yep felt this. Just hit my one year too. It gets better baby so proud of u," and "You're truly an inspiration, having gone through this myself it's amazing to see the confidence once you start doing what's best for YOU!" Another creator made a video which discussed the stigma associated with expressing their sexuality as fluid, with commenters noting their shared experience by saying "Agreed! I'm tired of explaining my $exuality and I just don't want to have to explain myself 😅 if that makes sense ✨," and "Thissss is why I've been using queer, bc bisexual doesn't feel right and I think it's fluid/a spectrum." Overall, it appears that commenters used the universality of the lesbian/queer experience to connect themselves closer to the content and content creators. Seven percent of the comments analyzed included this subtheme, with 145 occurrences in total.

Positive Regard

Positive regard refers to positive experiences among group members. Commenters expressed this positive regard through acceptance of creators and their appreciation for them. For example, commenters expressed this appreciation for two creators who announced their wedding by stating, "No matter what my mood is any video that you post showing how happy the two of you are together being married and happy just puts

a smile on my face!" and "WOW. you both look spectacular in your wedding dresses! love your strength to live YOUR lives!" Other commenters expressed positive sentiment for the creators by posting comments supporting their life, saying, "I hope life just keeps getting better for you ❤️," and using heart emojis (❤️) to express this positivity. Positive regard appeared to encapsulate feelings of approval and acceptance from commenters to creators. This sub-theme, occurring 334 times, was coded in 16.14% of the total comments.

Peer Relations

This sub-theme encompasses the relationships and bonds between members of a group. This sub-theme appeared to emerge with commenters engaging with one another instead of directly with the content creator. This was achieved through commenters "atting" their friends or partners to share the content with them as a form of communication. Other times, commenters would have organic interactions with each other regarding the video topic. In particular, the aforementioned video with the fake pregnancy announcement included this interaction "damn not gonna lie they had me thinking they were gonna have a kid," and "oh ya. lol totally thought they were announcing." In general, peer relations were driven by users sharing the content to connect with others, as well as responding to already posted comments to form a connection. In total, 234 comments demonstrated peer relations, which was 11.30% of all comments.

Discussion

The objective of this study was to explore the sense of community experienced by lesbians within LGBTQ+ specific TikTok accounts. Results demonstrated that the four foundational components outlined by McMillan and Chavis' sense of community theory (1986) were displayed through the various subthemes. These findings highlight TikTok's potential as a platform for nurturing this sense of community, indicating that the "queer potential" suggested by Duguay (2023) regarding TikTok's role in social movements and the future of the LGBTQ+ community extends to the lesbian demographic as well. However, this study also deepened our understanding of how a sense of community may vary in digital realms, suggesting that this piece of research is foundational in further expanding our understanding of this topic.

The manner in which a sense of community was

exhibited demonstrates the unique ways that commenters on lesbian TikTok videos facilitate spaces of acceptance and belongingness, particularly with the platform and the content creators themselves being a conduit for certain subthemes to be expressed. For example, the subtheme of group and individual competence was established by users discussing relevant topics associated with lesbian TikTok content creators. Similarly, a parasocial sort of connection with the content creators was found in the sub-themes of need fulfillment and a personal investment in the shared lived experience, as users would often praise creators in their comments and express how the content made them feel less alone regarding their lesbian identity. The relationship between isolation and parasocial relationships aligns with previous literature suggesting that parasocial relationships moderate loneliness and depressive symptoms (Woznicki et al., 2021). These findings demonstrate how TikTok, as a platform and its content creators themselves, appear to be a mechanism to facilitate a sense of community for its user base.

In contrast, other sub-themes appeared to align more with traditional displays of a sense of community. In particular, mutual aid was expressed through individuals offering assistance and support to other users through direct messaging, similar to what one may see in a physical space, which establishes a sense of community (Baiocco et al., 2012). Similarly, peer relations were sustained through users' conversations through the "reply comment" function on the app and by tagging friends in the comments. It is important to note that although peer relations pertained to interactions between users, these conversations were related to the content creators and "atting" (the practice of tagging others to a piece of content for them to view) as a way to share these creators and their content with others. This newly identified space to facilitate a sense of community may benefit lesbians who do not have access to traditional physical spaces, such as individuals who live in rural areas or do not feel comfortable visiting these spaces. These findings highlight how the content of the videos created on Lesbian TikTok interplays with how a sense of community presents on the platform.

However, it is essential to recognize the role of TikTok's algorithm in shaping how a sense of community manifests within this space. The platform's recommendation system curates content visibility based on engagement metrics such as likes, shares, and comments,

which may amplify dominant voices while deprioritizing marginalized perspectives (Okoronkwo, 2024; Simpson & Semaan, 2021). This has implications for digital community-building, as highly engaged content may reinforce existing community norms while limiting the visibility of dissenting or less mainstream voices.

Furthermore, TikTok's algorithm is known to promote viral content over more niche or marginalized narratives, meaning that certain perspectives within the lesbian community may be systematically underrepresented. Previous research suggests that algorithmic bias on social media platforms disproportionately affects LGBTQ+ users, particularly those at the intersections of race, gender identity, and socioeconomic status (Simpson & Semaan, 2021). As a result, the representation of community interactions in this study may be influenced by the algorithm's selection mechanisms rather than reflecting the full diversity of perspectives within Lesbian TikTok. Future research should investigate how algorithmic visibility structures shape online queer communities and whether alternative digital platforms offer different or more inclusive community-building experiences.

In addition, users also expressed their gratitude and the positive impact of having these spaces online to express their lesbian identity, suggesting that these videos and comment sections may serve a role in facilitating well-being for users. These bolstering effects align with previous research suggesting that digital spaces play a role in minimizing stressors associated with one's LGBTQ+ identity and reaffirming social identities (Lopez-Leon & Casanova, 2023; Wagaman et al., 2020). They also reaffirm Burke's (2000) findings that lesbians may use the internet to feel a higher sense of engagement with the community. This identification of TikTok as potentially bolstering for lesbian users' well-being is promising, although future research is needed to examine the relationship between use and well-being outcomes.

Limitations

Turning attention to the limitations of the present study, they reside in the methodologies and context of the selected videos. The content in the selected videos varied between personal stories, humorous videos, and educational content, which impacted how a sense of community was expressed. Additionally, the significant variance in video views, ranging from 37.8 thousand to 3.3 million across all videos, sug-

gests differing levels of video circulation and unequal exposure, which also may have limited certain comment sections from exhibiting a sense of community due to a lack of user engagement with these videos.

Further, as we were unable to access demographic information on participants, findings may not reflect the diversity of community-related experiences for lesbians of different racial and socioeconomic backgrounds. Moreover, the context of when the videos selected were posted may have impacted how themes were expressed. In particular, we noticed that the videos collected coincided with a period of TikTok "drama" concerning the breakup of Jojo Siwa and Avery Cyrus (i.e., celebrities in the lesbian/queer community). As such, many comments were discussing this topic, and some of the examples in the results section referred to this specific event. This event was of importance to the community, with multiple videos and comment sections referring to it. This significant occurrence in the lesbian TikTok community may have influenced the comment sections to express group and individual competence surrounding this matter.

Another potential limitation of this study is the selection bias inherent in analyzing only the top 100 comments for each video. TikTok's algorithm prioritizes comments with high engagement, such as those receiving the most likes or replies, potentially amplifying dominant voices while underrepresenting the perspectives of less engaged users. This may result in an overrepresentation of more dominant viewpoints within the community while minimizing the voices of those with less visibility, such as marginalized users or those who engage with content in more passive ways (e.g., scrolling without commenting). As a research team, we prioritized collecting data from a range of influencers; however, future research could incorporate a broader sample of comments, including those with lower engagement or those posted across different timeframes, to capture a more diverse range of community interactions.

Lastly, due to the study's focus on publicly accessible comments on TikTok videos, additional areas of investigation remained unanswered. For instance, the tone and intent of comments could not be accurately inferred solely from their content, potentially leading to miscoding based on the comment's explicit content rather than the underlying intent of the creator. Additionally, TikTok's "direct message" feature

allows users to privately communicate with creators, which might produce different components of a sense of community. This is of particular interest due to examples of the mutual aid sub-theme, suggesting that users may privately message each other after an initial interaction on a public video. The lack of analysis of this feature on TikTok limits the study's capacity to comprehensively explore how a sense of community is nurtured for lesbians on the platform.

Future Directions

Results from the current study help establish a promising avenue of future research exploring the Lesbian TikTok community. Our suggestions for future research reflect the unexplored potential of this novel research topic. Firstly, future studies should aim to look at how a sense of community is longitudinally created on TikTok for the Lesbian community. This more widespread exploration may aid in the understanding of how a sense of community develops over time. Similarly, the exploration of how certain types of videos influence how sub-themes are expressed would be a valuable endeavor, particularly when comparing comedy versus more personal content. These future investigations would help better understand how context and content influence how users express a sense of community on TikTok.

Alternatively, research exploring the perspectives and experiences of Lesbian TikTok members may help deepen our understanding of a sense of community in this realm. Qualitative interviews may assist in understanding how consumers and creators of Lesbian TikTok content experience a sense of community online. The benefits of qualitative interviews are twofold, as they would both deepen the understanding of how Lesbian TikTok content creators and commenters conceptualize a sense of community, as well as explore potential strengths and weaknesses that TikTok possesses as a platform for this phenomenon. Such research may also inform the policies and procedures that TikTok employs to improve the well-being of its users.

Due to the findings that, although a sense of community can be created online, the manner in which it presents is unique, research exploring how these spaces are created and maintained is important. Gaining a more comprehensive understanding of Lesbian TikTok and how a sense of community is forged in this space requires further investigation into how relationships between creators and community are formed. Specifically, delving into the psychological aspects of online engagement, including the formation of virtual identities and the dynamics of parasocial relationships, could provide a deeper comprehension of why specific elements of a sense of community struggle to translate effectively within comment sections. Such explorations could be beneficial in establishing a newfound understanding of what a virtual sense of community looks like and the mechanisms behind forging and maintaining these spaces.

TikTok as a platform appeared to be a key piece of context in the expression of certain subthemes, and further research should encompass examining the experiences of lesbians on various social media platforms they currently engage with. This broader perspective could offer insights into how a sense of community is cultivated online within this community. Similarly, investigating the feedback received by content creators across different social media platforms could shed light on whether distinct platforms facilitate different facets of a sense of community. Lastly, conducting a comparative analysis between fostering a sense of community in public versus private communication settings could contribute to a more comprehensive understanding of how this sense of community develops on the TikTok platform.

Conclusion

Studying online lesbian communities can inform our understanding of how LGBTQ+ individuals build a sense of community in a post-COVID society. It provides insights into how online platforms connect, share information, and provide support within the lesbian/queer women community at large. Further, understanding online communities helps researchers comprehend the factors that shape these communities and the experiences of LGBTQ+ individuals within them. However, despite the decline of lesbian-centred spaces, there continues to be a need for safe and inclusive spaces for lesbian-identifying people to gather, connect, and develop a sense of community.

The current study found that social media platforms, such as TikTok, can foster a sense of community. To our knowledge, this is the first endeavour looking at a sense of community for lesbians on TikTok. The understanding of the lesbian community on TikTok needs to be further explored to gain further insight regarding how the type of content disseminated and the timeliness of relevant issues for

the community further impact how it is established.

References

American Psychological Association, APA Task Force on Psychological Practice with Sexual Minority Persons (2021). *Guidelines for Psychological Practice with Sexual Minority Persons*. Retrieved from www.apa.org/about/policy/psychological-practice-sexual-minority-persons.pdf.

Baiocco, R., Laghi, F., Di Pomponio, I., & Nigito, C. S. (2012). Self-disclosure to the best friend: Friendship quality and internalized sexual stigma in Italian lesbian and gay adolescents. *Journal of Adolescence (London, England.), 35*(2), 381–387. https://doi.org/10.1016/j.adolescence.2011.08.002

Blanchard, A. L. (2008). Testing a model of sense of virtual community. *Computers in Human Behavior, 24*(5), 2107-2123. https://doi.org/10.1016/j.chb.2007.10.002

Burke, S. K. (2000). In search of lesbian community in an electronic world. *Cyberpsychology & Behavior, 3*(4), 591–604. https://doi.org/10.1089/109493100420197

Busby, D. R., Horwitz, A. G., Zheng, K., Eisenberg, D., Harper, G. W., Albucher, R. C., Roberts, L. W., Coryell, W., Pistorello, J., & King, C. A. (2020). Suicide risk among gender and sexual minority college students: The roles of victimization, discrimination, connectedness, and identity affirmation. *Journal of Psychiatric Research, 121*, 182–188. https://doi.org/10.1016/j.jpsychires.2019.11.013

Brown-Saracino, J. (2019). Aligning our maps: A call to reconcile distinct visions of literatures on sexualities, space, and place. *City & Community, 18*(1), 37–43. https://doi.org/10.1111/cico.12378

Brown-Saracino, J. (2020). From situated space to social space: Dyke bar commemoration as reparative action. *Journal of Lesbian Studies, 24*(3), 311–325. https://doi.org/10.1080/10894160.2019.1684753

Cavalcante, A. (2019). Tumbling Into queer utopias and vortexes: experiences of lgbtq social media users on tumblr. *Journal of Homosexuality, 66*(12), 1715–1735. https://doi.org/10.1080/00918369.2018.1511131

Chen, G., Yang, S., & Tang, S. (2013). Sense of virtual community and knowledge contribution in a P3 Virtual Community. *Internet Research, 23*(1), 4–26. https://doi.org/10.1108/10662241311295755

Clements, A. (2019). *All We've Got* [Film]. Women Make Movies.

Closson, L. M., & Comeau, E. (2021). Youth's experiences with inclusion, isolation, and discrimination in the LGBTQ+ community. *Journal of Community & Applied Social Psychology, 31*(6), 782–795. https://doi.org/10.1002/casp.2525

Compton, J. (2021, June 3). 'The Lesbian Bar Project' chronicles the decline of women's queer spaces. *NBC News*. https://www.nbcnews.com/feature/nbc-out/lesbian-bar-project-chronicles-decline-women-s-queer-spaces-n1269463

Corteen, K. (2002). Lesbian safety talk: Problematizing definitions and experiences of violence, sexuality and space. *Sexualities, 5*(3), 259–280. https://doi.org/10.1177/1363460702005003001

Denny, D. (2015). *The Last Lesbian Bars* [Film]. Vice Media.

Doyle, D. M., & Molix, L. (2014). Perceived discrimination as a stressor for close relationships: identifying psychological and physiological pathways. *Journal of Behavioral Medicine, 37*(6), 1134–1144. https://doi.org/10.1007/s10865-014-9563-8

Duguay, S. (2023). TikTok's queer potential: Identity, methods, movements. *Social Media + Society, 9*(1), 205630512311575. https://doi.org/10.1177/20563051231157594

Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing, 62*(1), 107–115. https://doi.org/10.1111/j.1365-2648.2007.04569.x

Faderman, L. (1991). *Odd Girls and Twilight Lovers: A History of Lesbian Life in Twentieth-Century America*. Columbia University Press. http://www.jstor.org/stable/10.7312/fade07488

Fish, J. N., McInroy, L. B., Paceley, M. S., Williams, N. D., Henderson, S., Levine, D. S., & Edsall, R. N. (2020). "I'm kinda stuck at home with unsupportive parents right now": LGBTQ youths' experiences with covid-19 and the importance of online support. *Journal of Adolescent Health, 67*(3), 450–452. https://doi.org/10.1016/j.jadohealth.2020.06.002

Glassman-Hughes, E. (2023, September 25). Lesbian

bars are disappearing nationwide, but there are signs of life in Mass. *The Boston Globe*. https://www.bostonglobe.com/2023/09/25/arts/danis-queer-bar-boston-lesbian-bar/

Gorkemli, S. (2012). Coming out of the internet: Lesbian and gay activism and the internet as a "digital closet" in turkey. *Journal of Middle East Women's Studies, 8*(3), 63–88. https://doi.org/10.2979/jmiddeastwomstud.8.3.63

Gray, K. L. (2018). Gaming out online: Black lesbian identity development and community building in Xbox Live. *Journal of Lesbian Studies, 22*(3), 282–296. https://doi.org/10.1080/10894160.2018.1384293

Gross, L. (2003). The gay global village of cyberspace. In Couldry, N. & Curran, J. (Eds). *Contesting media power : alternative media in a networked world*. (pp. 259-272). Rowman & Littlefield.

Hankin, K. (2002). *The girls in the back room : Looking at the lesbian bar*. University of Minnesota Press.

Hanmer, R. (2013). Xenasubtexttalk: The impact on the lesbian fan community through its online reading and writing of lesbian fan fiction in relation to the television series Xena: Warrior Princess. *Feminist Media Studies, 14*, 608–622. https://doi.org/10.1080/14680777.2012.754778

Hartless, J. (2018). "They're gay bars, but they're men bars": Gendering questionably queer spaces in a Southeastern US university town. *Gender, Place and Culture : A Journal of Feminist Geography, 25*(12), 1781–1800. https://doi.org/10.1080/0966369X.2018.1557601

Hendricks, M. L., & Testa, R. J. (2012). A conceptual framework for clinical work with transgender and gender nonconforming clients: An adaptation of the Minority Stress Model. *Professional Psychology: Research and Practice, 43*(5), 460–467. https://doi.org/10.1037/a0029597

Hiebert, A., & Kortes-Miller, K. (2023). Finding home in online community: Exploring TikTok as a support for gender and sexual minority youth throughout COVID-19. *Journal of LGBT Youth, 20*(4), 800–817. https://doi.org/10.1080/19361653.2021.2009953

Hoeffner, M. K. (2023, November 17). *Lesbian Bars Were Nearly Extinct. Now a Wave of New Ones Is Thriving*. Bon Appetit. https://www.bonappetit.com/story/lesbian-bars-revival#:~:text=Were%20Nearly%20Extinct.-,Now%20a%20Wave%20of%20New%20Ones%20Is%20Thriving,no%20longer%20wanted%E2%80%94or%20needed.

Hsieh, H.-F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research, 15*(9), 1277–1288. https://doi.org/10.1177/1049732305276687

Hutchison, B. (2015). Lesbian blood drives as community-building activism in the 1980s. *Journal of Lesbian Studies, 19*(1), 117–128. https://doi.org/10.1080/10894160.2015.968079

Jackson, S. D. (2017). "Connection is the antidote": Psychological distress, emotional processing, and virtual community building among lgbtq students after the orlando shooting. *Psychology of Sexual Orientation and Gender Diversity, 4*(2), 160–168. https://doi.org/10.1037/sgd0000229

Kertzner, R. M., Meyer, I. H., Frost, D. M., & Stirratt, M. J. (2009). Social and psychological well-being in lesbians, gay men, and bisexuals: the effects of race, gender, age, and sexual identity. American *Journal of Orthopsychiatry, 79*(4), 500–510. https://doi.org/10.1037/a0016848

Mattson, G. (2019). Are gay bars closing? Using business listings to infer rates of gay bar closure in the united states, 1977–2019. *Socius : Sociological Research for a Dynamic World, 5*, 237802311989483-. https://doi.org/10.1177/2378023119894832

Mattson G. (2023). The changing mix of gay bar subtypes after covid-19 restrictions in the united states, 2017 to 2023. *Socius : Sociological Research For A Dynamic World, 9*, 23780231231181902. https://doi.org/10.1177/23780231231181902

McEwan, S. K. (2024). Bi the way, we exist: Exploring bisexual affinities and identity performance on TikTok's affective archives. In *Global LGBTQ Activism* (1st ed., pp. 299–315). Routledge. https://doi.org/10.4324/9781003395805-18

McInroy, L. B., McCloskey, R. J., Craig, S. L., & Eaton, A. D. (2019). LGBTQ+ youths' community engagement and resource seeking online versus offline. *Journal of Technology in Human Services, 37*(4), 315–333. https://doi.org/10.1080/15228835.2019.1617823

McLaren, S. (2009). Sense of belonging to the general and lesbian communities as predictors of depression among lesbians. *Journal of Homosexuality, 56*(1), 1–13. https://doi.

org/10.1080/00918360802551365

McLaren, S., & Castillo, P. (2021). The relationship between a sense of belonging to the lgbtiq+community, internalized heterosexism, and depressive symptoms among bisexual and lesbian women. *Journal of Bisexuality, 21*(1), 1–23. https://doi.org/10.1080/15299716.2020.1862726

McMillan, D. W., & Chavis, D. M. (1986). Sense of community: A definition and theory. *Journal of Community Psychology, 14*(1), 6–23.https:///doi.org/10.1002/1520-6629(198601)14:1%3C6::AID-JCOP2290140103%3E3.0.CO;2-I

Ladegaard, L. A. (2023). "No one believes we dated" - lesbian YouTube as a tool for rhetorical citizenship. *Feminist Media Studies, 24*(2), 369–384. https://doi.org/10.1080/14680777.2023.2218594

Lambe, J., Cerezo, A., & O'Shaughnessy, T. (2017). Minority stress, community involvement, and mental health among bisexual women. *Psychology of Sexual Orientation and Gender Diversity, 4*(2), 218–226. https://doi.org/10.1037/sgd0000222

Levitt, H. M., Bamberg, M., Creswell, J. W., Frost, D. M., Josselson, R., & Suárez-Orozco, C. (2018). Journal article reporting standards for qualitative primary, qualitative meta-analytic, and mixed methods research in psychology: The APA publications and communications board task force report. *The American Psychologist, 73*(1), 26-46. https://doi.org/10.1037/amp0000151

Lopez-Leon, G., & Casanova, S. (2025). "Those are the spaces where I feel seen and fully understood": Digital counterspaces fostering community, resistance, and intersectional identities among Latinx LGBTQ+ emerging adults. *Journal of Adolescent Research, 40*(2), 331-360.

Meyer I. H. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: conceptual issues and research evidence. *Psychological Bulletin, 129*(5), 674–697. https://doi.org/10.1037/0033-2909.129.5.674

Meyer, I. H., & Frost, D. M. (2012). Minority stress and the health of sexual minorities. In *Handbook of Psychology and Sexual Orientation*. Oxford University Press. https://doi.org/10.1093/acprof:oso/9780199765218.003.0018

Miller, B. (2015). "They're the modern-day gay bar": Exploring the uses and gratifications of social networks for men who have sex with men. *Computers in Human Behavior, 51*, 476–482. https://doi.org/10.1016/j.chb.2015.05.023

Neuendorf, K. A. (2017). *The Content Analysis Guidebook* (Second Edition). SAGE Publications, Inc. https://doi.org/10.4135/9781071873045

Obst, P., Zinkiewicz, L., & Smith, S. G. (2002). Sense of community in science fiction fandom, Part 2: Comparing neighborhood and interest group sense of community. *Journal of Community Psychology, 30*(1), 105-117. https://doi.org/10.1002/jcop.1053

Oh, H. J., Ozkaya, E., & LaRose, R. (2014). How does online social networking enhance life satisfaction? the relationships among online supportive interaction, affect, perceived social support, sense of community, and life satisfaction. *Computers in Human Behavior, 30*, 69–78. https://doi.org/10.1016/j.chb.2013.07.053

Okoronkwo, C. E. (2024). Algorithmic bias in media content distribution and its influence on media consumption: Implications for diversity, equity, and Inclusion (Dei). *International Journal of Social Sciences and Management Review, 07*(05), 296–310. https://doi.org/10.37602/ijssmr.2024.7523

Parmenter, J. G., Galliher, R. V., & Maughan, A. D. A. (2020). An exploration of LGBTQ+ community members' positive perceptions of lgbtq+ culture. *The Counseling Psychologist, 48*(7), 1016-1047. https://doi.org/10.1177/0011000020933188

Petruzzella, A., Feinstein, B. A., Davila, J., & Lavner, J. A. (2019). Moderators of the association between community connectedness and internalizing symptoms among gay men. *Archives of Sexual Behavior, 48*(5), 1519–1528. https://doi.org/10.1007/s10508-018-1355-8

Rieger, S. (2020, April 12). Drag queens go digital, with gay bars closed indefinitely due to COVID-19. *CBC News*. https://www.cbc.ca/news/canada/calgary/drag-queens-online-shows-1.5530173#:~:text=Calgary-,Drag%20queens%20go%20digital%2C%20with%20gay%20bars%20closed%20indefinitely%20due,without%20a%20stage%20to%20perform.

Rude, M. (2020, December 30). 30 best Sapphic bops of 2022. *Out Magazine*. https://www.out.com/

music/2022/12/30/best-sapphic-bops-2022

Scroggs, B., Love, H. A., & Torgerson, C. (2021). COVID-19 and LGBTQ emerging adults: Risk in the face of social distancing. *Emerging Adulthood (Thousand Oaks, CA), 9*(5), 639–644. https://doi.org/10.1177/2167696820968699

Simpson, E., & Semaan, B. (2021). For You, or For"You"?: Everyday LGBTQ+ Encounters with TikTok. *Proceedings of the ACM on Human-Computer Interaction, 4*(CSCW3), 1–34. https://doi.org/10.1145/3432951

Stryker, S. & Bettcher, T. (2016). Introduction/trans/feminisms. *Transgender Studies Quarterly, 3*(1–2): 5–14. https://doi.org/10.1215/23289252-3334127

Unni, Z., & Weinstein, E. (2021). Shelter in place, connect online: Trending tiktok content during the early days of the U.S. COVID-19 pandemic. *Journal of Adolescent Health, 68*(5), 863–868. https://doi.org/10.1016/j.jadohealth.2021.02.012

Wagaman, M. A., Watts, K. J., Lamneck, V., D'Souza, S. A., McInroy, L. B., Eaton, A. D., & Craig, S. (2020). Managing stressors online and offline: LGBTQ+ youth in the southern united states. *Children and Youth Services Review, 110*, 104799-. https://doi.org/10.1016/j.childyouth.2020.104799

Woznicki, N., Arriaga, A. S., Caporale-Berkowitz, N. A., & Parent, M. C. (2021). Parasocial relationships and depression among lgbq emerging adults living with their parents during COVID-19: The potential for online support. Psychology of Sexual *Orientation and Gender Diversity, 8*(2), 228–237. https://doi.org/10.1037/sgd0000458

Zimmerman, L., Darnell, D. A., Rhew, I. C., Lee, C. M., & Kaysen, D. (2015). Resilience in community: A social ecological development model for young adult sexual minority women. *American Journal of Community Psychology, 55*(1–2), 179–190. https://doi.org/10.1007/s10464-015-9702-6