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Looking Beyond Culture: Ecological Correlates, Reinforcement Processes, and Mental Health
Consequences of Self-Criticism in Asian Americans

A dissertation submitted in partial satisfaction of the requirements
for the degree Doctor of Philosophy
in Psychology

by
Belinda Chen

2026

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ABSTRACT OF THE DISSERTATION

Looking Beyond Culture: Ecological Correlates, Reinforcement Processes, and Mental Health Consequences of Self-Criticism in Asian Americans

by

Belinda Chen

Doctor of Philosophy in Psychology

University of California, Los Angeles, 2026

Professor Anna Shan-Lai Chung, Chair

Asian Americans (AAs) face growing mental health risks, including rising rates of anxiety, depression, post-traumatic stress, and suicide (Lee et al., 2022; Karaye, 2022; Hahm et al., 2021; Twenge et al., 2021). Longitudinal data show that while mental health problems improved for White, Black, and Latine groups following the COVID-19 pandemic, it worsened among AAs, likely reflecting persistent discrimination experiences that were exacerbated by scapegoating of AAs during the pandemic (Cheslack-Postava et al., 2024; Dougan et al., 2024; Wu et al., 2021). Despite these growing mental health disparities, AAs remain persistently underserved due to stigma and a lack of culturally appropriate interventions. Thus, AAs face an increasing mental health care gap (Chu & Sue, 2011; Zhou et al., 2021). Self-criticism, a transdiagnostic trait associated with depression, anxiety, psychosis, and personality disorders (Werner et al., 2019a), has been identified as more prevalent among AAs relative to other

racial/ethnic groups (Castro & Rice, 2003; Chang & Asakawa, 2003; Pourmand et al., 2024) and may be one factor associated with rising mental health problems among AAs. Research on self-criticism has narrowly attributed elevated self-criticism in AAs to cultural heritage and family processes while minimizing the role of race-related stress, and few studies to date have examined the psychological processes that may sustain self-criticism in AAs over time.

The present dissertation employed a convergent parallel mixed methods approach with two aims: (1) Study 1 examined ecological correlates of self-criticism in AAs, integrating family processes, heritage cultural values, and race-related stress; and (2) Study 2 assessed positive and negative reinforcement processes that may maintain self-criticism in this population, specifically testing whether self-criticism is positively reinforced in the short-term through increased task motivation and persistence, and subsequently through increased self-efficacy; as well as whether self-criticism is negatively reinforced subsequently through reductions in negative affect. A sample of 258 Asian American undergraduate students ($M_{age} = 20.32$; 74.4% cisgender female; 46.12% East Asian, 23.26% Multiracial Asian, 18.22% Southeast Asian, 10.85% South Asian, 1.55% Other) completed a baseline survey and 10-day daily diary study. Additionally, a subsample of 20 participants with elevated self-criticism completed a 60-minute semi-structured qualitative interview. Quantitative and qualitative data were collected and analyzed simultaneously, weighted equally, and integrated to identify areas of convergence and divergence. Study 1 used two-step structural equation modeling (SEM) of cross-sectional survey data and reflexive thematic analysis (RFA; Braun & Clarke, 2006) of interview narratives to examine ecological correlates of self-criticism. Study 2 used random-intercept cross-lagged panel models of 10-day daily diary data and RFA of interview narratives to examine task motivation and persistence as short-term positive reinforcers of self-criticism, and subsequent

improvements in self-efficacy and reductions in negative affect as more distal positive and negative reinforcers of self-criticism, respectively.

Study 1 results revealed that heritage cultural values and family processes were significantly associated with self-criticism ($\beta = .24$), with relational induction as the strongest correlate. Although the quantitative SEM indicated that race-related stress was not a significant independent correlate of self-criticism, qualitative findings revealed that experiences of interpersonal racism shaped internalized achievement standards that interact with family processes and cultural values to fuel self-criticism — a complex pathway that the study's quantitative data did not capture. Additionally, five qualitative themes about ecological correlates of self-criticism were identified: (1) Internalization of racialized achievement expectations, in which experiences of interpersonal racism plant the seed for what AAs "should be" and position achievement as the singular pathway to security and worth; (2) familial transmission of self-criticism through direct parental pressure, modeling and emotional restraint, and the intergenerational legacy of immigration; (3) relational self-scrutiny organized around fulfilling role obligations in key relationships; (4) social comparison within the AA community and imposter syndrome in high-achieving environments; and (5) identity confusion in young adulthood following the disruption of an early, achievement-centered identity.

Study 2 results found modest evidence to support that self-criticism is positively reinforced in the short-term through increases in task motivation and persistence; little to no evidence to support that self-criticism is more distally reinforced through increases to self-efficacy, and no evidence to support that self-criticism is more distally negatively reinforced through decreases in negative affect. Furthermore, quantitative and qualitative data sources converged to show that while self-criticism temporarily and modestly boosts motivation and

persistence in the short-term, over time, chronic self-criticism drives notably larger and more sustained levels of high negative affect, low self-efficacy, and low motivation and persistence. Qualitative findings converged with these findings and were organized under the overarching theme of self-criticism as a double-edged sword, capturing how its immediate motivational and behavioral benefits are salient enough to sustain it, while its deeper psychological costs accumulate more insidiously over time. Three subthemes illuminated experiences of self-criticism among AA young adults: (1) perceived benefits of self-criticism as a motivational and behavioral driver, catalyst for self-improvement, and source of valued personal qualities, (2) wide-ranging emotional and behavioral costs of sustained self-criticism, including anxiety, chronic stress, erosion of self-worth, neglect of basic needs, loss of intrinsic motivation, and constriction of joy, and (3) near universal ambivalence about relinquishing self-criticism despite its many costs.

Taken together, findings suggest that self-criticism in AA young adults may be best understood not as a fixed personality trait or direct product of ‘Asian culture’, but as an adaptive yet psychologically costly striving mechanism enacted in response to interpersonal racism and family socialization processes that themselves may be understood within broader structures of racial inequity. These findings demonstrate need for development of culturally responsive interventions for AAs that acknowledge the adaptive origins of self-criticism, make the temporal disconnect between proximal benefits and chronic costs explicit, and engage directly with ambivalence to change. Radical healing and self-compassion represent two such interventions, offering alternative pathways through which AAs can pursue the motivational goals served by self-criticism without its associated psychological and emotional costs.

The dissertation of Belinda Chen is approved.

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DEDICATION

To all the first-generation Asian immigrants who dared to dream of something different, and who made unimaginable sacrifices to give their families a better life. And to all the children of those immigrants who had to find their own way to a sense of identity and belonging that feels whole.

This work is for you.

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Introduction

The Asian American Mental Health Care Gap

Asian Americans, defined henceforth as individuals with origins or ancestry from East Asia, Southeast Asia, and the Indian subcontinent, are the fastest growing immigrant group in the United States (US) and are projected to become the largest immigrant group in the country by 2055 (Budiman & Ruiz, 2021). Yet, Asian Americans (AAs) remain a persistently understudied population (Kim et al., 2021). Over the last 25 years, less than 1% of the total NIH budget has been allocated to projects focused on Asian Americans, Native Hawaiians, and Pacific Islanders (AANHPIs; Doàn et al., 2019); as of 2018, AANHPIs represented 6% of the population, but only 0.2% of the NIH clinical research budget (Doàn et al., 2019).

Scholars posit that the longstanding model minority stereotype (MMS), the notion that AAs are an exemplary racial/ethnic minority group that face few barriers to success (Kiang et al., 2017; Yoo et al., 2010), has been extended to Asian Americans' health and mental health and may underlie the disproportionate lack of funding and research (Kim et al., 2021; Yip et al., 2024). Indeed, past epidemiological studies have identified lower rates of mental health disorders for AAs compared to other racial/ethnic groups (Chu & Sue, 2011), perhaps leading researchers and practitioners to conclude that AAs are not in need of scientific or clinical attention. However, a closer examination of the cross-cultural validity of assessment measures used to assess mental health prevalence rates among AAs and the paucity of within-group data on AA mental health raise questions about whether it is valid to conclude AAs are better psychologically adjusted than other racial/ethnic groups (Chu & Sue, 2011). Epidemiological studies employ diagnostic interviews to assess clinical symptomatology. Yet, multiple studies have found that estimates of depression prevalence among AAs are lower by physician observation compared to self-report (Chung et al., 2003; Lam et al., 2004), suggesting that

diagnostic interviewing in epidemiological studies may systematically underestimate rates of mental health disorders among AA populations. Furthermore, examining the prevalence of mental health disorders in AAs as an aggregate shrouds important subgroup elevations such as heightened suicide risk in elderly Asian women and consistently high levels of depression and post-traumatic stress disorder in Southeast Asian refugees who have been exposed to catastrophic environmental stressors (Chu & Sue, 2011; Kinzie et al., 1990; Marshall et al., 2005; Vang et al., 2021; Westermeyer, 1988).

Assessing AA psychological adjustment based solely on group-level epidemiological data belies the group's significant mental health needs. In 2020, suicide was the leading cause of death among AA adolescents (Zhou et al., 2021) and AA adolescents and college students are more likely to think about and attempt suicide than their White counterparts (Hijioka & Wong, 2012; Keum et al., 2024; Lui et al., 2024). Additionally, epidemiological studies have identified more persistent drug use disorders among AAs compared to White Americans (Xu et al., 2011) and notable prevalence of mood and anxiety disorders, with rates of major depressive disorder ranging from 10-12% (10.1% among South Asians, 11.1% among East Asians, 12.2% among Southeast Asians) and rates of anxiety disorders ranging from 11-13% (11.4% among East and South Asians, 12.2% among Southeast Asians; Lee et al., 2015).

Furthermore, anti-Asian racism during the COVID-19 pandemic exacerbated mental health issues among AAs, with numerous studies linking racial discrimination during COVID to increased psychological distress, depression, anxiety, and post-traumatic stress among AAs (Ibrahim et al., 2024). In a mixed methods study examining the effects of anti-Asian racism during COVID-19, Yu and colleagues found that 65% of AANHPIs reported experiencing adverse emotional, behavioral, or cognitive racial trauma responses (Yu et al., 2026). Although

studies identified lower prevalence of MH issues among AAs compared to Whites prior to COVID-19 (Xu et al., 2011), AAs reported more mental health problems than White Americans following the pandemic (Wu et al., 2021). Furthermore, a growing body of research indicates that mental health problems among AAs have persisted beyond the acute phase of the COVID-19 pandemic, driven largely by ongoing racial discrimination and compounded by significant barriers to care. For example, a number of studies have found that while depression and anxiety declined over time for White, Black, Latine, and other racial/ethnic groups during and following the pandemic, anxiety and depression among AAs persisted, with 38% of AA adults continuing to report COVID-related discrimination in 2023 (Cheslack-Postava et al., 2024; Li et al., 2025). Notably, general racial discrimination — not just COVID-specific discrimination — was significantly associated with more depression and anxiety in AAs, suggesting that the pandemic may have catalyzed a broader, more enduring pattern of discrimination-related mental health burden that puts AAs at mounting mental health risk (Li et al., 2025; Tang et al., 2025).

Despite present and growing need, AAs with mental health problems are the least likely to access care among all racial/ethnic minoritized groups, with low rates of mental health service utilization persisting regardless of geographic location, age, gender, education, or ethnic group (Abe-Kim et al., 2007; Chu & Sue, 2011; Kearney et al., 2005; US DHHS, 2001). The argument that low rates of service use are related to low need is countered by studies showing that AAs who receive emergency attention for acute psychiatric concerns are the least likely to receive follow-up care (Chen et al., 2023), as well as studies showing that AAs who use mental health services are more likely to report unmet needs (Jang et al., 2019). While family and community stigma discourage AAs from seeking mental health services, system-level factors and a lack of culturally appropriate interventions also bar access to needed care (Augsberger et al., 2015; Chu

& Sue, 2011; Lee et al., 2021). According to the US Department of Health and Human services, nearly half of AAs have experienced restricted access to available mental health services due to limited English proficiency and a lack of providers with appropriate, language-matched abilities (Augsberger et al., 2015; US DHHS, 2001). Moreover, care process factors such as higher rates of poverty and higher rates of being uninsured or underinsured, particularly among Southeast Asians like Cambodians, Hmong, or Laotians, have prevented access to services (Reeves & Bennett, 2004). When AAs do access care, their disorders are more persistent and severe compared to other racial/ethnic groups (Chen et al., 2023; Chu & Sue, 2011). Thus, AAs represent a persistently underserved group that faces a notable mental health care gap.

Self-Criticism as a Transdiagnostic Mechanism of Psychopathology

Clarifying transdiagnostic mechanisms relevant to the needs of AAs holds promise for scaling interventions that can address a range of mental health concerns in the AA community. Across meta-analytic research, self-criticism—critical and hostile self-evaluation focused on one’s own faults and shortcomings (Gilbert et al., 2006)—has been associated with symptoms of depression, anxiety, eating disorders, psychosis, personality disorders, and interpersonal problems in adult clinical and non-clinical samples (Werner et al., 2019). According to Paul Gilbert’s conceptual model, self-criticism drives multiple psychopathologies by perpetuating an imbalance between the three human affect regulation systems (threat, drive, soothe; Gilbert, 2009), overstimulating the threat and drive systems without adequate downregulation from the soothe system. The threat system promotes survival by triggering emotions (e.g. anxiety, anger, disgust) that catalyze fight, flight, or freeze behavioral responses; the drive system triggers positive emotions that motivate reward-seeking and goal-directed behavior (e.g. seeking food, sex, social approval); and the soothe system regulates the threat and drive systems by creating feelings of contentment, well-being, and slowing down (Depue & Morrone-Strupinsky, 2005).

Importantly, the soothe system develops early in childhood when the caring behavior of a parent creates a soothing effect on an infant's physiology (Depue & Morrone-Strupinsky, 2005). Thus, effective affect regulation occurs when an individual's threat, drive, and soothe systems are in balance (Gilbert, 2009).

Gilbert posits that self-criticism is shaped by early adverse experiences. Specifically, he asserts that self-criticism is shaped by childhood maltreatment, emerging from caregiver modeling¹(Gilbert & Procter, 2006), safety behaviors with hostile others² (Gilbert & Procter, 2006), inability to process anger (Ferster, 1973), and a lack of internal schema of others as safe and supportive (Mikulincer & Shaver, 2004). Due to early deficits in caregiver attention and learned, self-critical relating, individuals high in self-criticism may develop threat and drive systems that are overly sensitized and overly stimulated and soothe systems that are immature or inaccessible (Gilbert et al., 2004, 2014; Perry et al., 1995). Thus, when self-critical individuals engage in self-criticism, they may experience internal, negative self-evaluation as no different than external, threat-based attacks, in turn triggering stressed, anxious, or depressive responses. Without a well-developed soothe system to regulate their activated threat and drive systems, self-critical individuals may experience self-criticism as a chronic form of internal harassment against which they have no defense (Gilbert, 2009; Gilbert & Procter, 2006). Over time, the inability to self-soothe in the face of ongoing threat may result in self-critical individuals being vulnerable to developing a number of psychopathologies.

In correlational studies, self-criticism has been associated with depression (Dinger et al., 2015; Ehret et al., 2015; Murphy et al., 2002; Straccamore et al., 2017), eating pathology,

¹ Treating self as others, such as neglectful or abusive caregivers, have treated self

² Self-criticizing to meet the expectations of hostile caregivers and prevent additional maltreatment

particularly binge eating symptoms (Duarte et al., 2014; Kelly & Carter, 2013; Palmeira et al., 2017), social anxiety (Iancu et al., 2015; Shahr et al., 2015), delusions and paranoid beliefs (Kingston & Schuurmans-Stekhoven, 2016; Pinto-Gouveia et al., 2013), negative affect in patients with borderline personality disorder (Kopala-Sibley et al., 2012), and interpersonal problems between romantic couples (Martins et al., 2015).

From numerous mediation studies, self-criticism has been identified as a mechanism of depression (Campos et al., 2013; Castilho et al., 2014, 2017; Liu et al., 2012; Pinto-Gouveia et al., 2013; Sturman et al., 2015) and binge eating (Duarte et al., 2014; Ferreira et al., 2014; Palmeira et al., 2017). Furthermore, self-criticism mediates the link between daily life hassles and delusions (Kingston & Schuurmans-Stekhoven, 2016), emotional abuse and social anxiety (Shahr et al., 2015), parental rejection and suicidality (Sobrinho et al., 2016), and parental shaming and depression and anxiety (Irons et al., 2006; Sachs-Ericsson et al., 2006).

Studies of Self-Criticism in Asian Americans

Importantly, self-criticism appears more salient among AAs even compared to other racial/ethnic groups (Castro & Rice, 2003; Chang & Asakawa, 2003; Pourmand et al., 2024) and may be an underlying driver of prevalent mental health problems such as anxiety and depression (Liang et al., 2004; Xu et al., 2011). In a study examining perfectionism and ethnicity among students, AA students scored higher on all dimensions of perfectionism—including self-critical perfectionism, harsh self-evaluation when individuals perceive they have fallen short of their own standards—compared to their Black and White counterparts (Castro & Rice, 2003; Rice et al., 2013). Furthermore, individual studies and meta-analytic work suggest that self-criticism is more prevalent among East Asians than North Americans (Heine & Hamamura, 2007; Kitayama & Markus, 2000).

Though self-criticism in AAs likely has unique determinants rooted in race, culture, and social, political, and economic histories, research on self-criticism has been largely Eurocentric. In a recent meta-analytic study examining the link between self-criticism and psychopathology, only 2 out of 48 studies specifically focused on Asian individuals (Werner et al., 2019). Moreover, among psychological studies that focus on Asian populations, most interrogate self-criticism in Asia (e.g. Fung et al., 2021; Heine, 2003; Heine et al., 2001; Heine et al., 1999), with little attention to the diaspora—including the bicultural experience—of Asian Americans.

Cultural psychologists have long asserted that self-criticism is more prevalent among Asian than White individuals because it is adaptive. Per self-construal theory, people socialized within Western individualistic cultures tend to adhere to an independent self-construal, which defines the self as autonomous and bounded, and behavior is determined by internal characteristics, dispositions, and traits. Socialization in Eastern collectivistic cultures is thought to lead to the development of an interdependent self-construal, where the self is defined in relation to others and behavior is determined by social roles and contextual demands in service of promoting harmony and prioritizing group over personal goals (Markus & Kitayama, 1991; Singelis, 1994). Whereas the independent self is viewed as a fixed entity made up of immutable inner attributes, consequently motivating individuals to protect the self through self-enhancement³, the interdependent self is viewed as malleable, which can motivate individuals to improve the self through self-criticism (Heine, 2003; Heine et al., 2001). Thus, because interdependent self-construal confers a view of the self as changeable and capable of improvement, self-criticism shaped by a self-improving orientation may be normative, with reduced consequences for psychopathology among Asians socialized within interdependent

³ Boosting self-regard by focusing and elaborating on positive information about the self

cultures. Indeed, across experimental and meta-analytic research, cultural psychologists have found evidence for a self-critical focus and self-improving rather than self-enhancing tendencies among interdependent East Asians compared to independent European Americans (Heine et al., 2001; Heine & Hamamura, 2007).

Though self-construal theory may explain the prevalence and function of self-criticism among Asians residing in Asia, research suggests that findings may not extend to bicultural Asian Americans socialized in both independent *and* interdependent cultural contexts. Numerous studies on self-conceptualization processes show that bicultural individuals exposed to both independent and interdependent cultures do not adhere to one self-construal (e.g. Sedikides & Brewer, 2001; Yamada & Singelis, 1999). Furthermore, across studies comparing differences in self-enhancement and self-criticism, Asian Americans fell in between East Asians, who were self-critical and did not self-enhance, and Westerners, who demonstrated a clear self-enhancement bias (Heine & Hamamura, 2007). In other studies comparing Asian Americans to European Americans (Brown & Kobayashi, 2002; Zusho, 2008) and Asian Canadians to European Canadians (Heine & Lehman, 1997), there were no significant differences between groups with regard to self-construal and views of the self. Thus, when it comes to culturally oriented conceptions of the self, Asians who live in independent cultures are distinct from Asians who live in Asia. This raises the question of how self-criticism may function in bicultural AA populations. To date, research on the origins of self-criticism in AAs remains limited and few studies have examined the processes that maintain self-criticism among AAs.

Ecological Correlates of Self-Criticism in Asian Americans

It is well documented that the AA experience is influenced by systemic racism, including the model minority stereotype (MMS), the perception that AAs are an exemplary racial/ethnic minoritized group who face little to no barriers in acquiring academic and career success (Kiang

et al., 2017; Yoo et al., 2010), and the perpetual foreigner stereotype (PFS), the notion that AAs are often seen as foreigners, regardless of their nativity, generation, or how long their families have lived in the US (Huynh & Fuligni, 2010). Research suggests that these stereotypes are longstanding, widespread, and influential. Quantitative and qualitative studies have found that knowledge of the MMS is ubiquitous among teachers, institutions, members of majority and minority ethnic groups (Kiang et al., 2017), and even within the AA community itself (Tran & Curtin, 2017). One study examining the MMS among AA youth found that nearly 100% of AA youth who were surveyed reported having some prior experience with the stereotype (Thompson & Kiang, 2010). Similarly, the PFS has steeped itself among racial/ethnic minoritized communities, with research suggesting that AAs and Latines implicitly associate being American with being White (Huynh & Fuligni, 2010). In a study on identity denial, AAs reported that despite feeling just as American as White Americans, they were aware of being denied the American identity by other groups (Cheryan & Monin, 2005). Thus, the pervasiveness of the MMS and PFS have indelibly shaped AA identity development.

In response, AAs may internalize these stereotypes, striving to achieve unrealistic, racialized expectations in academic and professional settings (Hwang et al., 2021; Wang et al., 2025; Wong & Halgin, 2006), with costly consequences for their psychological and physical health. AAs who report higher levels of MMS endorsement and feel pressure to conform to the MMS are at increased risk for imposter syndrome, which is associated with anxiety and depression (Wei et al., 2020), as well as psychological distress, somatic complaints, and negative attitudes toward help-seeking (Gupta et al., 2011). Additionally, high achievement expectations stemming from the MMS have been associated with suicidal ideation and attempts among AA women (Noh, 2018).

With regard to effects of the PFS, experimental research has shown that when faced with identity threat (i.e. when claims to American identity are denied), AAs may react with behavior that asserts a national identity with potential costs to well-being. For example, in one field experiment, AAs confronted with a microaggression questioning their English proficiency consumed more prototypically American and less nutritious foods than AAs who were not confronted with a microaggression (Guendelman et al., 2011). Furthermore, being treated as a perpetual foreigner confers distress. Among Chinese American students who reported low levels of English proficiency in middle school and spoke with an accent in high school, perceptions of being stereotyped as a foreigner were associated with perceived discrimination and increased risk of depressive symptoms (Kim et al., 2011). Taken together, the cumulative effects of the MMS and PFS are well captured by Hwang's (2021) comprehensive framework of internalized oppression in AAs. This framework links race-based stereotypes to internalized racism — the internalization of bias and oppression toward one's own group — identifying internalized racism as an insidious and under addressed mechanism through which racism harms AA mental health at individual, family, and community levels.

In comparison to the growing body of evidence connecting race-related stress to adverse health and mental health outcomes, only one published study has examined how internalized racism may relate to self-criticism among AAs. Among AA college students who endorsed high levels of perceived discrimination and strong tendencies toward self-critical perfectionism, internalizing the MMS was associated with depressive symptoms (Suh et al., 2023). Although numerous studies have linked race-related stress to mental health problems among AAs (e.g. Gee et al., 2007; Hwang & Goto, 2008; Wei et al., 2010), fewer studies have examined the link between experiences of interpersonal racism, internalized racism, and self-criticism.

To date, research on correlates of self-criticism among AAs have typically focused on the role of ethnic culture while largely overlooking minoritized stress as a contributing factor. Studies have attributed self-criticism in AA children to ‘Asian’ parenting approaches, such as shame and guilt induction, that train children to improve according to filial obligation and collectivist developmental goals (Fung, 1999; Lau & Fung, 2013). Cultural psychology studies (see “Studies of Self-Criticism in Asian Americans” section) posit that self-criticism is characteristic of interdependent self-construal, with essentialist narratives even suggesting that East Asians have a diminished need for positive self-regard (Heine et al., 1999).

Locating self-criticism solely within family and cultural values can pathologize Asian culture and socialization and obscure how structural factors may interact with family and cultural factors to affect AA psychological adjustment. Asian critical race theory (AsianCrit; Iftikar & Museus, 2018; Museus & Iftikar, 2013; Yoo et al., 2022) interrogates how race and racism shape AA identity while ecological systems theory (Bronfenbrenner, 1979) asserts that an individual’s development is shaped by multilevel environments ranging from immediate surroundings (microsystem) to broad societal structures (macrosystem). García Coll et al.’s (1996) integrative model of developmental competencies in minoritized children extends this ecological framework by centering the role of social position—including race, prejudice, and segregation—as a primary organizer of developmental contexts and outcomes for children of color, linking macrosystem forces to family processes and individual adjustment. Informed by these theories, Study 1 of the dissertation expands assessment of correlates of self-criticism beyond essentialized cultural and familial factors. Employing a multilevel ecological perspective, Study 1 investigates microsystem (family socialization processes, heritage cultural values) *and*

macrosystem factors (interpersonal and internalized racism stemming from structural racism) that may cultivate self-criticism among AAs.

Processes that Maintain Self-Criticism in Asian Americans

Paul Gilbert's influential theory posits that self-criticism is a conditioned response to childhood maltreatment (Gilbert, 2016; Gilbert & Procter, 2006). Specifically, Gilbert asserts that self-criticism is a learned safety behavior in the face of threat or conflict. If a child expresses anger or seeks care from a caregiver but is met instead with withdrawal of love or anger, over time, the child comes to associate desires for care with anxiety. Subsequently, the child learns to self-monitor and self-criticize, modifying their behavior to meet the expectations of their caregiver and reduce the risk of further abuse (Gilbert & Procter, 2006). Thus, self-criticism may be both negatively and positively reinforced: self-criticism is positively reinforced when a child self-criticizes to increase behaviors that please or meet the expectations of their caregiver; self-criticism is negatively reinforced when increasing behaviors to meet caregiver expectations then decreases the child's anxiety around conflict with the caregiver, creating an association between self-criticism and a sense of safety and self-protection.

Gilbert's conceptualization of self-criticism is largely Eurocentric and does not extend to racial/ethnic minoritized populations. Conceptualizing self-criticism among AAs as caused and maintained by adverse caregiving is reductionist and harmful. Drawing upon García Coll's model of development (García Coll et al., 1996)—which emphasizes the importance of class, racism, prejudice, discrimination, and oppression in shaping the development of minoritized children and families—self-criticism in AAs may be an equifinal developmental outcome, the product of collective sociocultural and economic history *and* a response to systemic racism and discrimination. Among AAs, self-criticism may be an 'adaptive' or 'resilient' response to racist pressures maintained through immediate and delayed positive and negative reinforcement. For

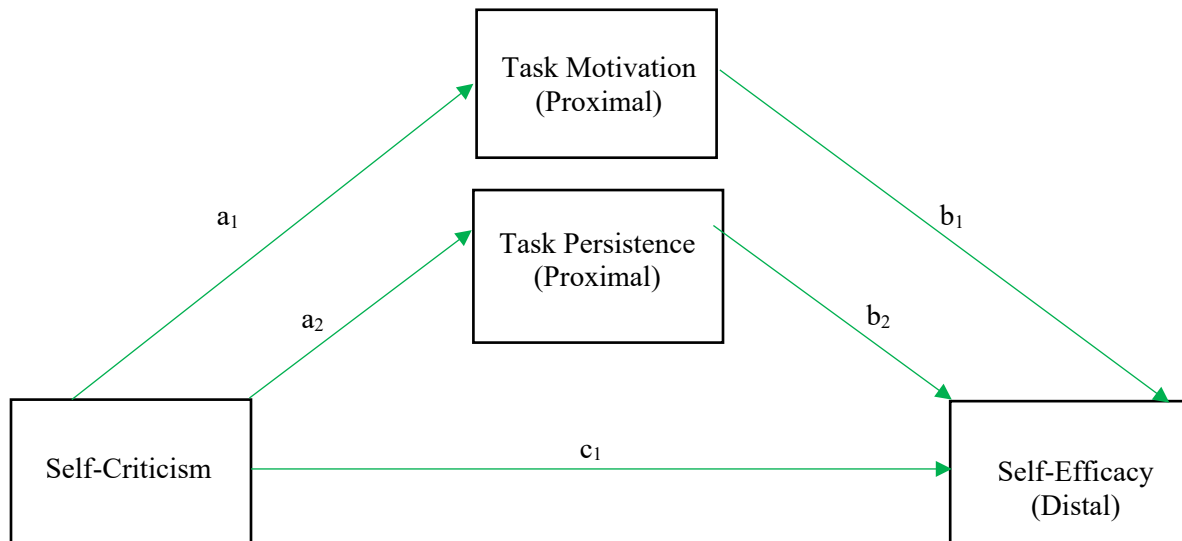
example, in the face of high achievement expectations imposed by the MMS, AAs may (1) experience negative affect associated with pressure to perform academically or professionally, (2) self-criticize to improve their motivation to engage with and persist on related tasks, and (3) experience decreased negative affect after exerting goal-directed effort. In this situation, self-criticism shaped by the MMS may be positively reinforced by increasing motivation and persistence on a given task in the short-term, then subsequently negatively reinforced by decreasing state negative affect such as tension and anxiety associated with achievement pressures. Research on motivation supports this hypothesis: when presented with a challenging task, AAs who take a self-improving stance (i.e. self-criticize to improve upon one's shortcomings) persist on the task longer, find the task to be more important, and experience less negative affect, depression, and anxiety (Heine et al., 2001; Tsai et al., 2015, 2016).

Furthermore, for high achieving AAs, self-criticism may also be cumulatively positively reinforced through an increased sense of self-efficacy. As described above, for AA individuals facing achievement pressure, self-criticism may increase near-term task motivation and persistence, which in turn leads to improved performance outcomes and cumulatively, an increased sense of self-efficacy. Indeed, some studies suggest that AAs who meet model minority standards experience high self-efficacy in academic and career domains (Suh et al., 2014).

To date, no studies have expanded Gilbert's theory to examine psychological reinforcement processes that may uniquely maintain self-criticism among AAs. Study 2 of the dissertation examines whether proximal and distal positive and negative reinforcement processes might maintain self-criticism in AAs. The proposed conceptual positive and negative reinforcement models are depicted in Figures 1 and 2 below.

Figure 1

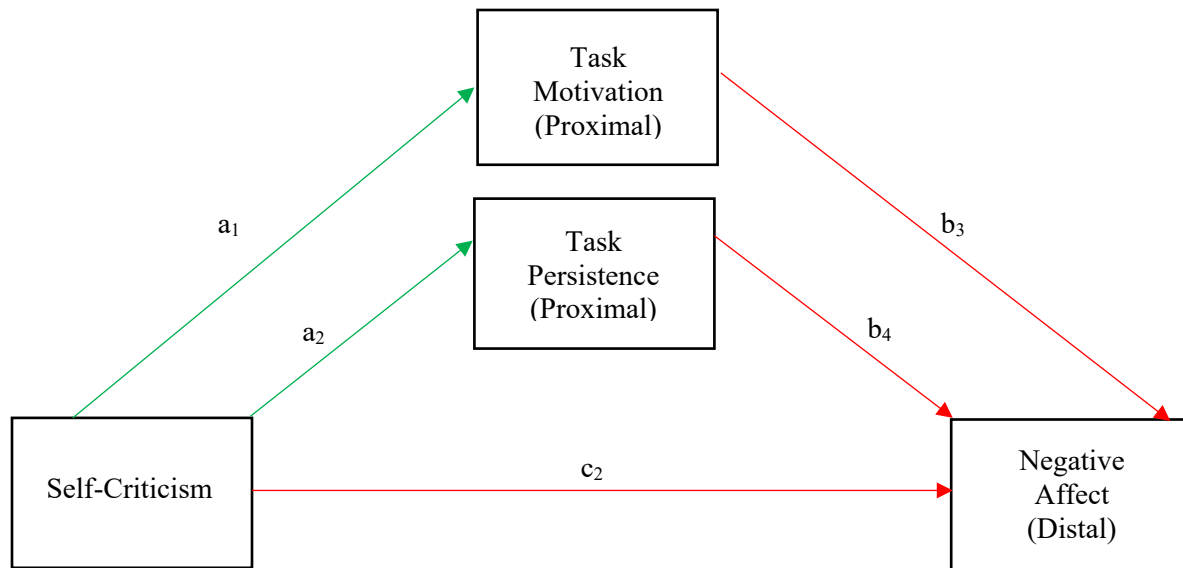
Hypothesized Positive Reinforcement Models of Self-Criticism



Note. Green arrows indicate positive reinforcement. The path analysis shows that self-criticism is hypothesized to be proximally positively reinforced through increased task motivation (a_1) and increased task persistence (a_2). Increased task motivation and task persistence are then hypothesized to increase self-efficacy, which distally positively reinforces self-criticism (b_1 and b_2 , respectively). Thus, self-criticism is hypothesized to be indirectly positively reinforced by self-efficacy *through* task motivation and task persistence.

Figure 2

Hypothesized Negative Reinforcement Models of Self-Criticism



Note. Green arrows indicate positive reinforcement and red arrows indicate negative reinforcement. As depicted in Figure 1, the path analysis shows that self-criticism is hypothesized to be positively proximally reinforced through increased task motivation (a_1) and increased task persistence (a_2). Increased task motivation and task persistence are then hypothesized to decrease negative affect (b_3 and b_4 , respectively). Thus, self-criticism is hypothesized to be indirectly distally negatively reinforced by negative affect (c_2) *through* increased task motivation and task persistence.

The Current Dissertation

The current dissertation addresses gaps in understanding of self-criticism as a mechanism of psychopathology among AAs and employs quantitative and qualitative methods to investigate the psychosocial drivers and psychological reinforcers of self-criticism among AAs. Both studies drew data from a baseline survey, 10-day daily diary study, and a semi-structured interview (see Procedures section below for more information). Informed by ecological systems theory, García Coll's integrative model for development of minoritized children, and Asian critical race theory,

Study 1 of the dissertation expands assessment of correlates of self-criticism among AAs to include microsystem (socialization processes, heritage cultural values) *and* macrosystem factors (race-related stress, internalized racism). Study 2 of the dissertation examines proximal and distal positive and negative reinforcement processes that may maintain self-criticism in AAs. Taken together, the mixed methods findings of this dissertation suggest that self-criticism is a culturally relevant treatment target for AAs who have experienced race-related stress and that interventions targeting self-criticism among AAs may reduce the mental health gap.

Participants

This dissertation recruited 258 Asian American undergraduate students through the UCLA subject pool (See Table 1 for sample demographics). Recruitment took place between Summer 2024 and Winter 2025. Participants recruited through the UCLA subject pool were screened for eligibility for the quantitative and qualitative portions of the study through an online questionnaire delivered via Qualtrics, an online platform that is smartphone compatible. After completing the quantitative portion of the study, participants who were interested and eligible completed the qualitative portion of the study.

Inclusion criteria for the quantitative portion of the study were: (1) current enrollment as an undergraduate student, (2) identification as Asian American (East Asian, Southeast Asian, Asians from the Indian subcontinent), (3) residence in the US, (4) ability to read English, and (5) access to the internet. International students and students who self-reported the longest place they had resided as outside of the United States were excluded from the study. We chose to focus only on AAs who had spent the majority of their lives in the US due to their shared experience of racialization in the US, which is distinct from that of international students, individuals who have lived the majority of their lives outside of the United States, and Native Hawaiians and Pacific Islanders.

Eligibility criteria for the qualitative portion of the study were identical to those for the quantitative portion, with the additional requirement of elevated self-criticism, defined as a score at or above the 75th percentile on the Inadequate Self subscale of the Forms of Self-Criticizing/Attacking and Self-Reassuring Scale (FSCRS; Gilbert et al., 2004, see Study 1 methods for more information). Cutoff scores were derived from the normed scores of the FSCRS among a non-clinical sample by gender (Baião et al., 2015).

Individuals who met eligibility criteria for the study received an email invitation to complete a baseline survey via Qualtrics from the study team. After completing the baseline survey, individuals received instructions about participation in the 10-day daily diary study; individuals who were additionally eligible for and interested in participating in the qualitative portion of the study self-scheduled into an interview time slot with the principal investigator for a date following the conclusion of the daily diary study.

Ethical Approval

All procedures have been approved by the University of California, Los Angeles institutional review board (24-000337).

Procedures

This dissertation employed a convergent parallel mixed methods approach. This approach involves a researcher conducting both the quantitative and qualitative elements of a study in the same phase of the research process, weighing the quantitative and qualitative methods equally, analyzing the two components independently, and interpreting the results together, considering areas of convergence and divergence between the two data sources (Creswell & Clark, 2017; Palinkas et al., 2010).

Participants were recruited through the UCLA subject pool via an online posting system and flyers posted around the UCLA campus.

The quantitative portion of the dissertation involved a baseline survey and 10-day daily diary survey delivered via Qualtrics. The baseline survey measured family processes (psychological control of each caregiver), cultural values (adherence to Asian cultural values), race-related stress (everyday discrimination, microaggressions, internalized model minority stereotype, internalized racism toward AAs), self-criticism, and demographics (see Appendix A for baseline survey). During the daily diary study, participants received an email each day at 6:00pm reminding them to complete the diary measures. To minimize variation in reporting times, participants were only able to complete questionnaires between 6:00pm to 2:00am. For 10 consecutive days (including weekdays and weekends), participants answered a brief, 3-minute survey each evening reporting on daily self-criticism, academic or professional demands, task persistence and motivation related to academic or professional demands, affect, and self-efficacy (see Appendix B for daily diary survey). Participants received up to 4 study credits for their participation: 1 credit for completing the baseline survey, 2 credits for daily diary participation—with amount of credit awarded based on number of daily diary studies completed, and 1 credit for the qualitative interview. Following the Fall 2024 quarter only, participants who had completed at least 5 out of 10 daily diary surveys and who reported elevated levels of self-criticism were invited to participate in the qualitative portion of the study for monetary compensation (\$20); 3 interview participants were recruited through this method.

The qualitative portion of the study utilized a 60-minute, semi-structured interview with a sample of 20 participants with elevated levels of self-criticism (See Table 1 for sample demographics). The interview began by providing participants with feedback on their elevated levels of self-criticism. Then, participants were asked to give two specific examples of times when they were self-critical and if/how self-criticism affects them. Finally, participants were

asked to reflect on the origins of self-criticism and whether they would like to change their self-criticism. Throughout the interview, the interviewer employed specific probes around the effect of self-criticism on participant mood, behaviors, and self-concept but also exercised flexibility with regard to the interview direction (see Appendix C for interview outline).

Tables

Table 1

Sample Characteristics

Variable	Total Sample (<i>N</i> = 254) n (%) or <i>M</i> (<i>SD</i>)	Daily Diary Sample (<i>N</i> = 20) n (%) or <i>M</i> (<i>SD</i>)
Age	20.04 (1.33)	20.35 (1.57)
Gender		
Cisgender Female	190 (74.80%)	13 (65.00%)
Cisgender Male	49 (19.29%)	5 (25.00%)
Nonbinary	4 (1.57%)	1 (5.00%)
Transgender Female	1 (0.39%)	0
Prefer Not to Answer	10 (3.94%)	1 (5.00%)
Ethnicity		
Chinese	61 (24.02%)	3 (15.00%)
Multiracial	60 (23.62%)	6 (30.00%)
Filipine	30 (11.81%)	2 (10.00%)
Korean	29 (11.42%)	2 (10.00%)
Indian	20 (7.87%)	2 (10.00%)
Japanese	17 (6.69%)	2 (10.00%)
Vietnamese	11 (4.33%)	1 (5.00%)
Taiwanese	8 (3.15%)	0
Bangladeshi	3 (1.18%)	1 (5.00%)
Punjabi	3 (1.18%)	0
Thai	3 (1.18%)	1 (5.00%)
Hmong	2 (0.79%)	0
Pakistani	2 (0.79%)	0
Cambodian	1 (0.39%)	0
Other	4 (1.57%)	0
Generation Status		
1st generation	90 (35.43%)	4 (20.00%)
2nd generation	138 (54.33%)	15 (75.00%)
3rd+ generation	26 (10.24%)	1 (5.00%)
Birth Country		
In the U.S.	200 (78.74%)	20 (100.00%)

Variable	Total Sample (<i>N</i> = 254) n (%) or <i>M</i> (<i>SD</i>)	Daily Diary Sample (<i>N</i> = 20) n (%) or <i>M</i> (<i>SD</i>)
Outside the U.S.	54 (21.26%)	0
Household Income		
\$0–49,999	38 (14.96%)	4 (20.00%)
\$50,000–99,999	55 (21.65%)	2 (10.00%)
\$100,000–149,999	60 (23.62%)	7 (35.00%)
\$150,000–199,999	23 (9.06%)	3 (15.00%)
\$200,000+	78 (30.71%)	4 (20.00%)
Mental Health Services in Last Year		
No	172 (67.72%)	9 (45.00%)
Yes	75 (29.53%)	11 (55.00%)
Missing	7 (2.76%)	0
Highest Parental Education^a		
No schooling completed	5 (1.97%)	0
Grades 1–11	7 (2.76%)	1 (5.00%)
12th grade (no diploma)	1 (0.39%)	0
High school diploma / GED	16 (6.30%)	1 (5.00%)
Some college, no degree	23 (9.06%)	2 (10.00%)
Associate's degree	12 (4.72%)	1 (5.00%)
Bachelor's degree	64 (25.20%)	6 (30.00%)
Master's degree	60 (23.62%)	6 (30.00%)
Professional degree (MD, JD, MBA, etc.)	34 (13.39%)	2 (10.00%)
Doctoral degree (PhD, EdD)	32 (12.60%)	1 (5.00%)

Note. *M* = mean. *SD* = standard deviation. Age outliers (51, 36, 34, and 32 years old) were excluded from the total sample prior to analysis.

^a Highest parental education reflects whichever parent or primary caregiver held the higher educational attainment per participant. Participants who indicated having one primary caregiver are classified using that caregiver's education alone.

Study 1: Expand assessment of correlates of self-criticism in AAs to include microsystem *and* macrosystem factors

Research to date has thoroughly identified family and cultural influences that may catalyze self-criticism within AAs. Though AAs hold a uniquely racialized social position within the US, few studies have examined the impact of minoritized stress on self-criticism among AAs. The present study integrates frameworks from Asian critical race theory (Iftikar & Museus, 2018; Museus & Iftikar, 2013; Yoo et al., 2022), García Coll's (1996) integrative model of developmental competencies in minoritized children, and Bronfenbrenner's (1979) ecological systems theory to assess how—above and beyond the influence of cultural and familial socialization processes—systemic, interpersonal, and internalized racism may be associated with self-criticism among AAs.

Ecological systems theory posits that an individual's development is influenced by a series of interconnected environmental systems ranging from the microsystem, an individual's most immediate environmental setting (i.e. friends, family, work), up to the macrosystem, cultural ideologies, attitudes, and social conditions in which an individual is immersed. Previous studies have investigated the role of microsystem influences such as parenting practices and ethnic cultural values in shaping self-criticism among AAs. As described in the dissertation's introduction, cultural psychologists have ascribed self-criticism in Asian populations to interdependent self-construal and self-improvement goals aligned with collectivist values (e.g. Heine, 2003; Heine & Hamamura, 2007; Kitayama & Markus, 2000). Additionally, scholars have highlighted Chinese child-rearing traditions that leverage parental authority to instill children's obedience and proper conduct (Chao & Tseng, 2002; Leung et al., 1998), Chinese training ideologies that emphasize close monitoring and firm control to instill self-discipline in children (Chao, 1994), and the Taiwanese practice of shaming to foster a strong moral compass

and sensitivity toward others in children (Fung, 1999). Furthermore, family process researchers have highlighted relational induction as an indigenous form of parental psychological control in Chinese contexts that involves pointing out the effects of a child's behavior on others, emphasizing filial sacrifice and mutual obligations to instill affiliative competence in children, and using upward social comparison to provide aspirational models of child behavior (Fung & Lau, 2012). Importantly, relational induction is distinct from more Eurocentric conceptions of hostile psychological control (e.g. criticism, interference, invalidation; Barber et al., 1994) in that it is less associated with deleterious developmental outcomes (e.g. child behavior problems; Fung & Lau, 2012). Rather, relational induction is associated with warmth, cohesion, and lower levels of conflict in Japanese, Korean, and AA families (Kornadt, 1991; Nomura et al., 1995; Rohner & Pettengill, 1985) and socializes children to behave in ways consistent with collectivist values, including self-criticizing to be more empathic and attuned toward others. Taken together, the cultural psychology literature and family process literature contextualize self-criticism among AAs as a function of cultural values and parenting within an interdependent cultural context.

Simultaneously, macrosystemic influences that likely impact self-criticism in AAs have remained largely unexamined. Per García Coll's (1996) model, structural racism, which positions people of color in subordinate social positions, drives downstream experiences of racism, prejudice, discrimination, and oppression, which in turn shape the developmental conditions in which self-criticism may emerge. Asian critical race scholars further assert that White, dominant society utilizes unique racial stereotypes of AAs to perpetuate racism and maintain White supremacy, and that psychological scholarship has too narrowly conceptualized AA race-related experiences as a matter of ethnic traditions and cultural values while underrepresenting the role of racial formation and stratification in shaping AA identity (Yoo et al., 2022). Anti-Asian

racism thus represents a macrosystemic factor that warrants investigation as a correlate of self-criticism. Informed by ecological systems theory, García Coll's integrative theory of development in minoritized children, and Asian critical race theory, the present study expands classical perspectives of AA psychology by examining self-criticism in AAs as a function of not only of heritage cultural values and family socialization processes, but also of experiences shaped fundamentally by race-based societal structures.

Though precisely measuring the impacts of structural anti-Asian racism at the individual-level poses methodological challenges, this study conceptualizes experiences of racial microaggressions⁴, perceived discrimination, and endorsement of internalized racism as reflections of broader systems of racism embedded within national cultural ideology, political rhetoric, legislation, and public sentiment. In a systematic review of methods used to quantify structural racism (Groos et al., 2018), 30% of studies operationalized systemic racism as perceived racism in social institutions such as work, in housing, and by the police (Albert et al., 2010; Greer et al., 2014; Greer & Spalding, 2017; Scott et al., 2014; Seaton, 2010; Vines & Baird, 2009). Additionally, Payne & Hannay (2021) assert that implicit bias⁵, which may include internalized racism against one's own ethnic group, is a context-based view that reflects the average level of bias in a workplace, city, or country and is diagnostic of systemic racism in that environment. Finally, Skinner-Dorkenoo et al. (2021) cite a considerable body of evidence from both empirical studies and real-world examples that demonstrate how microaggressions establish White superiority in the United States by othering people of color and communicating that they are inferior (e.g. environmental exclusions, treating people of color as second-class citizens).

⁴ Subtle forms of everyday bias and discrimination

⁵ A negative attitude, of which one is not consciously aware, against a specific social group

Thus, there is increasing agreement among scholars that individual-level experiences of microaggressions, discrimination, and internalized racism are emblematic of macrosystemic racism.

While a growing body of literature has linked perceived discrimination, experience with microaggressions, and internalized racism to psychological distress, anxiety, depression, suicidal ideation, somatic symptoms, and sleep problems among AAs (Gee et al., 2007; Hwang & Goto, 2008; Ong et al., 2013, 2017; Wei et al., 2010), there has been less examination of the connection between race-related stress and self-criticism in AAs. The present study will examine heritage cultural values (family recognition through achievement), familial processes (parental relational induction), and downstream manifestations of systemic racism (discrimination, microaggressions, internalized racism) as correlates of self-criticism in AAs. We will employ a convergent parallel mixed methods design, integrating quantitative survey data with qualitative interview data, to develop the most comprehensive picture of the ecological determinants of self-criticism among AAs. First, the quantitative component of the study will enable systematic examination of heritage cultural values, family processes, and race-related stress as correlates of self-criticism, allowing for rigorous assessment of their relative contributions within a single analytic framework. Second, the qualitative component of the study opens space for emergent discovery that predetermined survey measures may not capture, centering participants' lived experiences of how cultural values, family dynamics, and experiences of racism have shaped their self-critical tendencies, and surfacing pathways to self-criticism that quantitative data alone may not be able reveal.

Aligned with previous cultural psychology literature, we hypothesize that higher endorsement of heritage cultural values and caregiver relational induction will be positively

associated with self-criticism in AAs. Additionally, we hypothesize that higher levels of race-related stress will also be positively associated with self-criticism and will explain an equal—if not greater—proportion of variance in self-criticism as cultural and familial factors. Given that few studies have examined race-related stress as a driver of self-criticism among AAs, this study will make a significant contribution to the literature.

Method

Participants

See Current Dissertation Participants.

Procedures

See Current Dissertation Procedures.

Measures

Participant Characteristics

Participants self-reported their age, gender, ethnicity, generation status, country of birth, annual household income, whether or not they received mental health services in the past year, mother's/first caregiver's highest completed level of education, and father's/ second caregiver's highest completed level of education. See Appendix A.

Race-Related Stress

Discrimination. The Everyday Discrimination Scale (EDS; Krieger et al., 2005; Williams et al., 1997) is a 9-item measure used to assesses the frequency of an individual's day-to-day experiences of discrimination. For the purposes of this study, items were adapted to focus on discrimination based on race/ethnicity (e.g. "In your day-to-day life, how often are you treated with less courtesy than other people due to your race/ethnicity"). Items are scored on a 5-point Likert scale (0 = *Never*, 3 = *A few times a month*, 5 = *Almost every day*), with higher scores indicating higher frequency of discrimination. Item scores are summed to create a total score. The EDS was validated in a Black and Latino sample and demonstrates good internal reliability

($\alpha = .74$ and higher) and test-retest reliability ($r = .70$). In the present sample, the EDS demonstrated good internal consistency ($\alpha = .89$). See Appendix A.

Microaggressions. To assess the frequency of an individual's day-to-day experiences of racial microaggressions, participants reviewed a checklist of racial microaggressions commonly experienced by AAs and answered the question "How often do you experience the following due to your race/ethnicity?" Items were scored on a 5-point Likert scale (0 = *Never*, 3 = *A few times a month*, 5 = *Almost every day*), with higher scores indicating higher frequency of microaggressions. The checklist of racial microaggressions was developed by Ong et al., 2013 and is based conceptually on Sue et al., 2007's focus group analysis with Asian Americans, which identified eight specific microaggression themes that reflect the AA experience: (a) alien in own land; (b) ascription of intelligence; (c) denial of racial reality; (d) exoticization of AA women; (e) invalidation of interethnic differences; (f) pathologizing of cultural values and communication styles; (g) second-class citizenship; and (h) invisibility. Ong et al., (2013) added the subtheme "immasculinity of AA men" through in-depth focus group discussions that prompted AA participants to reflect on their own experiences of subtle racism. See Appendix A.

Internalized Racism in Asian Americans. The Internalized Racism in Asian Americans Scale (IRAAS; Choi et al., 2017) is a 14-item scale that measures the degree to which AAs have internalized hostile attitudes and negative messages targeted toward their racial identity. Items are scored on a 6-point Likert scale (1 = *Strongly Disagree*, 3 = *Slightly Disagree*, 6 = *Strongly Agree*) and assess self-negativity (e.g. "I sometimes wish I weren't Asian"), weakness stereotypes (e.g. "Asians tend to be passive"), and appearance bias (e.g. "Asians are less physically attractive than Whites"). Item scores are summed and divided by 14 to calculate a mean total score, with a higher score indicating a higher level of internalized racism against

AAs. The IRAAS demonstrates convergent validity with 4 dimensions of collective self-esteem (r 's = -.21 to -.72) and predictive validity for symptoms of depression (β = .22). In the present sample, the IRAAS demonstrated good internal consistency (α = .88). See Appendix A.

Internalized Model Minority Myth. The Internalization of the Model Minority Myth Measure (IM-4; Yoo et al., 2010) is a 15-item self-report measure that assesses the extent to which individuals believe AAs are more successful than other racial/ethnic minority groups based on values emphasizing achievement and hard work and belief in unrestricted mobility toward progress"). Items are scored on a 7-point Likert scale (1 = *Strongly Disagree*, 4 = *Don't Disagree or Agree*, 7 = *Strongly Agree*) and are summed to calculate the subscale score, with higher scores indicating stronger internalization of the model minority myth (MMS). The IM-4 consists of two subscales, the Achievement Orientation Subscale (IM-4, Achievement), which captures belief in the myth that AAs are more successful than other minoritized groups due to stronger work ethic, perseverance, and drive to succeed (e.g. "Asian Americans are harder workers"), and the Unrestricted Mobility Subscale, which captures belief in the myth that AAs' success relative to other minoritized groups represents greater fairness of treatment and absence of racial barriers at school or work (e.g. "Asian Americans are less likely to encounter racial prejudice and discrimination."). For the purposes of this study, the IM-4 Achievement Subscale was used as the authors hypothesized that IM-4 Achievement would be most likely to predict self-criticism among AA young adults. The IM-4, Achievement demonstrates excellent internal consistency (α = .91-.92 across validation samples) and adequate two-week test-retest reliability (r = .72). The IM-4, Achievement demonstrates discriminant validity through nonsignificant association with measures of heritage Asian cultural values and convergent validity through

positive associations with measures of performance difficulty. In the present sample, the IM-4, Achievement demonstrated excellent internal consistency ($\alpha = .93$). See Appendix A.

Heritage Culture

Family Recognition through Achievement. The Asian American Values Scale—Multidimensional (AAVS-M; Kim et al., 2005) is a 42-item scale that measures adherence to heritage Asian cultural values. Items are scored on a 7-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*) and assess five dimensions of cultural values: Collectivism (e.g., "The welfare of the group should be put before that of the individual"), Conformity to Norms (e.g., "One should recognize and adhere to the social expectations, norms, and practices"), Emotional Self-Control (e.g., "It is better to hold one's emotions inside than to burden others by expressing them"), Family Recognition Through Achievement (e.g., "One should achieve academically since it reflects on one's family"), and Humility (e.g., "One should not openly talk about one's accomplishments"). Item scores are averaged to yield subscale scores or a total score, with higher scores reflecting greater endorsement of Asian cultural values. The present study used only the Family Recognition Through Achievement subscale (AAVS-M, Family) as the authors hypothesized that this value would be most closely associated with self-criticism in an AA young adult sample. The overall scale demonstrates good internal consistency (total score $\alpha = .89$), and subscale alpha for AAVS-M, Family is excellent ($\alpha = .90$). Two-week test-retest reliability is strong for the total score ($r = .92$) and good for AAVS-M, Family subscale ($r = .92$). The AAVS-M demonstrates convergent validity through significant positive correlations with other measures of heritage Asian cultural values (e.g. the Asian Values Scale; Kim et al., 1999, Loss of Face scale; Zane & Yeh, 2002, and the interdependent subscale of the Self-Construal Scale; Singelis, 1994), and discriminant validity through a lack of association with measures of self-esteem

(Rosenberg Self-Esteem Scale; Rosenberg, 1968) and social desirability (the Social Desirability Scale; Crowne & Marlowe, 1960). In the present sample, the AAVS-M, Family demonstrated good internal consistency ($\alpha = .86$). See Appendix A.

Relational Induction. The Relational Induction Scale (Fung & Lau, 2012) is a 15-item scale that measures relational induction, an indigenous form of parental psychological control thought to represent a class of child-rearing practices observed in East Asian cultures intended to help children develop self-regulation. Items were adapted from the original measure to assess an individual's perspective of their caregiver's parenting approach and will be assessed for each caregiver. A mean score using both caregiver total relational induction scores will be calculated. Items are scored on a 3-point Likert scale (1 = *Not at all like my caregiver*, 2 = *Somewhat like my caregiver*, 3 = *A lot like my caregiver*) and measure guilt induction (e.g. "[My caregiver] might say, 'if you really care for me, you will not do thing that cause me to worry'"), reciprocity (e.g. "[My caregiver] makes me aware of how hard they work to provide for you,"), love withdrawal (e.g. "[My caregiver] gives me a cold shoulder when I have let them down,"), and social comparison (e.g. "[My caregiver] openly compares me to other children who are better behaved). Item scores can be summed for a subscale score (guilt induction, reciprocity, love withdrawal, social comparison) or a total score. The overall scale has good internal consistency ($\alpha = .85$ for Hong Kong sample in original validation study and $\alpha = .87$ for European American sample in original validation study) and demonstrates convergent validity with the shaming subscale of the Parenting Dimensions Questionnaires (Wu et al., 2002), a measure designed to assess dimensions of parenting practices common in China and that has been used among Asian (Nelson et al., 2006) and European American (Russell et al., 2003) samples. In the present

sample, the RIS for each caregiver demonstrated excellent internal consistency ($\alpha = .91-.92$). See Appendix A.

Self-Criticism

The Short Almost Perfect Scale—Discrepancy Subscale (SAPS—Discrepancy; Rice et al., 2014) is an 8-item measure derived from the Almost Perfect Scale—Revised (APS—R; Slaney et al., 2001) that assesses two dimensions of perfectionism: Standards (high performance expectations) and Discrepancy (self-critical performance evaluations). The present study used the 4-item Discrepancy subscale, which measures the perceived gap between one's personal standards and one's self-evaluation of having met those standards (e.g., "Doing my best never seems to be enough"; "My performance rarely measures up to my standards"). Items are scored on a 7-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*) and averaged to yield a subscale score, with higher scores reflecting greater self-critical discrepancy between standards and perceived performance. Internal consistency was good and consistent across validation samples ($\rho = .84$ and $.87$ in Studies 1 and 2, respectively), and the two-factor structure was confirmed via CFA with good fit in both an initial sample ($N = 749$; CFI = $.97$, RMSEA = $.059$) and a cross-validation sample ($N = 335$; CFI = $.96$, RMSEA = $.071$). Strict measurement invariance was supported across gender and across samples. The Discrepancy subscale demonstrates convergent validity through substantial positive associations ($r_s = .45-.62$) with other indicators of maladaptive perfectionism (Concern Over Mistakes, Doubts About Actions, and Negative Self-Oriented Performance Perfectionism subscales of the Frost Multidimensional Perfectionism Scale; Frost et al., 1990) and discriminant validity through no to marginal association with indicators of adaptive perfectionism and personal performance standards. In the

present sample, the SAPS—Discrepancy demonstrated acceptable internal consistency ($\alpha = .79$). See Appendix A.

Semi-structured Interview

Screening Measure. The Forms of Self-Criticizing/Attacking and Self-Reassuring Scale (FSCRS; Gilbert et al., 2004) is a 22-item scale developed to measure self-criticism and the ability to self-reassure (Gilbert et al., 2004). Items are scored on a 5-point Likert scale (0 = *Not at all*, 4 = *Extremely*), with higher scores indicating higher levels of self-criticism. Items make up three subscales including inadequate self (e.g. “There is a part of me that puts me down”), which focuses on a sense of personal inadequacy, hated self (e.g. “I stop caring about myself”), which measures the desire to hurt or persecute the self, and reassure self (e.g. “I can still feel lovable and acceptable”), which measures ways of self-reassurance. For the purposes of this study, only the Inadequate Self subscale was used to screen participants for eligibility for the qualitative portion of the study. This subscale was selected as the screening eligibility measure due to the availability of gender normed scores among undergraduate students (Baião et al., 2015). Eligibility was defined as a score at or above the 75th percentile of the FSCRS, Inadequate Self subscale among a non-clinical sample by gender and equated to a subscale score of 24+ for females and 25+ for males (Baião et al., 2015). In this study sample, individuals who identified as a gender identity other than cisgender male or female were screened according to the higher cutoff score (25+). A total of $n = 200$ study participants (77.52% of the sample) were eligible for the qualitative portion of the study.

Item scores are summed to calculate subscale scores, with higher scores indicating higher self-criticism on the Inadequate Self subscale. In the original validation study, the FSCRS demonstrated excellent internal reliability ($\alpha = .90$ for inadequate self). The FSCRS has been used in a number of studies in which self-criticism has been linked to depression and anxiety

(e.g. Gilbert et al., 2004), self-harm (Gilbert et al., 2010), anger (Gilbert et al., 2005; Gilbert & Miles, 2000), paranoid beliefs (Gilbert, Durrant, & McEwan, 2006), and perfectionism (Gilbert, Durrant, & McEwan, 2006). In the present sample, the Inadequate Self subscale demonstrated good internal consistency ($\alpha = .90$). See Appendix A.

Semi-structured interview. After providing participants with feedback on their elevated levels of self-criticism, interview questions focused on assessing origins of self-criticism in AAs began with the prompt “*Where do you think this self-criticism comes from?*” If participant responses did not mention family, the interviewer prompted “*Do you think your self-criticism comes from anything about your family or how you were raised?*” If participant responses did not mention values or culture, the interviewer prompted “*Do you think your self-criticism comes from anything about your culture or background?*” If participant responses did not mention social environment or society, the interviewer prompted “*Do you think your self-criticism comes from anything about being Asian American?*” Participants were also prompted to describe their self-critical contexts with the question “*In what parts of your life does self-criticism show up the most?*” Finally, participants were asked provide two examples of times when they were self-critical, with follow-up prompts focused on the triggers and impacts of self-criticism if not mentioned in participant responses. See Appendix C for full interview script.

Analytic Approach

Quantitative Analyses

Preliminary Analyses. Prior to conducting primary analyses, preliminary descriptive statistics (mean, standard deviation, range) and distributions of key variables (skewness, kurtosis) were examined. After inspecting the distribution of the age variable, 4 outliers (participants aged 32, 34, 36, and 51) were identified and removed due falling outside of the “young adult” age range, yielding a total analytic sample of $N = 254$. Next, bivariate correlation

analyses were conducted among all indicator and outcome variables to inform latent factor structure prior to specification of the measurement model (see Table 2). Finally, dummy variables were created for gender (reference = cisgender male) and income (reference = high income), and all continuous variables were standardized prior to model estimation.

Structural Equation Modeling. Structural equation modeling (SEM) was conducted in R using the *lavaan* package (Rosseel, 2012). Following the two-step SEM approach (Anderson & Gerbing, 1988), the measurement model was first evaluated using confirmatory factor analysis (CFA) prior to estimating the structural model. Based on inspection of key variable distributions during the preliminary analyses, all models were estimated using maximum likelihood estimation with robust standard errors (MLR; Yuan & Bentler, 2000). Missing data were addressed using full information maximum likelihood (FIML). The latent variable metric was established by fixing latent factor variances to 1.0, allowing all factor loadings to be freely estimated.

Model fit was evaluated using the robust comparative fit index (CFI) and robust Tucker-Lewis index (TLI) as incremental fit indices, with values $\geq .95$ indicating good fit and values $\geq .90$ indicating acceptable fit. The robust root mean square error of approximation (RMSEA) and its 90% confidence interval were used as absolute fit indices, with values $\leq .06$ indicating good fit and values $\leq .08$ indicating acceptable fit. The standardized root mean square residual (SRMR) was also reported, with values $\leq .08$ indicating acceptable fit. See Appendix D for analysis syntax.

Measurement Model. The measurement model (see Figure 3) specified two latent factors: (1) race-related stress, indicated by 3 observed variables, including internalized racism against AAs (measured by IRAAS), discrimination (measured by EDS), and microaggressions (measured by microaggressions checklist), and (2) heritage culture, indicated by 3 observed

variables, including relational induction of each primary caregiver (measured by RIS from Mom/caregiver 1 and RIS from Dad/caregiver 2) and the Asian cultural value of family recognition through achievement (measured by AAVS-M, Family). Additionally, informed by the Multidimensional Model of Racial Identity (Sellers et al., 1998), which asserts that how an individual responds to racialized stress is dynamically influenced by private regard, or how an individual feels about their racial group, we hypothesized that, after accounting for the shared variance attributable to the race-related stress latent factor, IRAAS and microaggressions may have residual covariances that are inversely associated. That is, beyond what IRAAS and microaggressions share with regard to race-related stress, if an individual scored low on the IRAAS (an indicator of high private regard for one's racial group), they may be more likely to notice and identify microaggressions as race-based discrimination. Conversely, if an individual scored high on the IRAAS (an indicator of low private regard for one's racial group), they may be less likely to attribute ambiguous interpersonal interactions to race-based causes and more likely to assign a personal or situational explanation for the interaction (Sellers et al., 1998). This residual covariance between IRAAS and microaggressions was therefore specified in the measurement model. See Appendix D for analysis syntax.

Structural Model. The initial structural model regressed the observed outcome, self-criticism (measured by SAPS-Discrepancy) on the two latent factors (race-related stress, heritage culture), internalized MMS as an exogenous measured variable predictor, and four dummy-coded covariates (low income, middle income, [reference group = higher income]; cisgender female, non-binary/transgender [reference group = cisgender male]). The decision to include internalized MMS as an observed predictor rather than an indicator of the race-related stress factor was based on preliminary examination of bivariate correlations between internalized MMS

and other indicators of race-related stress, which showed modest to no associations between internalized MMS and internalized racism against AAs, discrimination, and microaggressions. Following the initial test of internalized MMS as an additional exogenous predictor of self-criticism, internalized MMS was ultimately removed from the final structural model (see Results for more section below for additional details).

The final structural model (see Figure 3) regressed self-criticism on the two latent factors (race-related stress, heritage culture) and the covariates. The residual covariance between the internalized racism against AAs and microaggressions indicators established in the measurement model was retained in the initial and final structural models. In both models, latent factors were allowed to covary freely. See Appendix D for analysis syntax.

Qualitative Analyses

For the current study, qualitative analyses focused on responses to interview questions about the origins and contexts of self-criticism (see “Semi-Structured Interview” section for specific interview questions; see Appendix C for full interview).

We analyzed interview data using Braun and Clarke’s (2006) reflexive thematic analysis (RFA) approach. In thematic analysis, the researcher aims to be acutely aware of how their theoretical assumptions, lived experiences, and “philosophical sensibility” shape their use of thematic analysis and the themes they identify. Thus, thematic analysis recognizes the researcher’s active role in the subjective interpretation and construction of themes across the data and highlights the importance of transparently articulating these processes throughout the conceptualization, analysis, and reporting of the data (Braun & Clarke, 2006).

Our theoretical assumptions were situated within ecological systems theory (Bronfenbrenner, 1979), self-construal theory (Markus & Kitayama, 1991), and Asian critical race theory (Iftikar & Museus, 2018; Museus & Iftikar, 2013). We acknowledged that multilevel

influences, including ethnic cultural and familial values, may shape self-criticism among AAs. Simultaneously, we recognized how historical and modern racism is systematically embedded within the fabric of American society, transmitted intergenerationally, and key to consider when attempting to fully contextualize the lived experiences of our study participants and their families. Aligned with Asian critical race theory, we viewed the lived experiences and stories of AAs in this study as critical to challenging dominant cultural and research narratives that either essentialize or exclude the perspectives of Asian and Asian American individuals, or leverage racialized stereotypes about AAs to pit minoritized racial/ethnic groups against one another. Finally, we attended to how differences in power and privilege, including those among the researchers involved in the coding, may influence codes and themes identified throughout the research process.

We also acknowledged our positionalities. The leader author (BCC) is Chinese American. The second member of the coding team (SHY) is Chinese-Taiwanese American. The third member of the coding team (THS) is Korean American. The fourth member of the coding team (KIS) is Filipina American. BCC, SHY, and KIS are second generation children of immigrants, while THS is a first-generation immigrant who has lived significant periods of his life in Korea and the United States. BCC, SHY, and KIS are cisgender women and THS is a cisgender man. At the time of the analysis, BCC was a clinical psychology doctoral student, SHY was a clinical psychology postdoctoral scholar, THS was a postbaccalaureate clinical psychology research coordinator, and KIS was an undergraduate research assistant studying psychology and on the pre-medical track. Throughout the analysis process, the research team actively reflected on our biases, values, and how our shared or divergent experiences of self-criticism from those of the study participants influenced or limited our understanding. The

research team maintained reflective memos throughout the coding process to document these ongoing reflexive practices.

With regard to the analytic process, we approached the data from an essentialist/realist epistemological approach, assuming that language reflects rather than constructs participants' reported experiences and meanings (Potter & Wetherell, 1987; Widdicombe & Wooffitt, 1995). We began with an inductive approach using coding, consensus, and comparison methodology (Patton, 1990). Taking an inductive approach means that we did not have a priori codes or themes identified according to our theoretical interests but rather, the codes and themes identified were strongly linked to the data themselves (Creswell & Clark, 2018; Patton, 1990). During the coding process, the research team applied codes at the semantic-level (i.e. codes capture surface meanings / explicitly stated narratives in the data). Then, the research team generated themes at the latent level (i.e. themes interpret underlying ideas or assumptions that may not be explicitly stated by study participants). Throughout the coding process, the research team used the qualitative research platform Dedoose Version 10.0.59 (Sociocultural Research Consultants, LLC, 2026). Our methodological approach is detailed below:

- 1) The research team familiarized themselves with the data by reading the entire dataset and taking notes on initial thoughts, emotional reactions, and observations (i.e. N = 20 interviews)
- 2) Each member of the research team independently generated a list of initial codes that appeared across multiple data items (i.e. individual interview responses) and may form the basis of themes (i.e. patterns of shared meaning) across the dataset,

- 3) After generating a list of initial codes, the research team met to discuss similarities and discrepancies across codes generated by each team member. The team then came to a consensus on an initial set of codes to apply for the coding process,
- 4) Using the consensus codes generated in Step 3, all members of the research team independently coded the same interview, then met to revise and refine codes, as well as resolve discrepancies in coding application across the interview,
- 5) Having updated the codes, each member of the coding team independently coded another interview, then met as a research team to finalize the list of codes to be applied to remaining interviews, as well as to resolve discrepancies and achieve consensus in coding the second interview.
- 6) After agreeing on a clear, shared understanding of each code through Steps 4 and 5, each member of the team then independently coded 4-5 interviews. Throughout this coding process, the research team met regularly (biweekly) to discuss questions that arose while coding and maintain shared awareness of content across the dataset.
- 7) After coding all interviews, BCC generated initial themes represented in codes across the dataset and shared initial themes with the research team for reflection and revision. Next, the research team met to discuss the identified themes, the “essence” of each theme, what aspect of the data the theme captured, and what story the themes told in relation to each other and the broader research question.
- 8) After the initial thematic meeting, BCC revised themes based on the research team discussion. Then, the research team met again to review and discuss the final themes. As part of the analytic process during this meeting, the research team collaboratively generated a thematic map to visualize relationships between themes and ensure that the

essence of each theme and their relationships to one another were appropriately represented. The research team refined and finalized themes, then discussed key points to include in the narrative descriptions of each theme.

Throughout this process, the team frequently revisited interview responses to ensure engagement with the data at each step of the coding and thematic analysis process.

Data Triangulation

After independently completing the quantitative and qualitative analytic phases of the study, we integrated the results of both phases during the discussion of the outcomes of the study. We compared the quantitative and qualitative findings, discussed areas of convergence and divergence between the results, and interpreted findings by weighing both sets of data equally and leveraging the results of the two data sources. This mixed methods approach of concurrent triangulation was to enable rich conversation between quantitative and qualitative data to better examine relationships between constructs of interest (Creswell & Clark, 2018; Palinkas et al., 2010).

Results

Quantitative Results

Measurement Model

The two-factor measurement demonstrated excellent fit to the data (see Table 3 and Figure 3; robust CFI = .99, robust TLI = .99, robust RMSEA = .03, 90% CI [.00, .09], SRMR = .03, scaled $\chi^2(7) = 7.94, p = .34$). Standardized factor loadings and R^2 values are presented in Table 4. Loadings for the race-related stress factor ranged from .52-.68, with R^2 ranging from .27 to .47. Loadings for the heritage culture factor ranged from .39-to .79, with R^2 values ranging from .15- .63. Notably, the factor loading for the AAVS-M, Family indicator was modest ($\beta = .39, R^2 = .15$); this factor was retained due to its theoretical significance as a heritage cultural

value and due to fit indices indicating excellent fit while retaining the AAVS-M, Family indicator. All loadings were statistically significant ($ps < .001$). Additionally, the two latent factors were significantly positively correlated ($r = .65, p < .001$), indicating that race-related stress and heritage culture are related but empirically distinct constructs. Inspection of remaining MIs indicated that no additional modifications were warranted.

Preliminary Test of Internalized MMS as an Exogenous Predictor

The initial measurement model produced poor fit when IM-4, Achievement and the two latent factors were specified (robust CFI = .79, robust TLI = .71, robust RMSEA = .09, 90% CI [.07, .11], SRMR = .07, scaled $\chi^2 (41) = 108.78, p < .001$). Furthermore, the direct structural path from internalized MMS to self-criticism was non-significant ($\beta = .04, p = .52$), and review of the two largest MIs indicated that heritage culture and self-criticism predicted internalized MMS (MIs = 10.00 and 9.54, respectively). This suggested structural model misspecification and a more complex relationship between self-criticism, race-related stress, and internalized MMS than what could be specified within the current model. Thus, internalized MMS was removed as an exogenous predictor of self-criticism in the structural model.

Final Structural Model

The final structural model demonstrated acceptable fit to the data (see Table 3 and Figure 3; robust CFI = .90, robust TLI = .86, robust RMSEA = .06, 90% CI [.03, .08], SRMR = .06, scaled $\chi^2 (35) = 62.93, p = .003$). Although CFI and TLI fell slightly below the conventional .95 threshold for good fit, RMSEA and SRMR met conventional benchmarks, and the overall pattern of fit indices was substantially improved relative to both earlier structural model specifications. Thus, the final model was deemed acceptable and marginal CFI and TLI values are noted as a study limitation. No remaining modification index exceeded 10 (maximum MI = 8.14),

indicating no sources of severe localized misfit. Factor loadings were stable across the measurement and structural model steps, with no loading shifting by more than .04 standardized units.

Standardized path coefficients for the final structural model are presented in Table 5. The final structural model explained 16.3% of the variance in self-criticism ($R^2 = .16$). Heritage culture was a significant predictor of self-criticism ($\beta = .24, p = .03$), such that greater identification with greater heritage Asian cultural values was associated with higher self-criticism. Contrary to the study hypothesis, race-related stress did not significantly predict self-criticism above and beyond heritage culture ($\beta = .15, p = .15$), though the effect was in the expected positive direction.

Qualitative Results

Table 6 summarizes the themes and subthemes the research team developed with sample interview quotes.

Theme 1. “Prove You’re Smart, Prove You Belong”: Internalization of Racialized Achievement Expectations as a Perceived Driver of Self-Criticism

Across almost all interviews, participants described internalized expectations for achievement as a primary perceived driver of self-criticism rooted in two dominant racial narratives: the model minority stereotype, which imposed expectations that AAs should achieve academic and professional excellence simply by virtue of being Asian, and the perpetual foreigner stereotype, which generated pressure to assimilate, prove belonging, and avoid standing out. For many participants, these racist pressures converged. Achievement was seen as the primary way to demonstrate belonging in American society, making any failure doubly threatening and worthy of self-criticism—not only was failing to achieve an academic shortcoming, it was also a failure to fulfill a racialized identity mandate. As one participant put

it, *“Just the fact that I’m Asian...puts a higher standard on me societally...there’s this underlying stereotype where Asians have to excel...and be at the top of the class and do super well in school. And so, I guess just the fact that I’m Asian means I have to live up to that stereotype in a way.”* Another participant captured how this pressure operated through others’ expectations rather than her own. As she stated *“Everyone has that stereotype that Asians are extremely intelligent. And so, I feel pressure to not prove them wrong.”* For many participants, the PFS added a compounding layer of pressure. One participant strikingly described how the PFS had followed her across her entire life, beginning in her elementary school neighborhood where *“...we were the ones who stuck out the most...Getting the mail, our neighbors would always shoot us dirty looks.”* She went on to describe how this experience continued as she got her first jobs. During COVID-19 while working at In N’ Out, she recalled how *“I was called kung flu in the drive thru by customers. I was called China virus almost every other day.”* When asked how these experiences impacted her self-criticism, she concluded *“...I’ve dealt with that kind of stuff my whole life. So I think that’s where it [self-criticism] definitely stems from.”*

Importantly, while a number of participants explicitly labeled achievement pressures as stemming from stereotypes about AAs, other participants did not always recognize pressures as racial in origin. For some, it seemed that racialized achievement expectations had been so thoroughly internalized across time that they were described as personal standards or standards inherited from family and heritage culture rather than impositions from a structurally racist society. As one participant reflected, *“I don’t know if it’s like an ethnic thing or something, but I definitely feel like it’s just my place in society. I feel like I’ve always had to try harder and do better in order to stand out...I feel like that’s a huge factor [in my self-criticism].”*

Subtheme 1A. Interpersonal Racism Plants the Seed. For many participants, the internalization of racialized expectations began with specific encounters with racism during childhood and adolescence—encounters that communicated, either implicitly or explicitly, what AAs are “supposed to be” and that participants carried forward as internal benchmarks. These benchmarks functioned as persistent, perceived drivers of self-criticism, raising the psychological stakes of any performance that fell short of racialized expectations.

One participant who attended a predominantly White elementary school described years of “*experiencing microaggressions every single day*” that instilled racialized expectations to succeed. This participant recalled how “*I was not good at math...like I wasn’t a coding whiz at like five years old, but that was something that was forced upon me every single day...*” The participant then described how peers and teachers alike commented on what Asian girls are “supposed” to be (“*Oh, but aren’t you supposed to be good at math? You’re Chinese, you know*”, “*Oh, but aren’t you supposed to be the all A student? ...You’re like one of the two Asians at the school*”), and how she was ridiculed for eating Chinese food (“*Oh, what’re you eating? Are you eating a dog?*”).

Another participant described a school psychologist asking her mother whether she “*just stays inside all day and studies*” when she skipped a grade—an assumption rooted in the model minority stereotype—when in reality, the participant “*love[d] playing outside.*” She reflected that this played “*a pretty large role*” in her self-criticism, “*because it made me feel even worse when I failed at something that I felt that I should be good at.*”

The fact that these encounters occurred during critical periods of identity formation made participants especially susceptible to internalizing racialized messages as personal truths about who they “should” be.

Subtheme 1B. The Nuanced Impact of the Racial/Ethnic Diversity of the

Environment. The racial/ethnic composition of participants' environments shaped the internalization of racialized expectations in ways that directly amplified or decreased self-criticism—though the same factor, the presence or absence of Asian peers, operated in opposing directions for different participants, demonstrating the nuanced impact of the environmental pathway to self-criticism.

For some participants, living in predominantly White environments amplified self-criticism through heightened racial visibility and isolation. One participant described being one of the few AAs in her school and how *“I came home one day and I was like ‘Oh Mom, can I dye my hair blonde? All the other girls have blonde hair.’”* She went on to ask for *“Lunchables at the store”* and described how she didn't want to *“eat this [pork and rice]”* because *“I didn't want to get made fun of at school.”* Another participant described how lack of proximity to Asian peers catalyzed self-criticism through difficulty understanding acculturative gaps with caregivers. The participant described being *“one of six Asians in our graduating class of 260 students”* and how it was *“so very isolating,”* resulting in feeling *“that need to blend in and...have that experience that they [the White majority] had, where if they got all straight A's on a report card, their parents would buy them a phone. I'd be like, I've been straight A's my entire life. I don't have a phone.”*

For other participants, growing up in heavily Asian communities amplified self-criticism through pervasive social comparison and a normalized pressure to succeed. One participant described going to school with many Asian peers and how *“it's not even explicit comparison or competition, but that implicit need, everyone's talking about grades or extracurriculars, and when you're at school, that's 90 percent of your social life is talking about AP this or*

extracurricular that...there's a point where I internalized all that and didn't realize. It's sort of like a fish swimming in water. It doesn't realize it's in that water." Another participant described the social consequences of failing to achieve within Asian friend groups: *"If you're the only one who hasn't excelled academically, it's like, oh, you're the outcast...Everyone else is achieving greater things."*

By contrast, diverse ethnic environments could be protective by cultivating shared understanding of racialized pressures. As one participant noted, *"I was lucky enough to go to a high school that was very diverse, especially Asian American wise... So, at those times it was easier to not think about that [model minority] stereotype, because everybody felt that. I didn't feel singled out."*

Taken together, these findings underscore that environmental racial composition does not uniformly amplify or buffer self-criticism, but rather interacts with participants' individual histories, relationships, and the specific racialized pressures they have internalized.

Subtheme 1C. Achievement as the Singular Pathway to Security and Worth. One belief shared across nearly all participants—that academic and professional achievement was the singular pathway to financial security, social respectability, and personal worth—powerfully drove self-criticism by eliminating the psychological safety of alternative paths. One participant described this narrowing clearly: *"The [Asian] culture is just very focused on having a pipeline to a successful career. A lot of my parents and a lot of my friends' parents want them to be doctors or lawyers or something like that....and there's a big burden to reach these high standards."*

Importantly, though most participants identified the origin of this belief as their families, it is rooted in realities of structural racism that participants rarely named explicitly. For example,

when describing how they came to believe in achievement as the singular pathway to success, several participants described their parents' lived experiences with immigration to the US, language barriers, and economic precarity. In turn, participants' parents communicated—sometimes directly, sometimes through the sense of urgency to succeed—that achievement was the one reliable protection against the vulnerabilities they had been forced to face. One participant articulated the stakes as *“If I’m not doing all that [achieving], I won’t be able to support them [my parents], I won’t be able to support myself. I value my independence a lot, and I feel like if I’m not working towards being independent, then it makes me feel worse.”* Another described being *“so afraid of becoming homeless somehow”* that, as a college junior, she regularly calculated her anticipated post-tax salary, divided into monthly rent payments. These accounts reflect a structural reality in which immigrant families and racial minorities perceived—often accurately and through their own struggles—that they had fewer safety nets and fewer alternative routes to stability, thus raising the psychological stakes of any failure to existential proportions and catalyzing self-criticism centered on securing success.

Theme 2. Learning to Be Hard on Yourself at Home: The Familial Transmission of Self-Criticism

Across nearly all interviews, the family emerged as a primary context for transmission of self-criticism, though the mechanism of transmission varied considerably. While some participants described self-criticism arising from explicit parental pressure to achieve, others absorbed self-criticism through the emotional texture of family life, and still others described the intergenerational weight of immigration as a source of obligation that drove them to be self-critical. Importantly, these pathways were not mutually exclusive. What they shared was a common origin and outcome: self-criticism as an internalized family inheritance, forged by a

macroenvironmental context in which racist expectations and fewer safety nets for racial/ethnic minoritized individuals made achievement the most reliable pathway to security, shaping not just what Asian parents communicated to their children, but also how urgently they communicated it.

Subtheme 2A. The Explicit Curriculum—Learning Self-Criticism Through Direct Parental Pressure. Some participants described families that communicated achievement expectations directly and unambiguously, establishing early self-critical standards that persisted into adulthood. One participant described a turning point when she tested into a gifted class in fourth grade and *“My parents just drilled into me, you need to work hard. You need to do well in this class. You need to show them that you’re smart.”* She continued on to conclude *“I think that’s where I picked up a lot of my habits that I carry with me now. Like I always feel like I need to prove that I’m smart, and also...I don’t want to disappoint my parents...I don’t want to disappoint my family.”*

Another participant described learning to be self-critical due to her parents having *“really high standards, not just for us as their kids, but even for themselves, and failing kind of isn’t really an option.”* A third described how her parents taught her that *“what I do or achieve, or what I don’t do, is always a reflection of them”*—a framing that transformed personal achievement into a family obligation, amplifying self-criticism when she fell short.

Importantly, most participants recognized that the explicit pressure they received from their parents coexisted with genuine love and care, thus making self-criticism even more difficult to evade. One participant understood that her family’s high expectations came from wanting her to *“do well”* and be independent, even as those expectations fueled her self-criticism. She stated *“[Now] I’m the one who’s disappointed in myself, and before it was really my family who was disappointed.”*

Subtheme 2B. The Implicit Curriculum—Learning Self-Criticism Through Parental Modeling and Emotional Restraint. A subtler and equally pervasive pathway to self-criticism operated through the emotional context of family life rather than explicit parental demands for success. This “implicit curriculum” functioned through sparse or conditional praise for achievements, parental modeling of self-criticism, and culturally rooted emotional restraint—each shaping participants’ internal standards and intensifying self-critical responses to falling short of perceived expectations.

Several participants described the asymmetry of criticism vs. praise in their families as a catalyst for becoming self-critical. One participant shared *“getting a compliment out of my Mom is virtually impossible...And even if she does compliment something, and it’s genuine, there’s always a criticism behind it. Like, yeah, well, I thought you did good in this interview. But you did this, this, this, this wrong. For every positive thing, there’s 10 negative things.”* Another participant described parents who were *“not as expressive about praise,”* leading her to minimize her own accomplishments. She stated *“If something good happens to me, I don’t view it as a huge deal because they don’t either.”*

Other participants described parents who modeled self-criticism by being intensely hard on themselves. One participant described parents who often led with criticism rather than praise toward her achievements. She observed that *“I definitely see my parents doing it to themselves as well. When they mess up, they’re mentally or emotionally blocked. They don’t know what to do. My mom will shut down, my Dad will just get mad.”* Another described a parental philosophy of *“just do your best”* that was implicitly undermined when results fell short— *“Did you really try your best?”*—a message she internalized as meaning inadequate results always signaled inadequate effort. A third participant described the broader emotional environment of his family

as characterized by “*a lack of understanding of emotional well-being*” where “*the first emotional response is just the cold shoulder or just going to practical solutions instead of just listening.*”

For some participants, this restraint created an acculturative gap. One participant described telling her mother about her anxiety diagnosis and receiving the response that “*Everyone is stressed. Everyone just deals with their stress.*” She had wanted her mother to express public pride in her accomplishments, but her mother responded, “*I don’t like to brag. Everyone who needs to know, knows.*” She named this tension directly “*That’s the American versus the Asian.*”

Subtheme 2C: “Making Their Sacrifices Count”—The Intergenerational Legacy of Immigration. Another distinct pathway to self-criticism ran through participants' awareness of what their parents and grandparents had endured through immigration, and a resulting sense of obligation to maximize opportunities that prior generations did not have. This intergenerational duty—experienced as both motivating and burdensome—became a powerful generator of self-criticism when participants perceived themselves as falling short of what their family's sacrifices deserved.

Several participants described parents and grandparents invoking sacrifice directly when establishing high expectations for success. One participant recalled how “*it has always driven me...my Mom saying ‘Your grandma did all of this. She sacrificed her life. She moved to a completely different country where she didn’t know anything...You need to make sure that her sacrifices and her hard work don’t go to waste.’*” Another participant, who was born in the Philippines, described being told from a young age that moving to the United States “*was for the*

better...that I was presented with so many opportunities," leaving her feeling that she "really had to take advantage of it and exceed their expectations."

Importantly, the felt duty to make the most of familial sacrifices through immigration generated self-criticism even in families where parents were explicitly supportive and non-demanding. For some participants, simply knowing that their parents *"didn't have the same opportunities"* was sufficient to create internal pressure, producing a felt need *"to do my best and work hard so that I can make the most of the sacrifices and things that they've given me."* Others described the pressure as ambient and unspoken—*"not directly said, but more of a subconscious thing where you feel like you have to do better"*—and one that gradually *"morphs into not wanting to be a disappointment to your family."* Because this weight was experienced as loving rather than punitive, it was especially difficult to resist or reframe.

Theme 3. "But Am I a Good Enough _____?"—The Relational Self Under Scrutiny

Another perceived driver of self-criticism among Asian American young adults was organized not around academic or professional performance but around participants' perceived adequacy in fulfilling their social roles in important relationships. Participants often described holding themselves to perfectionistic standards as friends, siblings, daughters/sons, and leaders—standards often invisible to others but deeply felt internally, and which functioned as a persistent driver of self-evaluative distress.

The relational stakes of self-criticism were evident across several interviews. For example, one participant described how she did not experience distress when her own project failed. Only when she considered how it would affect her lab partner did she begin to cry—what triggered the response, she explained, was *"the thought of disappointing someone else, letting down someone else. Self-criticism makes me avoid disappointing other people, makes me scared*

to do something that would make me realize I didn't live up to someone's expectations." Another participant described applying the same critical scrutiny to all his social roles, asking himself *"am I being a good enough friend? Am I being a good enough son?"*—even while acknowledging *"deep down I could say, my friends, my parents, they love me unconditionally. There's still a part of me that wants to make sure that I'm not letting them down."*

Notably, participants described how this relational orientation was shaped by heritage cultural values of collectivism and an interdependent relation to others, with self-criticism functioning as an internal enforcement mechanism to ensure all relational obligations were met. One participant captured this dynamic particularly strikingly when describing her drive to *"criticize every single part of myself until I feel like it's enough for me to be the perfect daughter."* Shaped by their heritage cultural values, participants seemed to register personal shortcomings not merely as individual disappointments, but also as relational injuries—failures of love and loyalty to those for whom they cared the most.

Theme 4: "Pitted Against One Another": Social Comparison as a Driver of Self-Criticism

For several participants, social comparison and a fear of negative social evaluation was a pervasive, perceived driver of self-criticism. For many of these participants, their self-criticism shared a common logic: others' achievements are evidence of one's own inadequacy. Whether from being compared by others or directly comparing themselves to (a) peers in the Asian / Asian American community, or (b) high-achieving peers at a selective undergraduate university, participants described selectively attending to peers who were outperforming them while discounting those who were not.

Subtheme 4A. Perpetuation of Self-Criticism Within the Asian Community. Many participants described chronic self-criticism stemming from being compared—or comparing

themselves—to siblings, cousins, and peers within Asian/ Asian American communities. One participant described a competitive dynamic with a cousin who would “*kind of devalue*” her accomplishments, which she internalized as a need to “*be impressive in every single way so that people can’t just devalue what I’ve done.*” Another participant described the pressure from her Korean church community, where “*people talk a lot*” and “*other parents are always asking about you and what you’re doing. And so that puts pressure on me too. Like the fact that other parents are, interested in and always asking what I’m doing, which I think is weird...but there’s that pressure.*” A third participant described growing up in a close knit Vietnamese community and understanding “*implicitly...if a student in a family doesn’t do too well in school, other people will be gossiping to you , like oh, did you hear so and so...and so you know that because they’re gossiping about this family, they’re also gossiping about you.*” For a number of participants, these comparisons were woven into the fabric of community life, transforming potentially supportive relationships into sources of self-evaluation.

Subtheme 4B. Imposter Syndrome and the Pressure of High-Achieving

Environments. Participants also described becoming self-critical through attending a competitive undergraduate institution and being immersed in a high-achieving academic environment, irrespective of the racial or ethnic identity of their peers. For several, this experience gave rise to imposter syndrome—the persistent belief that one does not deserve one's achievements and will eventually be exposed as less capable than others perceive them to be—which functioned as a direct contributor to self-criticism.

One participant described feeling he “*learned a little bit slower than other people*” and concluded from this that he “*wasn't good enough, like everyone seemed so able to retain things so quickly.*” Another captured the imposter experience directly, describing how being

"surrounded by all these really motivated, high achieving students" led her to conclude that she "probably [didn't] belong here and probably [didn't] deserve to be here."

For several participants, navigating a highly competitive academic environment triggered not just intensified self-criticism but existential questioning about whether they belonged at the university at all. Importantly, this theme interacts with Theme 1 ("Prove You're Smart, Prove You Belong": Internalization of Racialized Achievement Expectations as a Driver of Self-Criticism)—across interviews, participants recognized that their imposter syndrome was amplified by the racialized achievement expectations they had internalized long before arriving on campus.

Theme 5: Disrupted Self-Concept and the Fall from "Gifted"

Lastly, for some participants, self-criticism emerged due to a fracture between a former high-achieving identity and their current sense of self. Unlike Theme 4, which identified social comparison as a catalyst for self-comparison, this theme involves a temporal, internal comparison—self-criticism resulting from participant comparing themselves not to others, but to themselves, specifically who they used to be or who they believed they were supposed to become.

One participant described being *"naturally good at stuff"* as a child and participating in a gifted program, which had made *"the concept of not being inherently good at something difficult to wrap my head around. So if I do try something now, I'm obviously not going to be very good at it at first. And I'm like, okay, maybe this just isn't for me. And I'm gonna leave immediately."*

Another participant described the disruption in starker terms: *"In high school, I was like the straight A student, the teacher's pet, the person who excelled in like every class. But I fell off really drastically when I came into college."* The participant continued to described how she

experienced this not just as a change in performance but as an identity crisis, *"A big contrast between my past self and my current self. Like that person isn't me anymore. And what am I now?"*

Across these accounts, self-criticism stemmed from deep attachment to an identity built on effortless achievement. No doubt informed in part by racialized achievement expectations (see Theme 1), a few participants described viewing any struggle to achieve—however normative—as evidence of fundamental inadequacy, thereby catalyzing a self-criticism that felt existentially threatening.

Discussion

The present study employed a convergent parallel mixed method design to examine micro- and macrosystem correlates of self-criticism in AA young adults. Informed by ecological systems theory (Bronfenbrenner, 1979), the integrative model of developmental competencies in minority children (García Coll et al., 1996), and Asian critical race theory (AsianCrit; Iftikar & Museus, 2018; Museus & Iftikar, 2013; Yoo et al., 2022), this study hypothesized that race-related stress plays a critical role in the development of self-criticism in AAs. Taken together, quantitative and qualitative findings converged on a layered account of self-criticism in which heritage cultural values and family socialization practices serve as its most proximal correlates, yet are also shaped by—and cannot be fully understood apart from—structural racism and the unique racialization processes AAs encounter in the United States.

Contrary to study hypotheses, race-related stress did not significantly predict self-criticism above and beyond heritage culture in the structural equation model used to analyze the quantitative survey. Notably, however, the race-related stress and heritage culture factors were strongly positively correlated ($r = .65, p < .001$), suggesting that race-related stress may

indirectly drive self-criticism in AAs through how it shapes one's construal and experience of heritage cultural values and family processes. More specifically, while family processes and heritage values are rooted in their own unique histories and ethnic cultures of origin, they may also be amplified and shaped by race-related stress in ways that cannot be fully disentangled. For example, interpersonal experiences of racism may prompt ethnic-racial identity exploration and deeper attunement to ingroup belonging and familial obligation among AA young adults, which in turn may heighten salience of filial duties to achieve and self-improve. Simultaneously, caregiver experiences of discrimination and subsequent attempts to prepare youth for bias may shape parental approaches toward youth ethnic-racial socialization (e.g. promoting academic achievement as a key pathway to security), which in turn may sharpen self-improvement focuses among AA youth. Prospective research supports this pathway, with longitudinal and meta-analytic studies showing that experiences of discrimination prospectively predicted increases in ethnic-racial identity exploration and commitment among AA adolescents (Cheon & Yip, 2019; Yip et al., 2019), with family ethnic-racial socialization identified as a key mediating context through which discrimination shapes identity development (Woo et al. 2020; Park et al., 2021; Wang et al., 2025).

Simultaneously, the qualitative themes that emerged from the interview narratives depicted the pathway from race-related stress to self-criticism in AAs as unfolding developmentally, mediated by various familial, identity-based, and social-cognitive processes. One common narrative participants described was how the MMS and PFS—stereotypes forged through structural racism—generated repeated experiences of discrimination and microaggressions for AAs during sensitive developmental periods. In turn, these experiences interacted with parenting practices and family environments to produce internalized, racialized

expectations of who AAs “should be,” with perceived failures to meet those expectations stoking self-criticism. Participants described absorbing MMS-consistent messages through media portrayals of Asian characters as “the smartest one in the class,” through interpersonal encounters in which job interviewers expressed that their accomplishments were only expected “because you’re Asian,” and through peer environments where achievement expectations were so ambient that they were absorbed without anyone stating them explicitly. Participants also described PFS-consistent experiences such as receiving dirty looks from White neighbors, being teased by peers for eating Asian cuisine for lunch, and feeling pressure to physically assimilate, including one participant who described wanting to dye her hair blonde to look less visibly Asian. Together, encounters of this nature framed AAs as outsiders whose only viable claim to belonging ran through exceptional performance—a message that many participants came to internalize and that fueled self-criticism over time. Altogether, this nuanced and non-linear path from race-related stress to self-criticism might not be easily assessed using quantitative cross-sectional survey methods.

Measurement limitations also likely contributed to the lack of associations observed in the quantitative model. While the IRAAS and the IM-4, Achievement subscale are among the most well-supported measures in the literature for assessing internalized racism among AAs, neither captures the internalized achievement *pressures* that study participants described as most directly linked to self-criticism. While the IRAAS assesses internalized hostile attitudes toward one’s Asian racial identity (e.g. self-negativity, appearance bias), the IM-4, Achievement subscale assesses endorsement of stereotypical beliefs that may also just reflect positive self-regard for AAs (e.g., beliefs that AAs are harder workers; beliefs that despite racism, AAs are more likely to achieve academic and economic success). This divergence between endorsement

of internalized racist beliefs and the subsequent pressures exacted by internalization of such beliefs may also explain why inclusion of the IM-4, Achievement subscale significantly worsened initial SEM model fit. This interpretation is supported by studies that have found endorsement of internalized MMS beliefs to be protective—for example, AA women who agreed with IM-4, Achievement orientation statements showed lower odds of poor self-rated mental health

Finally, two themes illuminated how the diversity and institutional values of AA young adults' environments can variably shape the pathway from race-related stress to self-criticism. First, several participants vocalized how racialized achievement expectations were further heightened by imposter syndrome stemming from attending a competitive, undergraduate university with high-achieving peers. Rather than the classic conceptualization of imposter syndrome as an individual-level pathology, this suggests that among AAs, it may be more appropriately recharacterized as a “racialized imposter phenomenon,” thus more comprehensively accounting for how systemic racism, discrimination, and stereotype threat culminate in and sustain imposter feelings (Cokley et al., 2024). Another theme identified through participant interviews was how racialized stress appears to have shaped a self-critical orientation across both high and low co-ethnic density settings. While for some participants, growing up in predominantly White environments fueled self-criticism through heightened racial visibility and acculturative isolation, for others, coming of age in Asian American ethnic enclaves reduced intergroup discrimination exposure but intensified intra-ethnic achievement pressure through social comparison, consistent with research showing that minority-only classroom compositions may amplify upward social comparison relative to ethnically mixed settings (Kuo & Yang, 2017). In contrast, other participants described how the presence of

fellow AA peers fostered shared understanding of racialized pressures, which — while not necessarily reducing self-criticism itself — appeared protective against its downstream consequences, including social isolation and negative mental health impacts. This is consistent with evidence that ethnic social connectedness buffers the psychological impact of race-related stress (Liao et al., 2016; Bécares et al., 2009; Barrita et al., 2023).

Beyond the role of race-related stress and environmental context in shaping self-criticism, findings also pointed to family socialization practices and heritage cultural values as more proximal correlates of self-criticism among AA young adults. This finding was convergent across quantitative and qualitative data and aligns with a substantial body of literature on Asian and Asian American parenting practices and family socialization processes (DiBartolo & Rendón, 2012; Lui, 2015; Suh et al., 2023). Quantitative results showed that the heritage culture factor significantly predicted self-criticism in the SEM, while qualitative themes illuminated three interconnected mechanisms through which family and heritage culture transmitted self-criticism to AA young adults. To begin, one clear theme that emerged across interviews involved both the explicit and implicit curricula of family life as a mechanism through which self-criticism was conferred from parents to children. Many participants described families that communicated achievement expectations directly and unambiguously, patterns consistent with *guan*, a culturally specific form of Chinese parental involvement combining high expectations with genuine care, and with dual-mode frameworks of achievement motivation in Confucian contexts, in which academic striving is driven by both role obligation and intrinsic interest (Chao, 1994; Chen, 2023). Equally important but less explicitly tangible was the emotional texture of family life: a number of participants shared how sparse or conditional praise from caregivers for achievements, parental modeling of self-criticism, and emotionally restrained

responses to children's distress each shaped internal standards and intensified self-critical responses to perceived shortfalls. This aligns with literature on Asian emotion socialization, which shows that parental minimization of emotion generates self-blame among children when emotions arise (Xu et al., 2026; Yasui et al., 2023), while failure-focused parental responses rooted in self-improvement goals further orient children toward shortcomings rather than strengths (Ng, 2017; Ng et al., 2019).

Another set of pathways that linked family process to self-criticism operated through the intergenerational legacy of immigration. In line with the “sacrifice-indebtedness bind,” whereby parental sacrifice narratives create a moral obligation to succeed that transforms any failure into a betrayal of parental suffering, generating guilt-driven self-criticism (Wu & Chao, 2011; Leung, 2020), nearly all participants described an acute awareness of what their parents or grandparents had sacrificed in order to immigrate to the United States, and a corresponding sense of obligation to maximize opportunities prior generations could not access. Notably, participants expressed feeling this pressure even when their parents were explicitly supportive and non-demanding, thus showcasing how self-criticism had become intrinsic and perhaps quite challenging to disrupt.

A final, culturally distinct pathway centered on self-criticism focused on the relational self. Many participants shared that they held themselves to perfectionistic standards not only in academic or professional performance, but also in fulfilling social roles as daughters, sons, friends, and leaders. As asserted by Markus and Kitayama’s (1991) seminal work on interdependent self-construal among East Asians, participants shared that they experienced any perceived shortcoming in their relationships as relational injuries and failures of love and loyalty to those they cared about most, in turn fueling harsh self-evaluation. Importantly, these relational

standards participants imposed on themselves also reflected racialized expectations about what the ideal Asian child is supposed to achieve, revealing an interaction between collectivist values and racial stereotypes. Indeed, a line of research suggests that interdependent self-construal may heighten vulnerability to self-criticism under conditions of social-evaluative pressure (Zhang et al., 2017)—such as the pressure to fulfill interpersonal obligations by living up to model minority expectations. This may occur through two pathways: by making it harder to externalize negative feedback or attribute shortcomings to situational factors rather than the self (Chan & Mendoza, 2008), and by promoting self-stereotyping, whereby group stereotypes are absorbed into self-concept to facilitate affiliative social tuning (Sinclair et al., 2009). Relatedly, a number of participants described upward social comparison, a practice traditionally employed by East Asian parents to foster personal and behavioral development in their children, as intensifying already racialized stakes within intraethnic norms (Takada, 2019; Smetana, 2021; Fung & Lau, 2012). Thus, cultural values that serve vital relational functions within Asian heritage contexts may exact a self-critical toll when they collide with AAs living within racialized societal structures, rendering AAs more vulnerable to internalizing structurally produced pressures as self-directed criticism.

For AA young adults, the path from ‘Asianization’—the racialization of a wide diaspora into the monolithic stereotypes of model minority and perpetual foreigner (Museus and Iftikar, 2013)—to self-criticism runs through a complex interplay of developmental experiences that gradually transform external racial expectations into internalized standards of who and what an AA person “should” be. Among these developmental forces are experiences of racism and microaggressions conveyed through peers, neighbors, teachers, and broader media and institutions, that cumulatively communicate that belonging and worth must be earned through

exceptional, and often unattainable, achievement. A central tenet of Asian Critical Race Theory holds that racialized expectations can become so deeply and thoroughly ingrained that they come to be viewed as a personal standard rather than an external imposition (Ifitkar & Museus, 2018). This prediction is borne out in the present data, where just as many AA participants attributed their achievement pressures solely to their families, culture, or own innate perfectionism as explicitly labeled them as rooted in racist stereotypes. This invisible conversion of structural racism into felt personal standards has important implications for how the familial and cultural correlates of self-criticism identified in this study should be interpreted. The parenting practices, heritage cultural values, and relational expectations that participants identified as most proximally shaping their self-criticism are situated within societal structures that historically offered limited pathways for security, recognition, and belonging to AAs. The intensity with which AA caregivers socialized achievement, the weight of immigration sacrifice narratives, and the centrality of relational obligation—while certainly are in part shaped by heritage culture—are best understood not solely as expressions of cultural essence, but also as adaptive responses to structural conditions that made exceptional performance a prerequisite for survival (Sue & Okazaki, 1990; Garía-Coll et al., 1996). To attribute self-criticism in AAs solely to family or culture is to pathologize the communities that are adaptively adjusting to the demands of the structures within which they live. Thus, ‘Asianization’ provides a foundational macrosystemic backdrop within which all family socialization, cultural transmission, and identity development take place, rendering it not merely one factor among many, but the organizing condition in which self-criticism takes root and is sustained.

There were several limitations of this study that should be considered when interpreting the findings. First, the cross-sectional design of the quantitative analyses precludes causal

inference, and while qualitative themes point toward clear drivers of self-criticism among AAs, thoughtful, longitudinal designs may help to examine developmental trajectories of self-criticism and the timing of formative experiences such as exposures to interpersonal racism. Second, the qualitative sample ($N = 20$) was small, and the broader study sample consisted of majority female Asian American undergraduates attending a competitive undergraduate university. This high-achieving overall sample may over-represent achievement-oriented pathways to self-criticism and under-represent how self-criticism operates among AAs outside elite academic or professional settings. Future research should seek larger and more geographically and socioeconomically diverse samples. Finally, existing measures of race-related stress—including the IRAAS and IM-4 Achievement subscale—did not adequately capture the internalized achievement pressures most directly linked to self-criticism in the qualitative data. Developing measures that specifically target internalized achievement pressure stemming from racial stereotypes remains a clear priority, and would enable future studies to directly test the full internalization pathway this study’s qualitative data revealed.

Despite limitations, the present study offers a meaningful contribution to the literature on ecological correlates of self-criticism among AAs. Most importantly, it triangulates quantitative and qualitative methods to interrogate how downstream consequences of structural racism may contribute to emergence of self-criticism among AA young adults. Future research can build on the current study findings by clarifying longitudinal, causal links between interpersonal racism, internalized racism, and self-criticism illuminated by this study. Furthermore, growing research on radical healing frameworks indicate that it may be adopted as an appropriate intervention for experiences of race-related stress among AAs (Chu, Ng, & Yu, 2025; Hwang et al., 2021).

Future studies might investigate how the radical healing framework could be applied to help AAs

recognize the structural roots of their self-criticism, reframe self-critical tendencies as adaptive yet psychologically costly responses to the unique racialization and oppression AAs face in the United States, and ultimately reduce self-criticism by cultivating cultural authenticity, self-knowledge, and radical hope (French et al., 2020). Finally, the unique experiences of biracial and multiracial Asian individuals merit dedicated investigation. Biracial and multiracial participants constituted the second-largest subgroup in this sample, yet existing research rarely addresses how biracial identity shapes racialization experiences and key family socialization practices. Asian Critical Race Theory's emphasis on intragroup variation in racialization suggests that biracial and multiracial AAs may face distinct pressures around racial identity authenticity, including questions about "Asianness" that monoracial AAs do not encounter in the same form. Future research should examine how identity negotiation processes unique to biracial and multiracial AAs intersect with self-critical thinking. By elucidating the complex developmental pathway between structural racism and self-criticism in AAs, we hope this study holds translational value for highlighting, critically understanding, and ultimately disrupting the internalization processes through which stereotypes forged to sustain race-based oppression are silently absorbed as self-criticism among AA young adults.

Tables

Table 2

Bivariate Pearson Correlations among Key Study Variables

Variable	1	2	3	4	5	6	7	8
1. EDS	—							
2. Microaggressions	.37***	—						
3. IRAAS	.37***	-.06	—					
4. IM-4, Achievement	.03	-.08	.26***	—				
5. AAVS-M, Family	.11	.07	.21***	.36***	—			
6. RIS, Mom	.28***	.22***	.25***	.11	.33***	—		
7. RIS, Dad	.37***	.26***	.31***	.11	.29***	.54***	—	
8. SAPS-Discrepancy	.22***	.18**	.15*	.08	.20**	.25***	.21***	—

Note. EDS = Everyday Discrimination Scale; IRAAS = Internalized Racism in Asian Americans Scale; IM-4, Achievement = Internalization of the Model Minority Myth, Achievement Orientation Subscale; AAVS—M, Family = Asian American Values Scale—Multidimensional, Family Recognition through Achievement Subscale; RIS = Relational Induction Scale; SAPS—Discrepancy = Short Almost Perfect Scale, Discrepancy Subscale

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3*Model Fit Statistics for the Measurement and Structural Models*

Model	χ^2	df	<i>p</i>	CFI	TLI	RMSEA	90% CI	SRMR
Measurement Model (CFA)	7.94	7	.34	.99	.99	.03	[.00, .09]	.03
Initial Structural Model	108.78	41	< .001	.79	.71	.00	[.07, .11]	.07
Final Structural Model	62.93	35	.003	.90	.86	.06	[.03, .08]	.06

Note. $N = 254$ (measurement model); $N = 244$ (structural models; 10 additional cases excluded due to missing data on self-criticism). All chi-square statistics and fit indices are scaled/robust (Yuan-Bentler correction). CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA = Root Mean Square Error of Approximation; CI = confidence interval; SRMR = Standardized Root Mean Square Residual. The initial structural model includes IM-4, Achievement as an exogenous predictor; the final structural model excludes it.

Table 4*Factor Loadings from Confirmatory Factor Analysis*

Indicator	B	SE	β	R²	<i>p</i>
<i>Race-Related Stress</i>					
IRAAS	0.56	0.11	.56	.32	< .001
EDS	0.68	0.09	.68	.47	< .001
Microaggressions	0.52	0.09	.52	.27	< .001
<i>Heritage Culture</i>					
RIS, caregiver 1	0.70	0.08	.70	.49	< .001
RIS, caregiver 2	0.80	0.08	.79	.63	< .001
AAVS-M, Family	0.39	0.09	.39	.15	< .001

Note. $N = 254$. Parameter estimates reflect the final measurement model, which includes residual covariance between IRAAS and Microaggressions ($\beta = -.51, p < .001$). B = unstandardized loading; SE = standard error; β = standardized loading; R² = proportion of indicator variance explained by the latent factor. IRAAS = Internalized Racism in Asian Americans Scale; RIS = Relative Induction Scale; AAVS-M, Family = Asian American Values Scale—Multidimensional, Family Recognition through Achievement Subscale.

Table 5
Path Coefficients for Final Structural Model

Predictor	B	SE	β	z	p
Key Predictors					
Race-Related Stress	0.16	0.11	.15	1.43	.15
Heritage Culture	0.24	0.11	.24	2.17	.03*
Covariates					
Low income	0.09	0.19	.03	0.48	.63
Middle income	-0.00	0.13	-.00	-0.0	.10
Cisgender female	0.19	0.16	.08	1.2	.22
Non-binary/transgender	-1.02	0.39	-.14	-2.6	.01*

Note. $N = 244$. The outcome variable is self-criticism (SAPS—Discrepancy). B = unstandardized coefficient; SE = standard error (MLR estimator); β = standardized coefficient; z = z-statistic.

Race-related stress and heritage culture are latent factors. Income and gender are included as covariates, with high income and cisgender male as reference groups, respectively. $R^2 = .16$.

* $p < .05$. Significant values are bolded.

Table 6

Reflexive Thematic Analysis Themes, Subthemes, and Representative Quotes

Theme / Subtheme	Example Quotes
Theme 1. "Prove You're Smart, Prove You Belong": Internalization of Racialized Achievement Expectations as a Driver of Self-Criticism	<i>"Just the fact that I'm Asian...puts a higher standard on me societally...I know these days, there's almost no racial barriers to how high you can achieve educationally. But, I think there's still this underlying stereotype where Asians have to excel, and Asians have to be the top of the class and do super well in school. And so, I guess just the fact that I'm Asian means I have to live up to that stereotype in a way."</i> <i>I don't know if it's an ethnic thing, but I definitely feel like it's just my place in society. I feel like I've always had to try harder and do better in order to stand out as opposed to someone who, you know, fits in, like essentially someone White. I feel like I have to try 10 times harder to be able to be noticed...I feel like that's a huge factor [in my self-criticism.]"</i>
Subtheme 1A. Interpersonal Racism Plants the Seed	<i>"I was not [good] at math, like in kindergarten through high school...I wasn't a coding whiz at five years old, but that was something that was forced upon me every single day...Eating dog jokes, microaggressions every single day...."</i> <i>I learned this at a pretty early age...My Mom used to send me to school with lunches that were predominantly Asian food...pork and rice and stuff. But I would show up at school and I would get made fun of because the kids had never seen that before. And all they had were Lunchables and PB&Js and those Ben and Jerry things...they would laugh at me and they'd be like "Oh, what're you eating? Are you eating a dog?'...Or they'd be like, 'Oh, why aren't you the best at like math?' I've been told that by math teachers, full-grown adults, 'Oh, but aren't you supposed to be good at math? You're Chinese, you know?' 'Oh, but aren't you supposed to be the all A student? Why aren't you getting all A's?'"</i> <i>...That just shows like the society that I grew up in was very enabled by the adults, and the kids acted out in those ways because their parents were teaching their kids that that was okay. And even in my neighborhood, we were the ones who stuck out the most. Our neighbors would</i>

always give us dirty looks when we got home. ...And then even when I used to work at In N Out, and I was called kung flu in the drive thru by customers. I was called China virus almost every other day...So, I've dealt with that kind of stuff my whole life. So, I think that's definitely where it [self-criticism] stems from and comes from...

And those stereotypes, even now [at a diverse university] are pushed onto me, like my race, defines who I am. Cause everybody looks at me and they're like "Oh yeah, that's an Asian girl. She should be smart'. ' Oh yeah. That's an Asian girl. Of course, she's going to be good in school.' Being an Asian American in the US, especially right now...it's something that takes over like, every aspect of your life."

Subtheme 1B. The Nuanced
Impact of the Racial/Ethnic
Diversity of the Environment

"It's almost like in an Asian friend group, if you're the only one who hasn't excelled academically... you're the outcast... everyone else is achieving greater things."

"I feel like there's that very classic stereotype...oh, Asians are smart. Asians...tend to do well compared to other minorities. I think that I was lucky enough to grow up, or to go to high school that was very diverse, especially Asian American wise...So, at those times it was easier not to think about that stereotype, because I think everybody felt that. I didn't feel singled out in a way...A lot of my friends are Asian American as well, and so it's easy for us to talk to each other and understand, yeah, we get this pressure from our parents. Yeah, we want to do well and all those things..."

"I grew up in a smaller town in Pennsylvania, very white. I was one of six Asians in our graduating class of 260 students. So very isolating, and very much in high school felt that need to blend in and to want to have that experience they had, where it was like, if they got all straight A's on a report card, their parents would buy them a phone. I'd be like, I've been getting straight A's my entire life. I don't have a phone."

Subtheme 1C. Achievement as
the Singular Pathway to
Security and Worth

"I just feel like the culture is very focused on having a pipeline to a successful career. Like my parents and a lot of my friends' parents, they want them to be doctors or lawyers or something like that. And there's a big burden to reach these high standards.... And also... especially for Asian American kids with immigrant parents, we always hear about, oh, how hard their lives

were before coming to America. So it feels like, okay, we need to work hard as well to make the most of our parents' sacrifices and also the opportunity of being in America."

Theme 2. Learning to Be Hard on Yourself at Home: The Familial Transmission of Self-Criticism

"Self-criticism might partially be from my family...from a young age, my family promoted having high standards, so I grew up having high standards...I grew up like that, so now I have really high standards for myself, and when I don't meet them, I'm the one who's disappointed in myself, and before it was really my family who was disappointed."

Subtheme 2A. The Explicit Curriculum—Learning Self-Criticism Through Direct Parental Pressure

"My parents always taught me that what I do or achieve, or what I don't do, is always a reflection of them. If you misbehave in public as a kid, it's pretty much a reflection of how the parents raised you. And so academically, I was pretty burnt out and I didn't want to apply to college, but they wanted higher education for me. We got into a lot of arguments, and they wanted me to quit one of the clubs I was in, but I really enjoyed that club. And I think that when we argued, it shifted more from academically, like this is something you need to do, to more personal, like you're being selfish with your time or with the efforts that we've put in all these years."

Subtheme 2B. The Implicit Curriculum—Learning Self-Criticism Through Parental Modeling and Emotional Restraint

"Getting a compliment out of my mom is virtually impossible... And even when you do get a compliment, it's kind of backhanded in the sense that she'll be like, 'Oh, yeah, you're good for an undergrad.' And even if she does compliment something, and it's genuine, there's always a criticism behind it...For every positive thing, there's 10 negative things. And I definitely see my parents doing it to themselves as well. When they mess up, they're also mentally or emotionally blocked. They don't know what to do. My mom will shut down, my dad will just get mad."

"They're not as expressive about praise or giving me positive affirmations. If something good happens to me, I don't view it as a huge deal because they don't either. Even though sometimes it is a big deal."

Subtheme 2C. "Making Their Sacrifices Count"—The Intergenerational Legacy of Immigration

"Both of my parents are immigrants and they've worked incredibly hard for everything that they have, and knowing that, I feel I should be working that hard...I have a younger brother and he's in high school right now, and I want to set a good example. I want him to be the best possible version of him that he can be. I can only do that if I do the hard work that my parents did, and that my [older] siblings did, so I think it all just ties together."

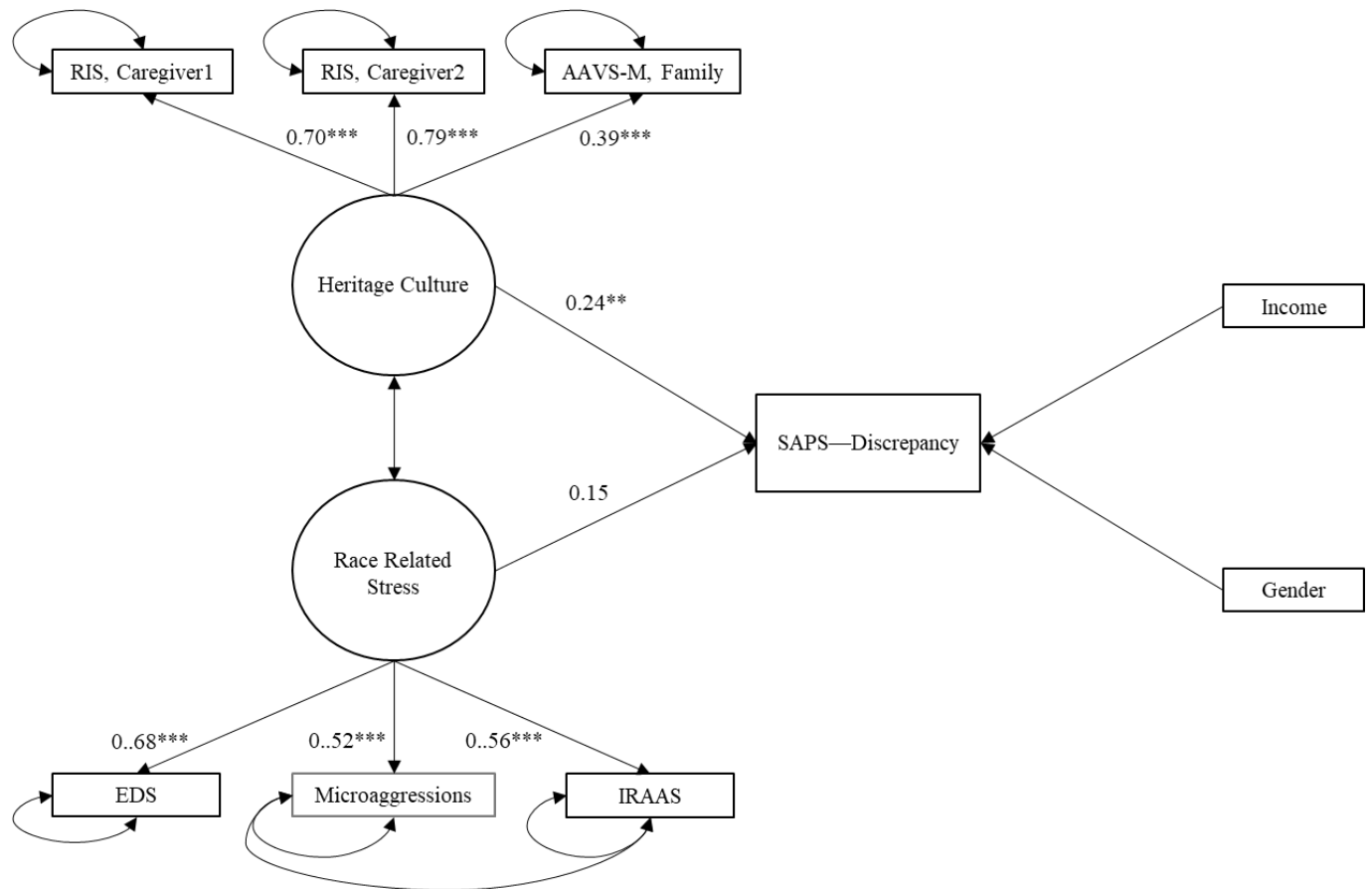
Theme 3. "But Am I a Good Enough _____?"—The Relational Self Under Scrutiny	<i>"I applied self-criticism... as a son, as a friend. Am I being a good enough friend? Am I being a good enough son? Even though deep down I could say, my friends, my parents, they love me unconditionally. There's still a part of me that wants to make sure that I'm not letting them down."</i>
Theme 4. "Pitted Against One Another": Social Comparison as a Driver of Self-Criticism	<i>"My cousins and I were always pitted against each other. And my sister and I were always pitted against each other when we were kids... Now, I know that I am pitted against other successful Asian Americans that...go to UCLA or Berkeley, or that go literally to any other Ivy League schools...they are gonna get the job over me or that could potentially be the person I'm going up against. That's my motivation [to be self-critical]."</i>
Subtheme 4A. Perpetuation of Self-Criticism Within the Asian Community	<i>"[The pressure to do well] is implicit...If a family has a student that didn't do too well in school, other people will be gossiping to you, like oh did you hear so and so...And you know that, because they're gossiping about this family, they're also gossiping about you, or about someone else who's gossiping about them, it's that kind of assumption that if they're doing it to one person, they're obviously doing it to another."</i>
Subtheme 4B. Imposter Syndrome and the Pressure of High-Achieving Environments	<i>"Being surrounded by all these really motivated, high achieving students... I probably don't belong here and I probably don't deserve to be here, so I don't try anymore."</i>
Theme 5. Disrupted Self-Concept and the Fall from "Gifted"	<i>"...Growing up, I was looked up to. I was the role model kid...I was the straight A student, the teacher's pet, the person who excelled in every class...My life took a drastic turn around middle school. And it basically led me to question everything I grew up as...There's this big contrast between my past self and my current self. That [high-achieving] person isn't me anymore. And what am I now? And so, it just led me into a pattern of being constantly self-criticizing, self-doubting, and seeing myself as less than the people around me."</i>

Note. Quotes are drawn from interview transcripts and are presented verbatim or with minor editing for clarity.

Figures

Figure 3

Final Measurement and Structural Model



Note. EDS = Everyday Discrimination Scale; IRAAS = Internalized Racism in Asian Americans Scale; RIS = Relational Induction Scale; AAVS—M, Family = Asian American Values Scale—Multidimensional, Family Recognition through Achievement Subscale.

Standardized coefficients are shown. Residual variances are represented by curved single-headed arrows on each indicator. A residual covariance between IRAAS and Microaggressions is shown (see Methods section for theoretical justification). Income and gender are dummy coded covariates; see Table 5 for individual path coefficients.

*** $p < .001$, ** $p < .01$, * $p < .05$

Study 2: Assess the psychological reinforcement processes that maintain and perpetuate self-criticism within the AA community.

Self-criticism has been identified as more prevalent among AA populations compared to other racial/ethnic groups (Castro & Rice, 2003; Heine et al., 2007; Kitayama & Markus, 2000). Yet, research examining the origins of self-criticism is Eurocentric and few studies have investigated the psychological reinforcement processes that may maintain self-criticism within the AA community.

Paul Gilbert's seminal theory asserts that self-criticism is a conditioned response to childhood maltreatment that serves two primary functions: (1) to correct and improve behavior (self-correcting), and (2) to exact an active dislike of the self (self-persecution; Gilbert et al., 2004; Gilbert & Procter, 2006). Informed by evolutionary psychology, Gilbert posits that internal, self-to-self relating mirrors competencies that individuals have evolved to regulate their social roles and relationships. In response to parents who threaten and attack to regulate child behavior, children learn to self-attack and self-punish to correct their own behavior; in response to parents who express active dislike or hatred toward them, children may develop a similar self-hating orientation toward themselves (Gilbert et al., 2004).

Though the self-correcting and self-persecuting functions of self-criticism are empirically supported (Gilbert, Durrant, & McEwan, 2006), conceptualizing self-criticism as a function of abusive parenting is reductive and overlooks a host of social influences outside the primary caregiving relationship. Self-criticism may develop in supportive family environments through conditional positive regard (Haines & Schutte, 2023) or achievement-oriented psychological control that is embedded within otherwise caring relationships (Bleys et al., 2018). It may also emerge independently from the home environment through peer victimization experiences

(Kopala-Sibley et al., 2013). Applying Gilbert's theory to explain the higher prevalence of self-criticism among AAs reveals a further limitation: it fails to account for the social positioning of AAs within the United States and risks pathologizing Asian families and parenting practices.

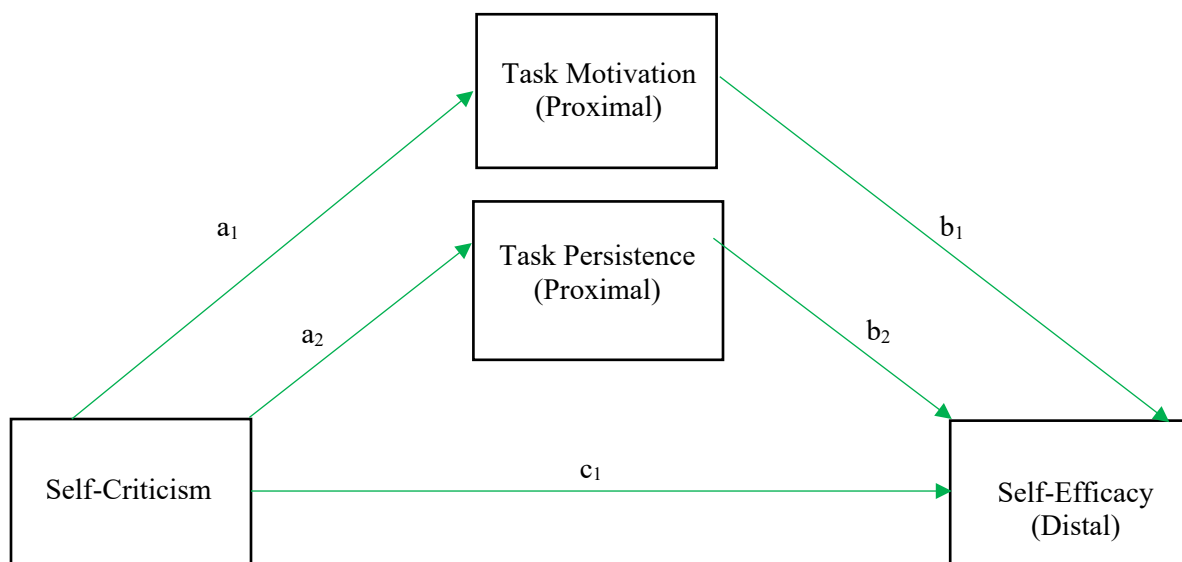
As stated in this dissertation's introduction, García Coll's (1996) integrative model of developmental competencies in minoritized children offers a more fitting framework. García Coll argues that social position—particularly race and ethnicity—drives experiences of racism, prejudice, and discrimination, which in turn shape “adaptive culture” within minoritized communities. This adaptive culture, which encompasses heritage traditions, shared histories, acculturation processes, and responses to inequitable societal structures, organizes the contexts in which minoritized children develop and acquire competencies, including the capacity to cope with racism.

Applying García Coll's model to ecologically reformulate Gilbert's theory, AAs may be socialized in their families to self-criticize through the combined influences of heritage cultural values, family processes, and subjugation under racist stereotypes such as the MMS and PFS. Importantly, conformity to model minority standards is not simply a matter of internalized cultural values or the product of parenting practices—it is also socially enforced through mechanisms of power and hierarchy. Fiske's (1993) seminal work on stereotyping as social control demonstrates how those in positions of dominance deploy stereotypes to restrict lower-power groups to predetermined social roles, actively preserving existing hierarchies. Because their outcomes depend on those in power, lower-group members become highly attuned to these expectations and are strongly motivated to conform. Crucially, conformity and nonconformity carry asymmetric social consequences: while conforming individuals receive conditional acceptance, nonconformists face hostility, backlash, and exclusion (Glick & Fiske, 1996; Fiske et

al., 2002). For AAs faced with the double threats of the MMS and PFS, meeting exceptional model minority expectations may offer conditional acceptance as citizens, whereas deviating risks social exclusion, discrimination, and loss of the limited standing that conformity affords—a loss further compounded by a societal context already predisposed to view AAs as forever foreign. Together, these social penalties create powerful external pressure to achieve that may compound standards conferred through heritage cultural values or family processes. Through this lens, self-criticism becomes an instrumentally rational response. When faced with converging pressures, AAs may self-criticize to increase their motivation and persistence to achieve, driven by a racial mandate that positions achievement as their only pathway to security and worth. Thus, self-criticism may represent an adaptive response to race-related stress that is positively reinforced through task motivation, task persistence, and more distally, increased self-efficacy, and negatively reinforced through reduced negative affective states associated with professional or academic achievement pressures (see Figures 1 and 2 below, originally presented in Introduction).

Figure 1

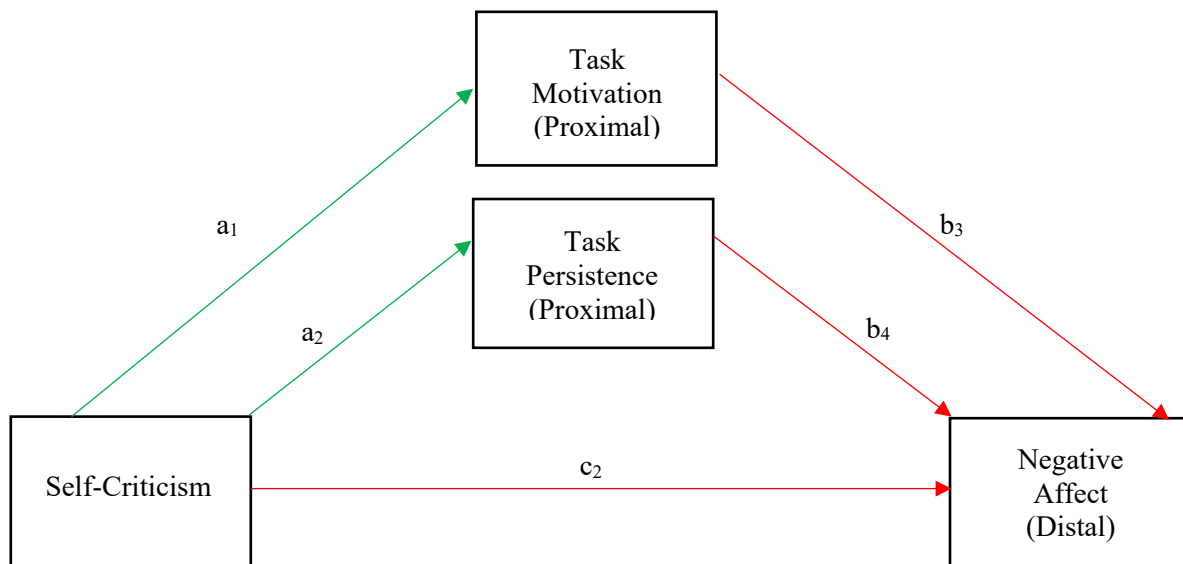
Hypothesized Positive Reinforcement Models of Self-Criticism



Note. Green arrows indicate positive reinforcement. The path analysis shows that self-criticism is hypothesized to be proximally positively reinforced through increased task motivation (a_1) and increased task persistence (a_2). Increased task motivation and task persistence are then hypothesized to increase self-efficacy, which distally positively reinforces self-criticism (b_1 and b_2 , respectively). Thus, self-criticism is hypothesized to be indirectly positively reinforced by self-efficacy *through* task motivation and task persistence.

Figure 2

Hypothesized Negative Reinforcement Models of Self-Criticism



Note. Green arrows indicate positive reinforcement and red arrows indicate negative reinforcement. As depicted in Figure 1, the path analysis shows that self-criticism is hypothesized to be positively proximally reinforced through increased task motivation (a_1) and increased task persistence (a_2). Increased task motivation and task persistence are then hypothesized to decrease negative affect (b_3 and b_4 , respectively). Thus, self-criticism is hypothesized to be indirectly distally negatively reinforced by negative affect (c_2) *through* increased task motivation and task persistence.

To date, few studies have directly examined the psychological processes that maintain self-criticism among AAs. Existing evidence offering preliminary support for positive reinforcement processes comes from a handful of experimental studies. Heine et al. (2001) found that among Japanese individuals performing a challenging task, self-criticism increased task motivation, task persistence, and perceived task importance, findings consistent with goal-directed behavior as a proximal positive reinforcer of self-criticism. Extending these findings to AAs specifically, Tsai et al. (2015) found that when faced with negative evaluation following a stressful task, AAs primed to reflect on their failures with a self-improvement prompt persisted longer on a subsequent challenging task compared to AAs primed with a self-enhancing prompt, suggesting that a self-critical stance may be reinforced by boosts to persistence in the face of difficulty. With regard to more distal positive reinforcement through self-efficacy, Suh et al. (2014) found that AAs who met model minority standards experienced high self-efficacy in academic and career domains, suggesting that AAs who self-criticize and succeed may experience cumulative gains in self-efficacy over time. Evidence supporting negative reinforcement processes is more limited. In one experimental design, Tsai et al. (2015) found that AAs primed with a self-improvement prompt experienced fewer symptoms of depression, anxiety, and negative affect than those primed with a self-enhancing prompt following failure, offering limited evidence that self-criticism may be negatively reinforced through reduction of aversive affective states associated with achievement pressure.

Though these experimental studies offer early evidence that self-criticism in AAs may be positively reinforced through increased motivation, persistence, and self-efficacy and negatively reinforced through decreased negative affect, there is a paucity of observational studies using temporally sensitive assessments that can capture how reinforcement processes maintain self-

criticism among AAs navigating day-to-day academic and professional challenges in ecologically relevant settings. The present study addresses this gap using a convergent parallel mixed method design to test a two-stage reinforcement architecture: (1) whether self-criticism is positively reinforced in the short term through increased task motivation and persistence, and in turn through increased self-efficacy; and (2) whether self-criticism is negatively reinforced through subsequent reductions in negative affect associated with academic and professional achievement pressures. The qualitative component of the study will pursue more emergent discoveries intended to enrich the quantitatively assessed reinforcement models. Rather than testing predetermined hypotheses, the qualitative data will more openly explore what AAs perceive themselves to gain and lose from self-criticism, and how they experience and make meaning of their self-critical patterns in the context of their daily lives.

Based on literature from experimental studies, we hypothesize that self-criticism will be positively reinforced by daily increases in task motivation and task persistence. Additionally, we hypothesize that task motivation and task persistence will in turn be positively associated with self-efficacy and negatively associated with negative affect. Lastly, we hypothesize that the positive reinforcement relationship between self-criticism and self-efficacy and the negative reinforcement relationship between self-criticism and negative affect will be mediated through increases in task motivation and persistence. Considering there are few studies examining the perceived functions and psychological maintenance processes of self-criticism among AAs, this study addresses a significant gap in the literature.

Method

Participants

See Current Dissertation Participants.

Procedures

See Current Dissertation Procedures.

Measures

Participant Characteristics

Participants self-reported their age, gender, ethnicity, generation status, country of birth, annual household income, whether or not they received mental health services in the past year, mother's/first caregiver's highest completed level of education, and father's/ second caregiver's highest completed level of education. See Appendix A.

Daily Measures

Task motivation. To assess daily task motivation, participants were first prompted to think about the day's academic and professional demands by responding to the open-ended question "What was the most challenging academic or professional task you performed today?" Then, participants answered the question "On a scale of 1 (not at all) to 5 (a great deal), how motivated were you to complete this task?" See Appendix B.

Task persistence. To assess daily task persistence, participants were first prompted to think about the day's academic and professional demands by responding to the open-ended question "What was the most challenging academic or professional task you performed today?" Then, participants rated three questions about their persistence on the challenging task (e.g. "How persistent were you in completing this task despite setbacks that may have arisen?") on a 5-point Likert scale (0 = *Not at all* , 5 = *A great deal*). Items scores were summed and a mean task persistence score was calculated. Internal consistency was excellent (ordinal $\omega = .93$). See Appendix B.

Negative Affect. Daily negative affect was assessed using the Internationally Reliable Short-Form of the Positive and Negative Affect Scale (I-PANAS-SF; Thompson, 2007), a 10-item scale used to measure positive and negative affect in informants across a range of cultural backgrounds. Items are scored on a 5-point Likert scale (0 = *Very Slightly or Not at All*, 5 =

Extremely). Positive affect items include “alert,” “inspired,” “determined,” “attentive,” and “active.” Negative affect items include “upset,” “hostile,” “ashamed,” “nervous,” “afraid.” The I-PANAS-SF has been psychometrically tested in a number of validation studies and demonstrated cross-sample stability, internal reliability, temporal stability, cross-cultural factorial invariance, and convergent and criterion-related validities (Thompson, 2007). Internal consistency in this sample was excellent (ordinal $\omega = .92$). See Appendix B.

Self-Efficacy. To assess daily self-efficacy, participants responded to items from the General Self-Efficacy Scale (Schwarzer & Jerusalem, 1995), a widely used measure of self-efficacy that has successfully been used in other daily diary studies (e.g. Schönfeld et al., 2019; Tims et al., 2014; Xanthopoulou et al., 2008). We adapted the General Self-Efficacy scale for daily use by selecting 2 items from the original 10-item scale and changing the prompt to ask participants to reflect on the most recent day (e.g. “Today, I felt I could solve difficult problems if I tried hard enough.”). Given the two-item format, traditional internal consistency coefficients are less informative and potentially unstable; therefore, inter-item reliability was assessed using Spearman rank-order correlation and indicated adequate convergence between items ($\rho = .61$). See Appendix B.

Self-criticism. Daily self-criticism was assessed using the Discrepancy subscale of the Short Almost Perfect Scale—Discrepancy Subscale (SAPS—Discrepancy; see Aim 1 Measures section for detailed psychometric information), with slight modifications in items to assess daily self-criticism only. Internal consistency in this sample was excellent (ordinal $\omega = .95$). See Appendix B.

Semi-structured Interview

Screening Measure. The Forms of Self-Criticizing/Attacking and Self-Reassuring Scale (FSCRS; Gilbert et al., 2004) is a 22-item scale developed to measure self-criticism and

the ability to self-reassure (Gilbert et al., 2004). Items are scored on a 5-point Likert scale (0 = *Not at all*, 4 = *Extremely*), with higher scores indicating higher levels of self-criticism. Items make up three subscales including inadequate self (e.g. “There is a part of me that puts me down”), which focuses on a sense of personal inadequacy, hated self (e.g. “I stop caring about myself”), which measures the desire to hurt or persecute the self, and reassure self (e.g. “I can still feel lovable and acceptable”), which measures ways of self-reassurance. For the purposes of this study, only the Inadequate Self subscale was used to screen participants for eligibility for the qualitative portion of the study. This subscale was selected as the screening eligibility measure due to the availability of gender normed scores among undergraduate students (Baião et al., 2015). Eligibility was defined as a score at or above the 75th percentile of the FSCRS, Inadequate Self subscale among a non-clinical sample by gender and equated to a subscale score of 24+ for females and 25+ for males (Baião et al., 2015). In this study sample, individuals who identified as a gender identity other than cisgender male or female were screened according to the higher cutoff score (25+). A total of $n = 200$ study participants (77.52% of the sample) were eligible for the qualitative portion of the study.

Item scores are summed to calculate subscale scores, with higher scores indicating higher self-criticism on the Inadequate Self subscale. In the original validation study, the FSCRS demonstrated excellent internal reliability ($\alpha = .90$ for inadequate self). The FSCRS has been used in a number of studies in which self-criticism has been linked to depression and anxiety (e.g. Gilbert et al., 2004), self-harm (Gilbert et al., 2010), anger (Gilbert et al., 2005; Gilbert & Miles, 2000), paranoid beliefs (Gilbert, Durrant, & McEwan, 2006), and perfectionism (Gilbert, Durrant, & McEwan, 2006). In the present sample, the Inadequate Self subscale demonstrated good internal consistency ($\alpha = .90$). See Appendix A.

Semi-structured interview. After providing participants with feedback on their elevated levels of self-criticism, interview questions focused on processes reinforcing self-criticism in AAs will begin with the prompt *“How does your self-criticism affect you?”* If participant responses do not include how self-criticism is helpful to the participant, the interviewer will prompt *“Do you think being self-critical helps you in any way?”* If participant responses do not include how self-criticism may be harmful to the participant, the interviewer will prompt *“Do you think being self-critical hurts you in any way?”* Participants will also be asked *“How does self-criticism impact your behavior?”* and *“Do you have any desire to change your self-criticism?”* If participant responses do not detail how participants would want their self-criticism to change, interviewers will prompt *“How would you want to change your self-criticism?”* and *“What do you think would be the impact of this change?”* For participants who state they do not want to change their self-criticism, interviewers will ask *“Why not?”* Finally, participants will be asked to provide two examples of times when they were self-critical, with follow-up prompts focused on the impacts of self-criticism, whether it was helpful or hurtful in any way, whether it impacted behavior, and the individual’s takeaway from the situation. See Appendix C for full interview script and prompts.

Analytic Approach

Quantitative Analyses

Preliminary Analyses. Prior to conducting primary analyses, data were cleaned and prepared for analysis. First, as described in *Aim 1 Preliminary Analyses*, four participants were identified as age outliers and excluded from the dataset, yielding an analytic sample of $N = 229$. Next, participants who completed duplicate daily diary entries for a single day were flagged, and the first daily diary entry was retained with subsequent duplicate records removed. In total, two duplicate records were removed. Additionally, person-level outlier screening was conducted by

computing mean *z*-scores across key study variables (self-criticism, task motivation, task persistence, negative affect, and self-efficacy); participants with mean *z*-scores ≥ 3.0 SDs above or below the sample mean were flagged. Five participants were flagged, examined, and ultimately retained in the analytic sample as their extreme scores reflected genuine interindividual variability—such as stably low self-efficacy or stably elevated negative affect across data collection days—rather than data entry or recording errors. Key descriptives (*M*, *SD*, range) and intraclass correlations (ICCs) were calculated for all study variables to confirm the presence of adequate within-person variance. Finally, missingness by study day was examined.

Random Intercept Cross-Lagged Panel Models. All models were estimated in R using the *lavaan* package (Rosseel, 2012). Four random intercept cross-lagged panel models (RI-CLIPMS; Hamaker et al., 2015) were estimated to test positive and negative reinforcement models of self-criticism, with each model examining task motivation or task persistence as a within-person mediator. Positive reinforcement models examined whether self-criticism indirectly predicts increased self-efficacy through increased task motivation or persistence (see Figures 4 and 5), while negative reinforcement models examined whether self-criticism indirectly predicts decreased negative affect through increased task motivation or persistence (see Figures 6 and 7).

RI-CLPMs were selected over conventional cross-lagged panel models because they explicitly decompose observed variance into (a) stable between-person components, captured by random intercepts, and (b) dynamic within-person components, captured by cross-lagged residuals. This decomposition prevents between-person trait differences from confounding within-person lagged effect estimates, which is essential for valid inference about temporal dynamics at the individual level (Hamaker et al., 2015; Mulder & Hamaker, 2021). Random

intercepts were specified for each construct and their covariances were freely estimated. Gender and income were dummy coded and included as time-invariant between-person covariates regressed onto each variable's random intercept.

Within-person dynamics were modeled using bidirectional cross-lagged paths, such that each variable at time t predicted every other variable at time $t+1$ while controlling for its own prior value (autoregressive effect). Cross-lagged path coefficients were constrained to equality across days, consistent with the stationarity assumption of the RI-CLPM. After estimating initial RI-CLPMs, modification indices indicated misspecification when within-wave residual covariances the first day were fixed to zero. Thus, within-wave residual covariances and variances were freely estimated across all 10 time points in all final models, reflecting potential shared situational influences across constructs within a given day. For two models (self-criticism $\rightarrow$ task persistence $\rightarrow$ negative affect; self-criticism $\rightarrow$ task persistence $\rightarrow$ self-efficacy), additional same-construct residual covariances across non-adjacent were also freed based on modification indices when theoretically justified.

All models were estimated using the robust maximum likelihood estimator (MLR). Model fit was evaluated using the robust comparative fit index (CFI), Tucker-Lewis index (TLI), and root mean square error of approximation (RMSEA), with CFI/TLI $\geq .95$ indicating excellent fit, $\geq .90$ acceptable fit, and RMSEA $\leq .05$ indicating good fit (Hu & Bentler, 1999). The standardized root mean square residual (SRMR) was also examined, with values $\leq .08$ indicating acceptable fit. See Appendix D for analysis syntax.

Qualitative Analyses

For the current study, qualitative analyses will focus on responses to interview questions about the psychological reinforcement processes that maintain self-criticism (see “Semi-

structured Interview” section for specific interview questions or see Appendix C for full interview).

The approach to qualitative analysis will be the same across both studies in this dissertation. Please see the *Qualitative Analysis* section of Study 1 for additional details.

Data Triangulation

The approach to data triangulation will be the same across both studies in this dissertation. Please see the *Data Triangulation* section of Study 1 for additional details.

Results

Quantitative Results

Preliminary Analyses

Key descriptives and ICCs for all study variables are reported in Table 7. ICCs were in the moderate range (.30–.70), indicating adequate between- and within-person variance to support RI-CLPM estimation. Missingness by study day is reported in Table 8.

Between-Person Effects

All four RI-CLPMs demonstrated good to excellent fit. Between-person random intercept covariances revealed consistent patterns across models: individuals higher in average levels of self-criticism reported lower average levels of task motivation ($r = -.23$ to $-.24$, $ps < .05$) and task persistence ($r = -.29$, $ps < .01$). Self-criticism was also strongly negatively associated with average self-efficacy ($r = -.35$ to $-.36$, $ps < .001$) and strongly positively associated with average negative affect ($r = .50$, $ps < .001$) at the between-person level. Middle income (relative to high income) was consistently associated with higher average self-criticism across all four models ($bs = 1.36$ – 1.42 , $ps < .05$), while other covariate effects on self-criticism were nonsignificant. Both low and middle income (relative to high income) were associated with lower average self-efficacy in the self-efficacy models ($ps < .01$); income effects on negative affect were

nonsignificant. Autoregressive effects were statistically significant and small in magnitude across most variables ($bs = .08-.15$, $ps < .05$ to $< .001$), indicating modest but reliable day-to-day temporal stability in within-person fluctuations.

Within-Person Effects: Positive Reinforcement Models

Self-Criticism $\rightarrow$ *Task Motivation* $\rightarrow$ *Self-Efficacy*. The final model demonstrated good fit, scaled χ^2 (490) = 487.42, $p = .52$; robust CFI = .94; robust TLI = .93; robust RMSEA = .04, 90% CI [.03, .05]; SRMR = .07 (see Table 9). At the within-person level, self-criticism at time t significantly predicted greater task motivation the following day (a path: $b = 0.02$, $SE = 0.01$, 95% CI [0.01, 0.03], $p = .001$). However, contrary to study hypotheses, task motivation at time t did not significantly predict self-efficacy the following day (b path: $b = 0.02$, $SE = 0.03$, 95% CI [-0.03, 0.07], $p = .40$), and the indirect effect of self-criticism on self-efficacy through task motivation was not statistically significant ($b = 0.000$, $SE = 0.001$, 95% CI [-0.001, 0.001], $p = .41$). The direct effect of self-criticism on self-efficacy was also not significant (c path: $b = 0.00$, $SE = 0.01$, 95% CI [-0.01, 0.01], $p = .82$).

Self-Criticism $\rightarrow$ *Task Persistence* $\rightarrow$ *Self-Efficacy*. The final model demonstrated good fit, scaled χ^2 (490) = 486.32, $p = .54$; robust CFI = .94; robust TLI = .93; robust RMSEA = .04, 90% CI [.03, .05]; SRMR = .08 (see Table 10). Aligned with study hypotheses, at the within-person level, self-criticism at time t significantly predicted greater task persistence the following day (a path: $b = 0.01$, $SE = 0.01$, 95% CI [0.00, 0.03], $p = .01$), and task persistence at time t significantly predicted greater self-efficacy the following day (b path: $b = 0.08$, $SE = 0.04$, 95% CI [0.02, 0.15], $p = .02$). Despite significant a and b paths, the indirect effect of self-criticism on self-efficacy through task persistence was marginal ($b = 0.001$, $SE = 0.001$, 95% CI [0.000,

0.002], $p = .06$). The direct effect of self-criticism on self-efficacy was not significant (c path: $b = 0.00$, $SE = 0.01$, 95% CI $[-0.01, 0.01]$, $p = .93$).

Within-Person Effects: Negative Reinforcement Models

Self-Criticism → Task Motivation → Negative Affect. The final model demonstrated good fit, scaled $\chi^2(489) = 481.51$, $p = .59$; robust CFI = .93; robust TLI = .93; robust RMSEA = .04, 90% CI $[-.03, .05]$; SRMR = .06 (see Table 11). At the within-person level, self-criticism at time t significantly predicted greater task motivation at time $t+1$ (a path: $b = 0.02$, $SE = 0.01$, 95% CI $[0.01, 0.03]$, $p = .007$). Contrary to study hypotheses, task motivation at time t significantly predicted greater negative affect at time $t+1$ (b path: $b = 0.14$, $SE = 0.07$, 95% CI $[0.01, 0.28]$, $p = .04$). The indirect effect of self-criticism on negative affect through task motivation was not statistically significant ($b = 0.002$, $SE = 0.001$, 95% CI $[-0.001, 0.005]$, $p = .11$). The direct effect of self-criticism on negative affect was also nonsignificant (c path: $b = 0.02$, $SE = 0.02$, 95% CI $[-0.01, 0.05]$, $p = .21$).

Self-Criticism → Task Persistence → Negative Affect. The final model demonstrated good fit, scaled $\chi^2(487) = 483.70$, $p = .53$; robust CFI = .94; robust TLI = .93; robust RMSEA = .04, 90% CI $[-.03, .05]$; SRMR = .07 (see Table 12). At the within-person level, self-criticism at time t significantly predicted greater task persistence the following day (a path: $b = 0.01$, $SE = 0.01$, 95% CI $[0.00, 0.03]$, $p = .03$). Task persistence at time t did not significantly predict negative affect at time $t+1$ (b path: $b = 0.07$, $SE = 0.09$, 95% CI $[-0.10, 0.23]$, $p = .43$), and the indirect effect of self-criticism on negative affect through task persistence was not statistically significant ($b = 0.001$, $SE = 0.001$, 95% CI $[-0.001, 0.003]$, $p = .46$). The direct effect of self-criticism on negative affect was also nonsignificant (c path: $b = 0.02$, $SE = 0.02$, 95% CI $[-0.01, 0.05]$, $p = .11$).

Qualitative Results

Table 13 summarizes the themes and subthemes the research team developed with sample interview quotes.

Overarching Theme: “It Makes Me Better...At What Cost?”—The Double-Edged Sword of Self-Criticism

Nearly every participant described self-criticism as adaptive and functional in the short-term, but at an inevitable cost that increased over time. When asked whether self-criticism helped or hurt them, nearly every participant offered some version of the response “both.” As one participant put it, *“I would say it was both...honestly it was more obviously harmful than helpful.”* Self-criticism pushed participants to study harder, reflect on how to improve, and cultivate personal qualities they valued—but it simultaneously produced chronic anxiety and distorted thinking, eroded self-worth, drained capacity for presence and enjoyment in daily life, and in its most severe form, triggered depressive spirals and behavioral paralysis. Notably, the “benefits” of self-criticism tended to be concrete and immediate (e.g. a higher test score, a secured internship), while the costs were diffuse and cumulative, often unrecognized until mental health crises or the interview itself prompted participants to grapple with them.

Theme 1. “I’m Hard on Myself Because It Makes Me Better”—The Perceived Benefits of Self-Criticism

Many participants identified several ways in which self-criticism served them in the short-term. These perceived benefits functioned as positive reinforcers that maintained the self-criticism even in the face of mounting costs. Critically, the benefits of self-criticism were *perceived*—while participants initially or intuitively attributed their achievements to self-criticism, upon further reflection, many questioned whether this causal link was accurate.

As one participant reflected, *“I’m not sure if it’s a good thing or bad thing...to be self-critical, because it definitely is a very strong driver to get to where you want to be—and in this case, I think it got me the exact result that I wanted.”*

Subtheme 1A. “It Pushes Me...Sometimes”—Self-Criticism as a Perceived Driver of Motivation and Persistence. The most commonly cited benefit of self-criticism among participants was that being self-critical increased motivation and behavioral persistence on challenging tasks. Across participants, this surfaced most clearly in academic and professional contexts (studying for exams, completing difficult coursework, navigating competitive internship cycles), as well as in leadership roles in extracurriculars.

In academic settings, self-criticism most often functioned as an engine of sustained effort following a disappointing performance. For example, after an unexpectedly poor performance on a chemistry midterm, one participant described *“obsessing over studying”* and refusing to allow herself *“free time”* for weeks, a level of focus she credited with making her *“more focused”* and ultimately doing better *“the next time around.”* Another participant recalled cramming through the night before an accounting midterm for which he had procrastinated studying, describing self-criticism pressing him to *“make up for it and do more work.”* In professional contexts, one participant credited self-criticism with pushing her to retake the MCAT, stating *“I think it did [help]...it pushed me to want to do it again or try to do better because I believed that I could. I took it again and did better.”* Another participant shared how self-critical behavior had *“always given me the outcome that I’ve wanted in a situation”* because it ensured she *“always worked hard enough to get what I’ve wanted.”* However, she then went on to acknowledge that despite her successes, the most recent internship cycle had been *“concerningly close to just affecting me mentally.”*

Notably, while effective for some participants in some contexts, the relationship between self-criticism and productive action was far from consistent. For some participants, self-criticism produced a felt sense of motivation without translating into behavioral change. For others, task persistence felt compulsive rather than purposeful and intrinsically motivated. One participant described studying “*more than just a healthy amount—really kind of an obsessive behavior*” driven not by genuine engagement with the material but by a frustrated determination to do better.

Additionally, when pushed to examine whether self-criticism actually contributed to their achievements, several participants wavered. One participant who had initially claimed self-criticism improved her motivation reconsidered, saying “*I’m not too sure the self-criticism was super helpful. It’s just that I had this false belief that because in high school I performed better academically, I attribute that to me being more motivated to push myself...so I sort of retract my statement.*” Another acknowledged that while self-criticism was once “*a pushing force, encouraging me to try new things, to explore, to step out of my comfort zone,*” it ultimately became uncontrollable, “*acting on its own with no counterforce*” and growing “*so dominating.*” As another participant aptly put it, “*It helps me, like it’s sort of like motivation for me to do better...I typically do better the next time around because that’s my motivation. But I always ask myself at the end of the quarter, at what cost?*”

Subtheme 1B. Self-Critical Reflection as a Catalyst for Self-Improvement. Distinct from motivational drive, some participants described a benefit of self-criticism as catalyzing a deliberate reflective process that resulted in self-improvement. One participant described this clearly, stating that being self-critical “*helps me make an action plan. Like, being reasonably hard on myself is helpful and productive, being like, okay, if you have the time, you can do X, Y,*

and Z.” Another participant described a more nuanced process where *“The negative self-talk in a way kind of made me reevaluate...For example, I would think...this is not good enough. And that thought, even though it made me feel bad, I would start to think, what is my definition of good and how should I feel about that?”*

What distinguished this benefit of self-criticism from subtheme 1A (increased motivation and persistence) was participants framed self-criticism as a cognitive tool that catalyzed planning, organization, and contemplation rather than as a purely emotional driver. Interestingly, some participants also noted that self-reflection was not a benefit unique to self-criticism; alternatively, it could be achieved through *“journaling and talking with friends.”*

Subtheme 1C. “It Made Me Who I Am”—Attribution of Valued Personal Traits to Self-Criticism. Beyond task- and achievement-specific benefits, some participants believed that self-criticism played a key role in cultivating personal qualities they valued as part of their identity. One participant described how *“I end up being a really good listener because of [self-criticism.] I’ve heard hundreds of times that you’re such an easy person to talk to, you’re such a great listener, you always give the best advice...because yeah, hello, I’m thinking all the time.”* Another participant described how self-criticism helped them build resilience and how *“it made me better able to handle other criticism from other people. Because no one seems as hard on me as I am.”*

Importantly, participants often prioritized personal qualities aligned with heritage cultural values (humility, collectivism, emotional restraint). This cultural consonance created a powerful reinforcement loop: self-criticism produced byproducts that were not only personally valued but also culturally affirmed, making it feel not just useful but also virtuous. As one participant reflected, *“Being self-critical is a good thing, because it makes you humble and not over-conflate*

yourself.” Similarly, another participant echoed “I actually prefer being humble...because then you’ll work harder to achieve whatever you want to achieve. I just never want to be the person that goes into it being super overconfident.”

Theme 2. “It Takes Everything”: The High Costs of Self-Criticism

While a number of participants identified discrete, short-term motivational and behavioral benefits to self-criticism, a larger number of participants reported the costs of self-criticism as being pervasive, severe, and enduring. Importantly, these costs were not confined to moments when self-criticism was active; they bled into baseline mood, thinking, self-concept, capacity for enjoyment, and daily functioning.

Subtheme 3A. The Emotional Toll of Self-Criticism: Anxiety, Anger, and Chronic Stress. For most participants, the most immediate cost of self-criticism was its emotional toll. Many participants reported self-criticism catalyzing a persistent, anticipatory dread that extended well beyond triggering events. One participant described self-criticism producing “*a lot of anxiety*” that left her “*scared to even touch it,*” while another described a common emotional trajectory shared by participants, “*I feel pretty angry with myself when I’m self-critical...if I keep ruminating over it, the anger will turn more into frustration. And maybe sadness afterwards.*” Many other participants described how they were “*never really relaxed*” and would frequently get “*irritated.*” One participant even shared how his self-criticism drove him toward such a need to be productive 24 hours a day that “*I would try and relax, but it wasn’t relaxing. It was like a Google Calendar relaxing, you know, it’s not really relaxing.*”

Notably, for some participants, the emotional cost of self-criticism rose above clinical thresholds. One participant described being diagnosed with major depressive disorder that she attributed to chronic self-criticism. She described how “*The line of negative thinking is very*

unhelpful. Your mental health sort of goes on a decline if you constantly tell yourself, oh, I'm not good enough."

Subtheme 3B. "Never Enough"—The Erosion of Self-Worth. Beyond momentary distress, many participants described how self-criticism gradually eroded their sense of competence, self-confidence, and self-worth, leading to a pervasive belief that no matter how high they achieved, participants were *"never enough."*

Several participants described a process where self-criticism led them to perpetually raised the bar for adequacy, minimizing their accomplishments while cataloging their failures. For example, one participant shared, *"If I do well in a class, I'm just like, oh, this is kind of the bare minimum...and anything less than that is just failure."* Similarly, another participant described all-or-nothing self-evaluation, stating *"If I'm not what I have idealized in my mind, I'm not even close to it. It's like black and white. Good or bad."* Another participant memorably personified their self-criticism as an insatiable monster, sharing *"Nothing I did would make it happy. I'd do one thing and it'd be like, oh, this isn't enough."*

Ultimately, many participants reported self-criticism resulting in extreme cognitive distortions about self-worth and a proclivity toward rumination over failures and negative self-evaluation. As one participant stated, *"Other people can praise me and say whatever they want. And I won't let that get to my head. I will think of it as a lie...I'll be very receptive to other people's negative words, but not at all to other people's positive things."*

Subtheme 3C. "If I'm Not Achieving, What Good Am I?" Conflation of Self-Worth and Achievement. In addition to the general erosion of self-worth and self-concept, some participants described self-criticism narrowing their entire identity to a single dimension: achievement. At the individual level, self-criticism, and at the societal level, structural racism,

interacted to lead several participants to internalize academic and professional performance as the only legitimate basis for self-worth. One participant named this process explicitly when stating *“When the skill, or really anything that you’re trying to do, if you get that conflated with yourself, like self-value, how much value you have as a person, then that can make me feel really bad.”* Another participant described a common phenomenon where self-criticism, achievement, and self-worth became so intimately intertwined that any small error felt existentially threatening. She stated *“The moment I realized I couldn’t do this pre-dental thing, I completely fell off all academic pursuits...The tiniest flaw just made me completely give up on my goal.”*

Subtheme 3D. Working to Quiet the Critic. *The Negative Reinforcement Cycle of Self-Criticism*

Another distinct process that numerous participants described maintaining their self-critical thinking operated not through pursuit of positive benefits of self-criticism but rather avoidance of the aversive emotional states that stemmed from self-criticism. A number of participants described working harder not because self-criticism felt motivating, but because the emotional consequences— *“disappointment,” “shame,”* and *“anger”*—were so aversive that they would do almost anything to avoid re-experiencing them. One participant described studying through the night because she *“would be even more mad at myself if I failed the test knowing that I didn’t try at all...I did not want to re-experience that again.”* Another participant described a similar pattern, stating *“I don’t want to feel like that again. So then I’m thinking about how to do it better. And then if I can do it better, then there’s less criticism. But if I don’t do it better, then it’s kind of like a cycle.”*

Thus, for a number of participants, being self-critical was functional in the narrow sense that it produced behavioral output and drove them to complete or turn toward challenging or

unappealing tasks out of a desire to avoid the pain of additional self-criticism. Importantly, however, the fuel was not intrinsic motivation but rather an aversion and fear of experiencing additional self-criticism, leaving participants in a chronic state of bracing against their own self-criticism, and robbing any productive behaviors of their benefits in terms of felt mastery or self-efficacy.

Subtheme 3E. The Constriction of Joy, Openness, and Presence. Several participants described chronic and pervasive self-criticism that progressively constricted their capacity for joy, enjoyment, and presence in their daily lives. A number of participants stated how self-criticism—and its resulting need “*to be perfect*”—transformed activities that once brought intrinsic enjoyment and delight into arenas for evaluation. One participant described how dance had become “*less of a passion and more of a task. I’m going here not to enjoy myself, but to improve, even though you don’t need to be improving at everything you do. Some things you can just do for fun.*” Another described a similar shift where “*I used to love school a lot. I enjoyed going. I enjoyed learning. But I think lately, it’s become more about just being able to pass tests.*” Even mundane daily tasks were not spared from perfectionism. One participant stated “*For a stupid task, like cutting carrots, I’ll let that bring me down...Everything has to be done optimally...like something as simple as cooking...for me, it’s like, oh my god, I have to put so much mental effort into doing this....if you want to cook, you have to really spend like x,y,z amount of mental time...that’s daunting.*”

Lastly, self-criticism and the resulting perfectionism often dampened participants openness to risks and willingness to engage in new activities. One participant reported “*If I try out something new, and I’m not good at it immediately, I’m done. Like, I’m not doing it...if it’s a sport, and like sports, you need to learn, like, you’re not going to be amazing at it at first. But I’ll*

be so demotivated in the first five minutes if I'm not like Olympian level." Similarly, another participant stated *"I'm a little bit paralyzed by the idea of not doing something well enough, and so I just don't want to do it at all."*

Subtheme 3F. Self-Punishment and the Neglect of Basic Needs. At the most severe end of the costs of self-criticism, a few participants described self-criticism becoming so extreme that when unable to meet their own expectations, they engaged in self-punishment and/or neglect of basic physical needs. While one participant described self-criticism leading to a *"paralysis"* resulting in *"sometimes I won't eat dinner, I won't sleep,"* another participant shared a memory where after receiving test results that were *"good...but not perfect...it wasn't like the top ranking result,"* he recalls *"putting away all my toys, and saying, like, 'I have to be better.'"* Most alarmingly, one participant described how *"I don't even want to dine in the dining halls because I think to myself, like, you don't deserve to be happy and content. You should be worried about being stressed about the things that you messed up on...You can eat when you get your grades up."* Whether experienced as self-denial or self-punishment, for a small but striking number of participants, the cost of self-criticism compromised participants' willingness to meet basic needs and engage in the restorative activities that might otherwise have buffered its emotional toll.

Subtheme 3G. The Downward Spiral of Self-Criticism. Lastly, perhaps the most destructive cost of self-criticism identified by more than half of participants was how self-criticism's recursive quality. More specifically, self-criticism would create a *"negative feedback loop"* where self-criticism would be so affectively painful and stoke standards *"to be perfect"* so high that participants would procrastinate or avoid the tasks around which they were self-critical,

which in turn became a target of further self-criticism, which in turn would generate further self-criticism, leading to a self-perpetuating and ever-worsening cycle.

One participant described the paradox of self-criticism, stating *“I know that I have something that I need to complete. But I procrastinate on it, because I fear that I won’t do well, or I have to face the consequences and stuff like that. For example, I know that I need to clear my email inbox. It’s at 800 emails. So every day, I’m like, oh, I need to clear my inbox. It’s not that hard. But I can’t seem to bring myself to do it. Because I always think, oh, I always do this. I don’t clear my inbox, and it’s another day...why am I always like this?”*

Other participants highlighted self-criticism as a cumulative ledger in which each new failure called back to prior failures. The participant explained *“When I’m criticizing myself about something else now, I also use the criticism that I gave myself when I got that A-.”*

Perhaps most consequentially, one participant described how the recursive nature of self-criticism led him to withdraw from university. He shared *“I was debilitated by all my anxiety because of this self-criticism. And it was just a negative feedback loop where I was more self-critical. I withdrew from the university for a couple of years. And what really made it hard to move past that withdrawal is I was upset with myself with that.”*

Importantly, many participants reflected on how their self-critical spirals were especially dangerous because they operated invisibly—participants did not recognize they were in a spiral until they reached a crisis point, by which time the accumulated weight of self-criticism was very difficult to reverse.

Theme 3. “I Know It Hurts, but Would I Even Take It Away?”

One of the most striking themes that emerged from the interviews was that—despite recognition of the numerous, long-term consequences and myriad costs of their self-criticism—

when asked whether they wanted to change their self-criticism, the most common responses was not a straightforward yes or no, but a qualified, conflicted answer: yes, but not entirely; yes, but I'm afraid of what I would lose. One participant clearly articulated this ambivalence when he explained, *"I feel like the whole reason my life is pretty optimal, from the outsider's perspective, is because I've been so meticulous about everything I do. I would almost be reluctant to say take it away... Would I even take it away?"*

For most participants, changing self-criticism was envisioned not as eliminating self-criticism entirely, but moderating it—attaining an elusive *"sweet spot"* of self-criticism that preserved its activating, reflective, and behavioral benefits while discarding the mental health costs. When asked whether he would like to change his self-criticism, one participant replied *"Yes and no. I think having it at all is really important for me... Without that, I definitely wouldn't have gotten to the place that I am right now. But because [of self-criticism], I also have this paralysis of wanting to be perfect."* Similarly, another participant shared *"I feel like the criticism is sometimes a little bit important just to make sure I'm keeping myself on track. But the effects of it, like sometimes decreasing my productivity, my motivation—just decreasing those effects would be nice."*

Discussion

This study leveraged a convergent parallel mixed methods design to examine the proximal and distal reinforcement processes that maintain self-criticism among AA young adults. We hypothesized that self-criticism is positively reinforced in the short-term through increased task motivation and persistence, and more distally through increased self-efficacy. Additionally, we hypothesized that self-criticism is negatively reinforced over time through decreases in negative affect. We predicted that both positive and negative distal reinforcement pathways operated through proximal gains in task motivation and persistence. Overall, we found only

mixed and modest support for expected day-to-day reinforcement processes posited to maintain self-criticism. Findings from both the within-person quantitative modeling and qualitative themes from participant interviews offered evidence that self-criticism in AAs is rewarded in the short-term through small, daily boosts to motivation and determination to complete tasks. However, contrary to expectations, there was limited support that self-criticism is associated with feelings of self-efficacy earned through hard work and achievement. Indeed, not only was there limited support for the negative reinforcement hypothesis — quantitative and qualitative data sources converged on the opposite conclusion: self-criticism, at both the daily- and person-level, was strongly and consistently associated with *increased* negative affect. Taken together, the mixed method findings portray self-criticism in AA young adults as an insidious, double-edged sword, one that yields modest, immediate behavioral benefits in the short-term that obscure costlier psychological, emotional, and behavioral tolls over time.

Consistent with short-term, positive reinforcement hypotheses, both quantitative and qualitative findings identified acute benefits of self-criticism that were tangible, but nominal. Across all four RI-CLPMs, daily increases in self-criticism predicted small but statistically significant next-day increases in task motivation and persistence. This was corroborated by the qualitative data, where participants frequently identified self-criticism as the primary, perceived driver of their motivation to improve academic and professional outcomes, persist on challenging tasks, and engage with productive behaviors such as planning, studying, and self-reflection. Notably, most participants reported a strong attachment to self-criticism as the mechanism enabling them to ratchet up motivation and determination on demand—to earn A’s on exams, secure competitive internships, or embody other facets of the model minority standard that they not only felt obligated to meet, but were tied fundamentally to their self-worth. This strong

attachment to self-criticism may be explained by Chen (2023)'s Role Obligation Theory of Self-Cultivation, which frames striving and persistence among AA young adults as a dual moral obligation to cultivate and improve one's character and to fulfill filial duties to one's family and community. Thus, because the majority of AA young adults in this study perceived self-criticism to be a tool to extract critical motivational and behavioral forces needed to uphold their dual obligations to themselves and their loved ones, relinquishing it felt like a threat to the roles around which they had organized their identities.

Whether these proximal gains in motivation and persistence accumulated into more substantive benefits to a sense of mastery or effectiveness was unclear. Within-person quantitative findings offered limited support that task persistence boosted next day self-efficacy, while between-person effects in the quantitative models and qualitative interview themes converged on contradictory evidence. In only one of the path models specified, task persistence significantly predicted next-day self-efficacy. Yet, the indirect effect of self-criticism on self-efficacy through task persistence was not supported. Additionally, there were no models in which task motivation was linked to next-day self-efficacy. In contrast, between-person associations between self-criticism and self-efficacy were consistently negative and sizeable across models. Participants in our sample who tended to be the most self-critical were also those who felt the least self-efficacious. Interpreted together, quantitative findings suggest that while self-criticism may momentarily boost motivation for tasks, it does not engender self-efficacy. Rather, self-criticism perpetuates a chronic view of the self as ineffective. Qualitative narratives brought this pattern into sharp relief. Participants described self-criticism as insatiable and unquellable, leading one to frequently doubt their competence even in the face of objective success (e.g., scoring 100% on a midterm), and attributing their achievements to effort or luck

rather than ability. Rather than scaffolding self-efficacy, self-criticism operated as a bar that could never quite be reached: each failure to meet an exalted standard confirming inadequacy, each success immediately reframed as a new minimum requirement. The central finding from the examination of the positive reinforcement hypothesis was that while daily diary data confirmed a link between self-criticism, persistence, and the drive to improve—a connection to which AA participants were keenly attuned and deeply attached—this perceived indispensability of self-criticism remained largely disconnected from participants’ awareness of its cumulative, corrosive costs to self-confidence, self-worth, and self-efficacy over time.

While evidence for positive reinforcement processes was mixed, all study data were unambiguously contrary to the negative reinforcement hypothesis: self-criticism did not reduce state negative affect (such as worry or disappointment) through prompting hard work. At the daily-level, within-person quantitative findings showed that increased self-criticism was associated with increased next-day negative affect. This finding was further amplified by the between-person quantitative findings, which, consistent with longitudinal evidence that self-criticism prospectively predicts elevations in negative affect, worry, and rumination over time (Dunkley et al., 2003; Powers et al., 2011), demonstrated strong, positive relationships between chronic self-criticism and chronic negative affect. Qualitative themes further corroborated this association, with 19 out of 20 participants describing a wide range of ways in which self-criticism catalyzed different manifestations of negative emotional experience. While many participants described self-criticism as driving constant anxiety, anticipatory dread of failure, and feelings of sadness and depression that led to social isolation and withdrawal; many others reported that self-criticism fueled chronic, unrelenting stress that manifested as irritability toward close friends and family members, rumination over perceived failures and personal

shortcomings, and an inability to relax due to a “need” to constantly be productive or moving toward achievement. Several participants described how these responses were not mutually exclusive, but rather could build on one another within a downward spiral where participants took equifinal paths to the same outcome: self-criticism begets negative affect, which begets more self-criticism, which begets more negative affect.

Notably, not all participants navigated the downward spiral of self-criticism toward the same behavioral endpoint. For some, self-criticism led to procrastination or avoidance of productive tasks, driven by a desire to avoid the aversiveness of the self-critical perfectionistic cycle. For others, self-criticism was so painful that it propelled them toward productivity to preempt further self-reproach. Still others appeared paralyzed from the outset, as though self-criticism had foreclosed the possibility of action before it could begin. The cognitive behavioral model of perfectionism offers a framework for understanding this heterogeneity of outcomes. For individuals prone to setting high standards, failure to meet self-imposed expectations is associated with self-criticism, which appears linked to counterproductive behaviors such as procrastination. In other cases, the mere anticipation of not meeting standards may lead to avoidance of initiating the task altogether (Moroz & Dunkley, 2019; Rozental, 2020). This path from maladaptive perfectionism to procrastination may be mediated through fear of failure and ego depletion (Zhang et al., 2022), and has been linked prospectively to symptoms of depression and anxiety over time (Moroz & Dunkley, 2019). Among those propelled toward productivity by the aversiveness of self-criticism, Thakur and Baumann (2022) found that some self-critical individuals strive “anxiously” for achievement, an avoidance-motivated form of productivity that also mediates the path to psychological symptoms.

Furthermore, consistent with self-determination theory, which posits that externally pressured motivation tends to undermine more sustainable, intrinsic motivation and sense of autonomy over time (Deci et al., 1994; Ryan & Deci, 2000; Moore et al., 2021), findings suggest that the motivational resources self-criticism activates in the short term are precisely what it depletes in the longer-term. Rather than engage in productive behaviors due to a genuine desire to learn, improve, or enjoy (i.e. intrinsic motivation), participants worked longer and harder out of a desire to avoid re-experiencing the immense pain of their own self-criticism. Interestingly, between-person data made these costs visible in ways that their daily experience belied: chronic self-criticism was robustly associated with substantially lower trait levels of motivation and persistence that significantly outweighed its modest, daily boosts. Thus, self-criticism produced a self-defeating motivational cycle — short-term activation at the cost of long-term depletion—that became increasingly entrenched as self-criticism becomes the default response to acute performance pressure and self-critical individuals become habituated to persistent, elevated negative affect.

Beyond failing to relieve negative affect, qualitative data further revealed that sustained self-criticism carries durable and wide-ranging costs to mental health and daily life that extend beyond any acute mood or specific task. At its most severe, a handful of participants shared how self-criticism narrowed life so exclusively to achievement and productivity that they not only lost the ability to enjoy activities they used to love (e.g. learning, sports, arts), but also came to view themselves, when not achieving, as undeserving of basic needs like food and sleep. In one particularly poignant interview, a participant recalled how, upon receiving good but imperfect scores on an elementary school exam, he felt compelled to put away all his toys as punishment until he could study harder and achieve at a higher standard. Another participant described how

self-critical perfectionism insidiously leaked beyond academic and professional domains to constrict small daily pleasures, the burden of being perfect so immense that even cooking became an occasion for self-criticism as her mind would fixate so intensely on optimizing chopping carrots that it would ruin her night. These accounts align directly with the growing body of literature that links self-criticism to transdiagnostic mental health problems (Werner et al., 2019), inability to derive pleasure from achievements (Matos & Steindi, 2020), and at its most costly, a self-hatred and self-disgust that facilitates the belief that even the slightest mistake must be rectified through harshest forms of self-denial (Cheli et al., 2025; Gilbert, 2018).

Despite acknowledging of the severity of these costs, the dominant response when participants were asked whether they wanted to change self-criticism was a deeply conflicted ambivalence. Many participants reported striving to reach an imagined “sweet spot” whereby they might optimize self-criticism to reap all of its benefits without incurring its myriad costs. That self-criticism could exact costs of such depth and breadth—including the displacement of joy, the forfeiture of basic self-care, and the narrowing of an entire life to the dimensions of achievement—and still be perceived by its recipients as useful, was not hypothesized and beyond what behavioral reinforcement frameworks can account for. A behavior sustained purely by its returns would, at some point, fail a cost-benefit analysis when costs became so high that the ability to enjoy life itself was constricted. The fact that self-criticism persisted despite exacting such high tolls points to maintenance mechanisms that run deeper than motivation and persistence alone. Study 1’s findings illuminate what those mechanisms may be. Among AA young adults, self-criticism is not merely as a motivational tool but a functional adaptation to the specific conditions of racialized life in the United States, an adaptation that emerges precisely in response to the conditions of racism, discrimination, and structurally constrained opportunity that

shape the developmental worlds of children of color (García Coll et al., 1996). Participants' reluctance to abandon self-criticism despite its costs may thus reflect not a failure of insight but a lucid, if painful, appraisal of what sustained performance in a racialized society demands, wherein strategies that exact real psychological costs nonetheless retain adaptive utility so long as the structural conditions generating those demands remain unchanged (Sue & Okazaki, 2009).

Taken as a whole, the present study's findings are consistent with the concepts of skin-deep resilience and striving persistent behavioral style (SPBS), conceptually linked frameworks that describe how racially minoritized youth might relentlessly pursue achievement within systems of structural inequity by drawing on emotion suppression, unmodulated persistence, high levels of striving, and avoidance of failure (Brody et al., 2013; Doan et al., 2022).

Importantly, these behavioral styles are conceptualized not as a pathological response but rather an adaptive one forged in response to systemic barriers, racialized gatekeeping, and the differential consequences of failure for minoritized youth that position academic and professional success both as necessary for survival as well as a source of identity.

Simultaneously, however, a substantial body of work has documented that while unmodulated perseverance and striving enables psychosocial success, it exacts a sizable physical health toll, including elevated physiological stress markers (increased blood pressure, elevated levels of cortisol) and accelerated biological aging (Doan et al., 2022; Gump et al., 2026; Lam et al., 2026). Like the broader skin-deep resilience and SPBS patterns, the present findings reveal a behavioral profile that is simultaneously adaptive and costly. Self-criticism confers real, if modest, short-term motivational gains that enabled participants to meet high academic and professional standards, while exacting cumulative tolls on self-efficacy, negative affect, and quality of life that participants were often slow to recognize. Importantly, however, SPBS as

currently theorized centers emotion suppression and unmodulated perseverance as its primary mechanisms and does not explicitly incorporate self-criticism as a component. The present findings suggest that self-criticism may represent a meaningful extension of the skin-deep resilience and SPBS frameworks, one that helps explain not only the behavioral profile of relentless striving but the specific psychological mechanism through which it is internally enforced among AA young adults. For AAs navigating the uniquely racialized pressures of the model minority stereotype, perpetual foreigner stereotype, and heritage cultural values emphasizing humility, filial piety, and relational obligation, self-criticism may function as the affective engine of SPBS, translating structural and cultural demands into daily motivational force. Incorporating self-criticism into the SPBS framework, particularly as a case study among AAs young adults, may offer added explanatory power accounting for the mental health and well-being disparities increasingly documented among AA young adults (Chen et al., 2019; Lipson et al., 2022).

This study offers the first mixed methods examination of proximal and distal reinforcement processes that maintain self-criticism among AAs. Several limitations warrant acknowledgment. First, fixed end-of-day diary windows may not capture the natural timing of self-criticism episodes and their consequences, which may unfold within seconds, minutes, or hours rather than across days. An ecological momentary assessment design (Nahum-Shani et al., 2018) is recommended for future research to more precisely capture these dynamics. Relatedly, retrospective bias in qualitative interviews may mean participants' accounts do not fully reflect the temporal sequence of reinforcement as experienced in the moment. Third, measures of task motivation and task persistence were generated by the research team and not piloted beforehand. Future research should evaluate whether these single-item and limited-item measures

demonstrate convergent validity with psychometrically established measures, which would allow findings involving these constructs to be interpreted with greater confidence. Fourth, whether self-criticism functions as a compulsive or avoidance-based behavior that suppresses anxiety in the short term while increasing it over time is a question this study raises but was not designed to answer. Finally, the present sample was recruited from a selective university environment that may represent a developmental peak in self-criticism rather than a stable baseline, and patterns identified here may be more pronounced than in a general AA community sample. A critical unanswered question is whether the patterns observed here are transient responses to a high-pressure context or reflect a stable way of being that confers cumulative risk for long-term adjustment.

Despite these limitations, this study provides a rich examination of the reinforcement processes that maintain self-criticism among AAs. The findings point to several important directions for future research. First, the reinforcement processes examined here should be revisited using ecological momentary assessment designs that capture self-criticism episodes and their consequences in real time (Nahum-Shani et al., 2018). Future research should also directly test whether self-criticism functions as an avoidance-based behavior that temporarily suppresses anxiety while deepening the cycle over time, using longitudinal designs that track self-criticism across high-pressure developmental transitions such as the high school-to-college or college-to-career periods. Formally testing the proposed integration of self-criticism into the SPBS framework represents another important next step, including examining whether self-criticism mediates the association between SPBS and physical health outcomes such as elevated cortisol, increased blood pressure, and accelerated biological aging. Several participants also reported that monitoring their self-criticism across the diary period was itself revelatory, bringing into focus

patterns they had not previously examined — one participant shared that participation led her to delay graduate school plans upon recognizing how self-criticism had been shaping her decisions. These observations suggest that structured self-monitoring, particularly when paired with psychoeducation that contextualizes self-criticism as an adaptive response to structural forces rather than a personal failing, may itself hold therapeutic promise. Interventions designed to cultivate awareness of self-criticism, its reinforcement dynamics, and its structural origins warrant further development and empirical testing as a potentially accessible, low-burden first step. Furthermore, development of interventions that thoughtfully preserve the perceived motivational and behavioral benefits of self-criticism while buffering against its costs are needed. Self-compassion interventions have been shown to increase intrinsic motivation, persistence on challenging tasks, and willingness to grow from failure while simultaneously reducing anxiety, depression, stress, and trauma-related symptoms, and offer promise as one such alternative pathway (Neff, 2023). One pilot study examined peer-led compassionate meditation as a tool to address racialized stress among AA college students and found that participants experienced decreases in general distress, depression, anxiety, and PTSD symptoms (Hwang et al., 2019). Future research should build on this work to test whether self-compassion interventions can be adapted address that unique intersection of race-related stress, interpersonal obligation, and relational responsibility that maintain self-criticism among AA young adults. Finally, given that self-criticism in this sample was rooted in structural and cultural conditions that extend well beyond individual psychology, future research should examine systemic interventions, including campus climate initiatives, faculty and employer practices, and community-level efforts to challenge model minority expectations as upstream complements to individually focused clinical work. Together, these findings reframe self-criticism in AAs not as

an individual pathology to be corrected but as a costly adaptation to be understood, and argue that understanding its structural and cultural origins is the necessary foundation for interventions that can offer AAs what self-criticism cannot: sustained achievement, genuine well-being, and a sense of belonging that does not depend on unrelenting performance.

Tables

Table 7

Diary Completion and Missingness by Study Day (N = 229)

Day	Total Unique Completers	Missing Entries	Complete (%)	Missing (%)
1	208	21	90.82%	9.18%
2	209	20	91.26%	8.74%
3	202	27	88.21%	11.79%
4	201	28	87.78%	12.22%
5	205	24	89.52%	10.48%
6	193	36	84.27%	15.73%
7	188	41	82.10%	17.90%
8	188	41	82.10%	17.90%
9	186	43	81.22%	18.78%
10	197	32	86.02%	13.98%

Note. Missing indicates no diary entry was recorded for a given participant on the study day.

Table 8

Key Variable Descriptives and Intraclass Correlation Coefficients (Pooled N = 1,977; Unique N = 229)

Variable	<i>M</i>	<i>SD</i>	Range	ICC
SAPS—Discrepancy	14.95	6.12	4–28	.37
Task Motivation	3.19	1.26	1–5	.30
Task Persistence	3.50	1.05	1–5	.29
Negative Affect	8.69	3.80	5–25	.49
Self-Efficacy	5.74	1.33	2–8	.47

Note. *M* = Mean; *SD* = Standard Deviation. Range = Minimum–Maximum. ICC = Intraclass Correlation Coefficient. ICC corresponds to between-person variance. Within-person variance = 1 – ICC. SAPS—Discrepancy = Short Almost Perfect Scale, Discrepancy Subscale.

Table 9*Random Intercept Cross-Lagged Panel Model Summary for SAPS—Discrepancy, Task**Motivation, and Self-Efficacy Positive Reinforcement Model*

Path	<i>b</i>	<i>r</i>	<i>SE</i>	95% CI	<i>p</i>
Between-Person Effects					
SAPS—Discrepancy ~ Low Income	0.94	—	0.77	[−0.58, 2.45]	.23
SAPS—Discrepancy ~ Middle Income	1.40	—	0.61	[0.21, 2.60]	.02*
SAPS—Discrepancy ~ Nonbinary/Trans	−0.54	—	1.37	[−3.23, 2.15]	.69
SAPS—Discrepancy ~ Cisgender Female	0.66	—	0.66	[−0.64, 1.95]	.32
Task Motivation ~ Low Income	−0.06	—	0.18	[−0.42, 0.30]	.73
Task Motivation ~ Middle Income	0.07	—	0.11	[−0.15, 0.29]	.54
Task Motivation ~ Nonbinary/Trans	0.11	—	0.24	[−0.35, 0.58]	.63
Task Motivation ~ Cisgender Female	−0.19	—	0.13	[−0.45, 0.06]	.14
Self-Efficacy ~ Low Income	−0.73	—	0.22	[−1.15, −0.30]	.001**
Self-Efficacy ~ Middle Income	−0.40	—	0.13	[−0.65, −0.15]	.002**
Self-Efficacy ~ Nonbinary/Trans	0.12	—	0.27	[−0.41, 0.65]	.65
Self-Efficacy ~ Cisgender Female	−0.32	—	0.19	[−0.69, 0.05]	.09†
Between-Person Covariances					
SAPS—Discrepancy ~ Task Motivation	−0.55	−0.23	0.24	[−1.02, −0.07]	.03*
Task Motivation ~ Self-Efficacy	0.17	.32	0.06	[0.06, 0.29]	.004**
SAPS—Discrepancy ~ Self-Efficacy	−1.10	−0.36	0.26	[−1.60, −0.60]	<.001***
Autoregressive Effects					
SAPS—Discrepancy_{t−1} → SAPS—Discrepancy_t	0.08	—	0.04	[0.01, 0.15]	.02*
Task Motivation_{t−1} → Task Motivation_t	0.12	—	0.04	[0.05, 0.19]	.001**
Self-Efficacy_{t−1} → Self-Efficacy_t	0.10	—	0.04	[0.03, 0.18]	.01*
Cross-Lagged Effects					
Task Motivation _{t−1} → SAPS—Discrepancy _t	0.14	—	0.14	[−0.14, 0.42]	.34
SAPS—Discrepancy_{t−1} → Task Motivation_t	0.02	—	0.01	[0.01, 0.03]	.001**
Self-Efficacy _{t−1} → Task Motivation _t	0.04	—	0.03	[−0.03, 0.10]	.29
Task Motivation _{t−1} → Self-Efficacy _t	0.02	—	0.03	[−0.03, 0.07]	.40
SAPS—Discrepancy _{t−2} → Self-Efficacy _t	0.00	—	0.01	[−0.01, 0.01]	.82

Note. SAPS—Discrepancy = Short Almost Perfect Scale, Discrepancy subscale. *b* = unstandardized coefficient. *SE* = standard error. *r* = standardized correlation coefficient, reported for between-person covariances only. Between-person effects are represented by random intercepts. Within-person effects are represented by cross-lagged effects. Low income, middle income (reference: high income), cisgender female, and nonbinary/trans (reference: cisgender male) are time-invariant dummy-coded covariates.

Nonbinary/trans includes participants who selected Prefer Not to Answer and Other when identifying their gender identity. Within-person variances and residual variances were freely estimated at each timepoint. Standardized regression coefficients are not reported for autoregressive and cross-lagged effects because freely estimated within-person residual variances produce time-varying standardized estimates that do not reduce to a single interpretable value. Confidence intervals are based on robust (sandwich) standard errors. Model fit: Scaled χ^2 (490) = 487.42, $\rho = .52$; Robust CFI = .94; Robust TLI = .93; Robust RMSEA = .04 (90% CI [.03, .05]); SRMR = .07. Model fit is good/excellent. The indirect effect (*ab*) of SAPS—Discrepancy on self-efficacy through task motivation was not statistically significant ($b = 0.000$, $SE = 0.001$, 95% CI [-0.001, 0.001], $p = .41$).

* $p < .05$. ** $p < .01$. *** $p < .001$. Statistically significant results are bolded.

Table 10

Random Intercept Cross-Lagged Panel Model Summary for SAPS—Discrepancy, Task

Persistence, and Self-Efficacy Positive Reinforcement Model

Path	<i>b</i>	<i>r</i>	<i>SE</i>	95% CI	<i>p</i>
Between-Person Effects					
SAPS—Discrepancy ~ Low Income	0.89	—	0.80	[−0.68, 2.45]	.27
SAPS—Discrepancy ~ Middle Income	1.37	—	0.61	[0.18, 2.56]	.02*
SAPS—Discrepancy ~ Nonbinary/Trans	−0.58	—	1.40	[−3.32, 2.15]	.68
SAPS—Discrepancy ~ Cisgender Female	0.63	—	0.66	[−0.66, 1.92]	.34
Task Persistence ~ Low Income	−0.26	—	0.15	[−0.57, 0.04]	.09†
Task Persistence ~ Middle Income	−0.10	—	0.09	[−0.29, 0.08]	.27
Task Persistence ~ Nonbinary/Trans	0.22	—	0.19	[−0.14, 0.59]	.23
Task Persistence ~ Cisgender Female	−0.03	—	0.11	[−0.25, 0.19]	.79
Self-Efficacy ~ Low Income	−0.72	—	0.21	[−1.14, −0.30]	.001**
Self-Efficacy ~ Middle Income	−0.40	—	0.13	[−0.65, −0.15]	.002**
Self-Efficacy ~ Nonbinary/Trans	0.15	—	0.29	[−0.41, 0.71]	.60
Self-Efficacy ~ Cisgender Female	−0.34	—	0.19	[−0.71, 0.03]	.07†
Between-Person Covariances					
SAPS—Discrepancy ~ Task Persistence	−0.54	−0.29	0.20	[−0.92, −0.16]	.006**
Task Persistence ~ Self-Efficacy	0.19	.43	0.05	[0.08, 0.29]	<.001***
SAPS—Discrepancy ~ Self-Efficacy	−1.07	−0.35	0.26	[−1.57, −0.56]	<.001***
Autoregressive Effects					
SAPS—Discrepancy_{t−1} → SAPS—Discrepancy_t	0.08	—	0.04	[0.01, 0.15]	.02*
Task Persistence_{t−1} → Task Persistence_t	0.15	—	0.04	[0.07, 0.23]	<.001***
Self-Efficacy_{t−1} → Self-Efficacy_t	0.09	—	0.04	[0.02, 0.16]	.02*
Cross-Lagged Effects					
Task Persistence _{t−1} → SAPS—Discrepancy _t	0.16	—	0.18	[−0.19, 0.51]	.37
SAPS—Discrepancy_{t−1} → Task Persistence_t	0.01	—	0.01	[0.00, 0.03]	.01*
Self-Efficacy _{t−1} → Task Persistence _t	0.01	—	0.03	[−0.06, 0.07]	.84
Task Persistence_{t−1} → Self-Efficacy_t	0.08	—	0.04	[0.02, 0.15]	.02*
SAPS—Discrepancy _{t−2} → Self-Efficacy _t	0.00	—	0.01	[−0.01, 0.01]	.93

Note. SAPS—Discrepancy = Short Almost Perfect Scale, Discrepancy subscale. *b* = unstandardized coefficient. *SE* = standard error. *r* = standardized correlation coefficient, reported for between-person covariances only. Between-person effects are represented by random intercepts. Within-person effects are represented by cross-lagged effects. Low income, middle income (reference: high income), cisgender

female, and nonbinary/trans (reference: cisgender male) are time-invariant dummy-coded covariates. Nonbinary/trans includes participants who selected Prefer Not to Answer and Other when identifying their gender identity. Within-person variances and residual variances were freely estimated at each timepoint. Standardized regression coefficients are not reported for autoregressive and cross-lagged effects because freely estimated within-person residual variances produce time-varying standardized estimates that do not reduce to a single interpretable value. Confidence intervals are based on robust (sandwich) standard errors. Model fit: Scaled χ^2 (490) = 486.32, ρ = .54; Robust CFI = .94; Robust TLI = .93; Robust RMSEA = .04 (90% CI [.03, .05]); SRMR = .08. Model fit is good/excellent. The indirect effect (*ab*) of SAPS—Discrepancy on self-efficacy through task persistence was marginal (*b* = 0.001, *SE* = 0.001, 95% CI [0.000, 0.002], *p* = .06).

p* < .05. *p* < .01. ****p* < .001. Statistically significant results are bolded.

Table 11*Random Intercept Cross-Lagged Panel Model Summary for SAPS—Discrepancy, Task**Motivation, and Negative Affect Negative Reinforcement Model*

Path	<i>b</i>	<i>r</i>	<i>SE</i>	95% CI	<i>p</i>
Between-Person Effects					
SAPS—Discrepancy ~ Low Income	1.06	—	0.79	[−0.48, 2.60]	.18
SAPS—Discrepancy ~ Middle Income	1.42	—	0.60	[0.24, 2.60]	.02*
SAPS—Discrepancy ~ Nonbinary/Trans	−0.40	—	1.40	[−3.14, 2.34]	.78
SAPS—Discrepancy ~ Cisgender Female	0.71	—	0.67	[−0.59, 2.02]	.28
Task Motivation ~ Low Income	−0.04	—	0.19	[−0.40, 0.33]	.84
Task Motivation ~ Middle Income	0.09	—	0.11	[−0.13, 0.31]	.42
Task Motivation ~ Nonbinary/Trans	0.10	—	0.23	[−0.35, 0.56]	.66
Task Motivation ~ Cisgender Female	−0.20	—	0.13	[−0.45, 0.05]	.11
Negative Affect ~ Low Income	0.47	—	0.66	[−0.82, 1.75]	.48
Negative Affect ~ Middle Income	0.35	—	0.40	[−0.44, 1.14]	.38
Negative Affect ~ Nonbinary/Trans	2.20	—	1.15	[−0.06, 4.45]	.06†
Negative Affect ~ Cisgender Female	0.28	—	0.46	[−0.61, 1.17]	.54
Between-Person Covariances					
SAPS—Discrepancy ~ Task Motivation	−0.57	−0.24	0.24	[−1.04, −0.09]	.02*
Task Motivation ~ Negative Affect	−0.06	−0.04	0.14	[−0.33, 0.21]	.65
SAPS—Discrepancy ~ Negative Affect	4.66	.50	0.81	[3.07, 6.25]	<.001***
Autoregressive Effects					
SAPS—Discrepancy_{t−1} → SAPS—Discrepancy_t	0.08	—	0.04	[0.01, 0.15]	.03*
Task Motivation_{t−1} → Task Motivation_t	0.13	—	0.04	[0.06, 0.20]	<.001***
Negative Affect_{t−1} → Negative Affect_t	0.14	—	0.04	[0.06, 0.21]	<.001***
Cross-Lagged Effects					
Task Motivation _{t−1} → SAPS—Discrepancy _t	0.13	—	0.15	[−0.15, 0.42]	.36
SAPS—Discrepancy_{t−1} → Task Motivation_t	0.02	—	0.01	[0.01, 0.03]	.007**
Negative Affect _{t−1} → Task Motivation _t	0.01	—	0.01	[−0.01, 0.03]	.37
Task Motivation_{t−1} → Negative Affect_t	0.14	—	0.07	[0.01, 0.28]	.04*
SAPS—Discrepancy _{t−2} → Negative Affect _t	0.02	—	0.02	[−0.01, 0.05]	.21

Note. SAPS—Discrepancy = Short Almost Perfect Scale, Discrepancy subscale. *b* = unstandardized coefficient. *SE* = standard error. *r* = standardized correlation coefficient, reported for between-person covariances only. Between-person effects are represented by random intercepts. Within-person effects are represented by cross-lagged effects. Low income, middle income (reference: high income), cisgender

female, and nonbinary/trans (reference: cisgender male) are time-invariant dummy-coded covariates. Nonbinary/trans includes participants who selected Prefer Not to Answer and Other when identifying their gender identity. Within-person variances and residual variances were freely estimated at each timepoint. Standardized regression coefficients are not reported for autoregressive and cross-lagged effects because freely estimated within-person residual variances produce time-varying standardized estimates that do not reduce to a single interpretable value. Confidence intervals are based on robust (sandwich) standard errors. Model fit: Scaled χ^2 (489) = 481.51, ρ = .59; Robust CFI = .93; Robust TLI = .93; Robust RMSEA = .04 (90% CI [.03, .05]); SRMR = .06. Model fit is good/excellent. The indirect effect (*ab*) of SAPS—Discrepancy on negative affect through task motivation was not statistically significant ($b = 0.002$, $SE = 0.001$, 95% CI [-0.001, 0.005], $p = .11$).

† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$. Statistically significant results are bolded.

Table 12

Random Intercept Cross-Lagged Panel Model Summary for SAPS—Discrepancy, Task

Persistence, and Negative Affect Negative Reinforcement Model

Path	<i>b</i>	<i>r</i>	<i>SE</i>	95% CI	<i>p</i>
Between-Person Effects					
SAPS—Discrepancy ~ Low Income	1.01	—	0.80	[−0.56, 2.58]	.21
SAPS—Discrepancy ~ Middle Income	1.36	—	0.60	[0.18, 2.53]	.02*
SAPS—Discrepancy ~ Nonbinary/Trans	−0.44	—	1.43	[−3.24, 2.36]	.76
SAPS—Discrepancy ~ Cisgender Female	0.72	—	0.66	[−0.58, 2.01]	.28
Task Persistence ~ Low Income	−0.27	—	0.15	[−0.56, 0.03]	.08†
Task Persistence ~ Middle Income	−0.10	—	0.09	[−0.28, 0.08]	.27
Task Persistence ~ Nonbinary/Trans	0.19	—	0.19	[−0.17, 0.55]	.30
Task Persistence ~ Cisgender Female	−0.02	—	0.11	[−0.24, 0.19]	.82
Negative Affect ~ Low Income	0.46	—	0.66	[−0.84, 1.76]	.49
Negative Affect ~ Middle Income	0.29	—	0.40	[−0.50, 1.08]	.47
Negative Affect ~ Nonbinary/Trans	2.21	—	1.18	[−0.12, 4.53]	.06†
Negative Affect ~ Cisgender Female	0.29	—	0.45	[−0.59, 1.16]	.52
Between-Person Covariances					
SAPS—Discrepancy ~ Task Persistence	−0.53	−0.29	0.19	[−0.91, −0.16]	.006**
Task Persistence ~ Negative Affect	−0.10	−0.07	0.12	[−0.34, 0.14]	.42
SAPS—Discrepancy ~ Negative Affect	4.63	.50	0.80	[3.06, 6.21]	<.001***
Autoregressive Effects					
SAPS—Discrepancy_{t−1} → SAPS—Discrepancy_t	0.09	—	0.04	[0.02, 0.16]	.009**
Task Persistence_{t−1} → Task Persistence_t	0.15	—	0.04	[0.07, 0.23]	<.001***
Negative Affect_{t−1} → Negative Affect_t	0.13	—	0.04	[0.06, 0.20]	<.001***
Cross-Lagged Effects					
Task Persistence _{t−1} → SAPS—Discrepancy _t	0.18	—	0.17	[−0.16, 0.52]	.30
SAPS—Discrepancy_{t−1} → Task Persistence_t	0.01	—	0.01	[0.00, 0.03]	.03*
Negative Affect _{t−1} → Task Persistence _t	0.01	—	0.01	[−0.01, 0.03]	.41
Task Persistence _{t−1} → Negative Affect _t	0.07	—	0.09	[−0.10, 0.23]	.43
SAPS—Discrepancy _{t−2} → Negative Affect _t	0.02	—	0.02	[−0.01, 0.05]	.11

Note. SAPS—Discrepancy = Short Almost Perfect Scale, Discrepancy subscale. *b* = unstandardized coefficient. *SE* = standard error. *r* = standardized correlation coefficient, reported for between-person covariances only. Between-person effects are represented by random intercepts. Within-person effects are represented by cross-lagged effects. Low income, middle income (reference: high income), cisgender

female, and nonbinary/trans (reference: cisgender male) are time-invariant dummy-coded covariates. Nonbinary/trans includes participants who selected Prefer Not to Answer and Other when identifying their gender identity. Within-person variances and residual variances were freely estimated at each timepoint. Standardized regression coefficients are not reported for autoregressive and cross-lagged effects because freely estimated within-person residual variances produce time-varying standardized estimates that do not reduce to a single interpretable value. Confidence intervals are based on robust (sandwich) standard errors. Model fit: Scaled χ^2 (487) = 483.70, ρ = .53; Robust CFI = .94; Robust TLI = .93; Robust RMSEA = .04 (90% CI [.03, .05]); SRMR = .07. Model fit is good/excellent. The indirect effect (*ab*) of SAPS—Discrepancy on negative affect through task persistence was not statistically significant ($b = 0.001$, $SE = 0.001$, 95% CI [-0.001, 0.003], $p = .46$).

* $p < .05$. ** $p < .01$. *** $p < .001$. Statistically significant results are bolded.

Table 13

Reflexive Thematic Analysis Themes, Subthemes, and Representative Quotes

Theme / Subtheme	Example Quotes
Overarching Theme. "It Makes Me Better...At What Cost?"—The Double-Edged Sword of Self-Criticism	<i>"I put myself through this mental or emotional suffering for my own sake...because I want to improve.... I count myself as pretty organized and knowledgeable, and I feel like it [self-criticism] contributed to that....But the image that's coming to mind is a car has an accelerator and a brake, and you can't just have your foot on the accelerator all the time...you need more parts. Without other parts, you're stuck and you're going to crash."</i>
Theme 1. "I'm Hard on Myself Because It Makes Me Better"—The Perceived Benefits of Self-Criticism	<i>"This self-critical behavior has always given me the outcome that I've wanted in a situation, ...I've always worked hard enough to get what I've wanted. Which I think is great, but I do think this internship cycle was the first period where it was concerningly close to just affecting me mentally."</i>
Subtheme 1A. "It Pushes Me...Sometimes"—Self-Criticism as a Perceived Driver of Motivation and Persistence	<i>"It [self-criticism] did serve as a pushing force, encouraging me to try new things, to explore, and to step out of my comfort zone. But... it was acting on its own with no counterforce. And allowed to roam free, it became so dominating."</i>
Subtheme 1B. Self-Critical Reflection as a Catalyst for Self-Improvement	<i>"...Self-criticism being very harsh, in a way that's not like physical hurt, but more like, I have to put myself through this mental or emotional suffering for my own sake, because in order to be better, I'm not allowed to feel anything positive...I put myself through the suffering for my own sake...because I want to improve. And I think there's a part of self-criticism that makes me think...if I go through this harsh treatment, then it will lead to improvement."</i>

Subtheme 1C. "It Made Me Who I Am"—Attribution of Valued Personal Traits to Self-Criticism	<i>"Self-criticism has definitely made me wise beyond my years. With the amount of introspection that happens, it's almost inevitable that there is improvement that comes out of it.... I'm very, very, very...hyperaware of everything I'm doing, which can be good, like I end up being a really good listener because of it. Because when I'm sitting there, I'm like, okay, I really need to make sure I'm being a good listener and asking the right questions...so I've heard hundreds of times, 'you're such a good listener, you're such an easy person to talk to, you always give the best advice.' Because yeah, hello, I'm thinking all the time."</i>
Theme 2. It Takes Everything: The High Costs of Self-Criticism	<i>"I think [self-criticism impacts me] most strongly emotionally, like feeling really bad about myself. Like what you did isn't enough, or like you have to either do something over again, because it's not good, or you have to do more. And then you become stuck in that emotional state. And then, that makes it hard to do other things. And I think a large part is it's hard to relax...I remember during breaks during school, I had a hard time relaxing, like I felt the need to be like, oh, it's summer, you know, I'm done with whatever summer program I was in.... I can just play games or hang out with my friends. But part of me is like, no, I have to maybe self-study this thing or do that. And never letting myself chill out for a bit."</i>
Subtheme 2A. The Emotional Toll of Self-Criticism: Anxiety, Anger, and Chronic Stress	<i>"I think more than anything it's a very toxic cycle. It's very mentally draining in a sense that... it's rewarding, but I am a very stressed individual. So I'm constantly stressed out most of the time. I think it's just that... mentally, [self-criticism] is a lot for me to deal with...I become more anxious. Regardless of if I have a test or not, I just am always on edge, very much anticipating something. And I mean, it's normal to want to do better on an exam, but I feel like it is more for me in terms of anxiety..."</i>
Subtheme 2B. "Never Enough"—The Erosion of Self-Worth	<i>"So, I'm in...one of the hardest classes that I've ever taken for my major...I recently took the midterm for it... And I got 100% on it. And seeing that score, I was still like, there's just no way...no, he's gonna email me in a couple days telling me that my answers are wrong. Even when I do have successes, there's always a part of me that's like...Oh, what, is that real? ...I don't think that's real... So I think is the self-critical part of my brain being like, Oh, well, you did good. But... did you really though?"</i>
Subtheme 2C. "If I'm Not Achieving, What Good Am I?"—	<i>"I think part of [self-criticism] is... a self-worth thing...where success equals value. And so if I'm slacking or doing things I shouldn't be, it's like...losing my value, essentially..."</i>

Conflation of Self-Worth and Achievement	
Subtheme 2D. Working to Quiet the Critic.	<i>"[Self-criticism] doesn't give a direct benefit, but it's more this interesting thing of...it's so negative, this feeling of being disappointed in myself and regretting things, that it's almost like a punishment that is motivating to do better next time so I don't have to feel it again..."</i>
Subtheme 2E. The Constriction of Joy, Openness, and Presence	<i>"Everything I do has to be...optimal, which is really weird. For example, if I'm cooking, I'm not just gonna cook. I'm gonna think, okay, tortillas for one minute, one minute to cut the carrots and cucumber. So if I mess up that one step, I have wasted extra minutes...And I'm like, I'm so stupid. Why did I do that?...For a stupid task, like cutting carrots, I'll let that bring me down so much..."</i>
Subtheme 2F. Self-Punishment and the Neglect of Basic Needs	<i>"Self-criticism affects me...negatively. Negatively is an understatement, because when I wake up, I'm just hit with the reality of what I'm not satisfied with about myself, and then...I think so badly of myself that I don't even want to go out, like, I don't even want to dine in the dining halls, because I think to myself... you don't deserve to be happy and content. You should be worried about being stressed out about the things that you messed up on. You should be worried about finding a solution. So, you don't deserve to be happy right now...you can eat when you get your grades up."</i>
Subtheme 2G. The Downward Spiral of Self-Criticism	<i>"...Self-criticism leads to...sadness and frustration...I tend to downward spiral a lot. So...doing bad on one test will... evolve into...lack of future success...so that...makes my mood sad and bleak...and then, just more directly is... a sense of confusion. And then.... frustration. That feeling of... I could have done better than that...and not knowing why I didn't do as well as I thought I should have.... I'll think about it a lot, and then I'm annoyed of thinking about it as much as I do...but there's nothing I can do about it. You know, an intrusive thought is an intrusive thought. And so it's just frustrating. It's like, okay, I want to be done with feeling these things. And that's frustrating."</i>

Theme 3. "I Know It Hurts, but
Would I Even Take It Away?"

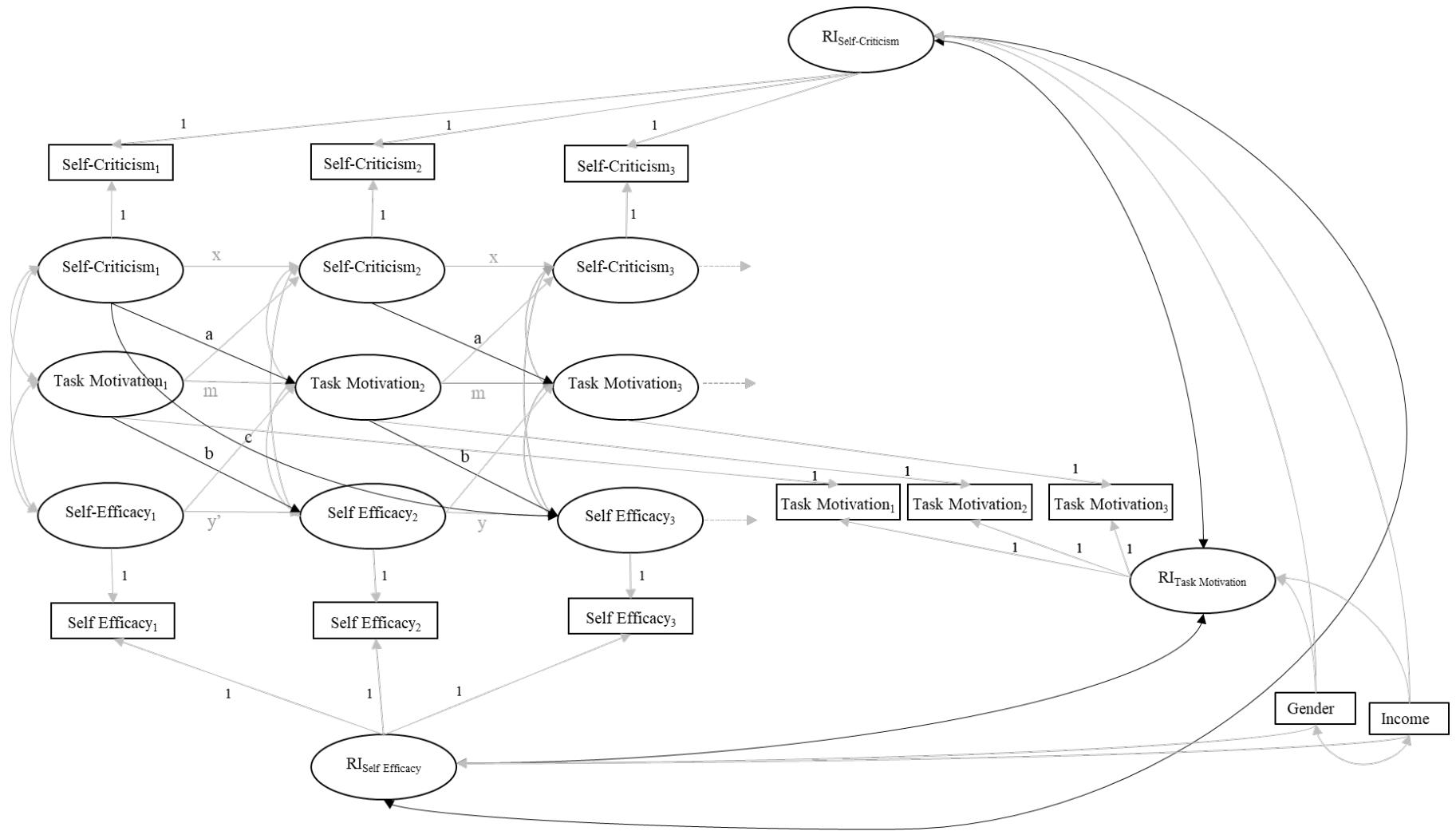
"Five years ago, if you'd asked me if I want to change [my self-criticism], I'd say no, I'm proud of being self-critical, it's making me better. But now, after hitting myself mentally so many times, I'm realizing that this isn't working. So...maybe I do want to change...day by day..."

Note. Quotes are drawn from interview transcripts and are presented verbatim or with minor editing for clarity.

Figures

Figure 4

Random Intercept Cross-Lagged Panel Model for SAPS—Discrepancy, Task Motivation, and Self-Efficacy Positive Reinforcement

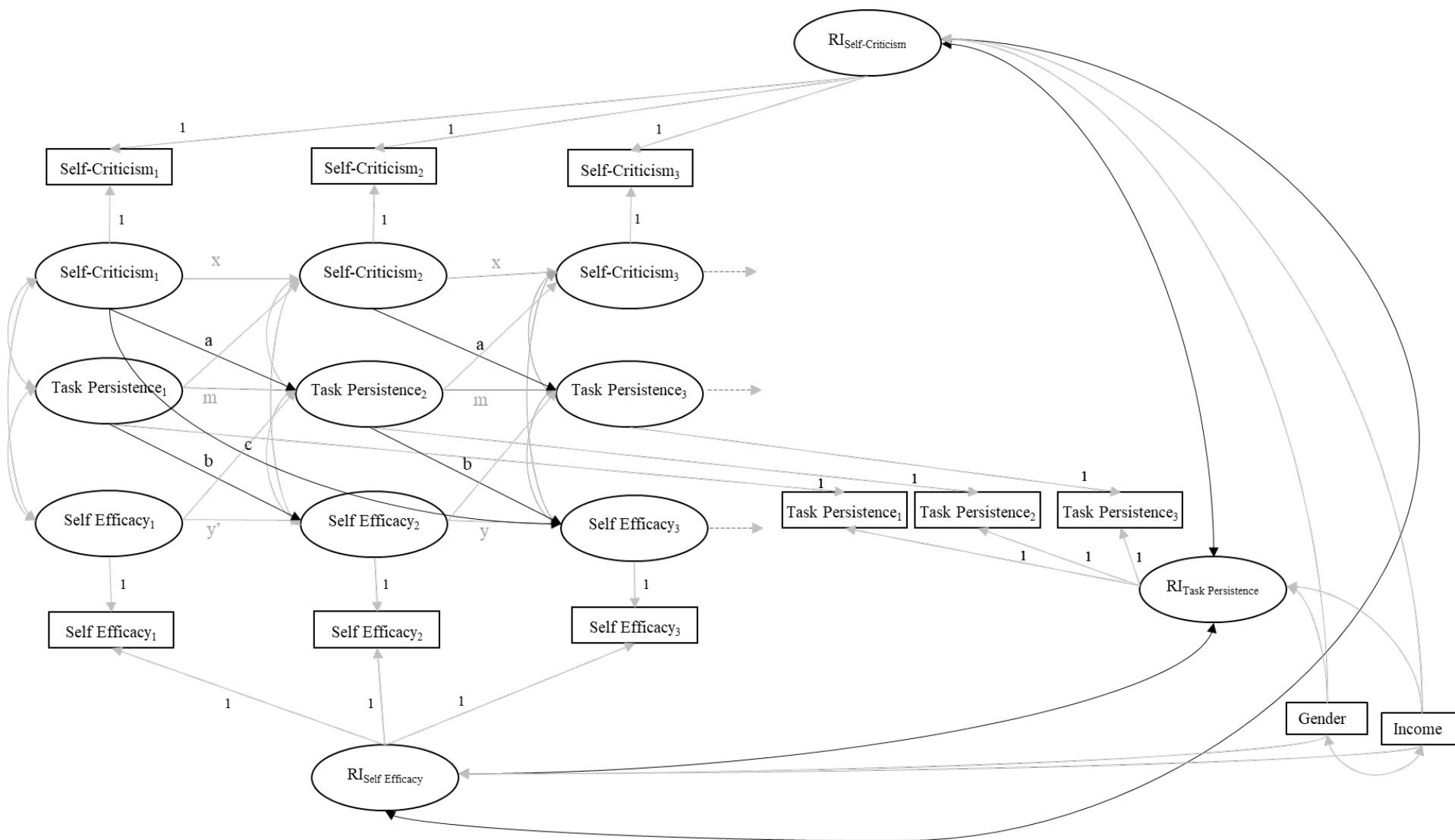


Note. Subscripts denote study day. The first 3 of 10 days of the study are represented. RI = random intercept. Fixed factor loadings of 1 are shown on paths from random intercepts and within-person components to observed indicators. Unstandardized coefficients are shown on freely estimated paths. Standardized regression coefficients are not reported for autoregressive and cross-lagged effects because freely estimated within-person residual variances produce time-varying standardized estimates that do not reduce to a single interpretable value. Within-person variances and residual variances were freely estimated at each timepoint. Gender and income are time-invariant, dummy coded covariates regressed onto the random intercepts. See Table 9 for additional model information.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Figure 5

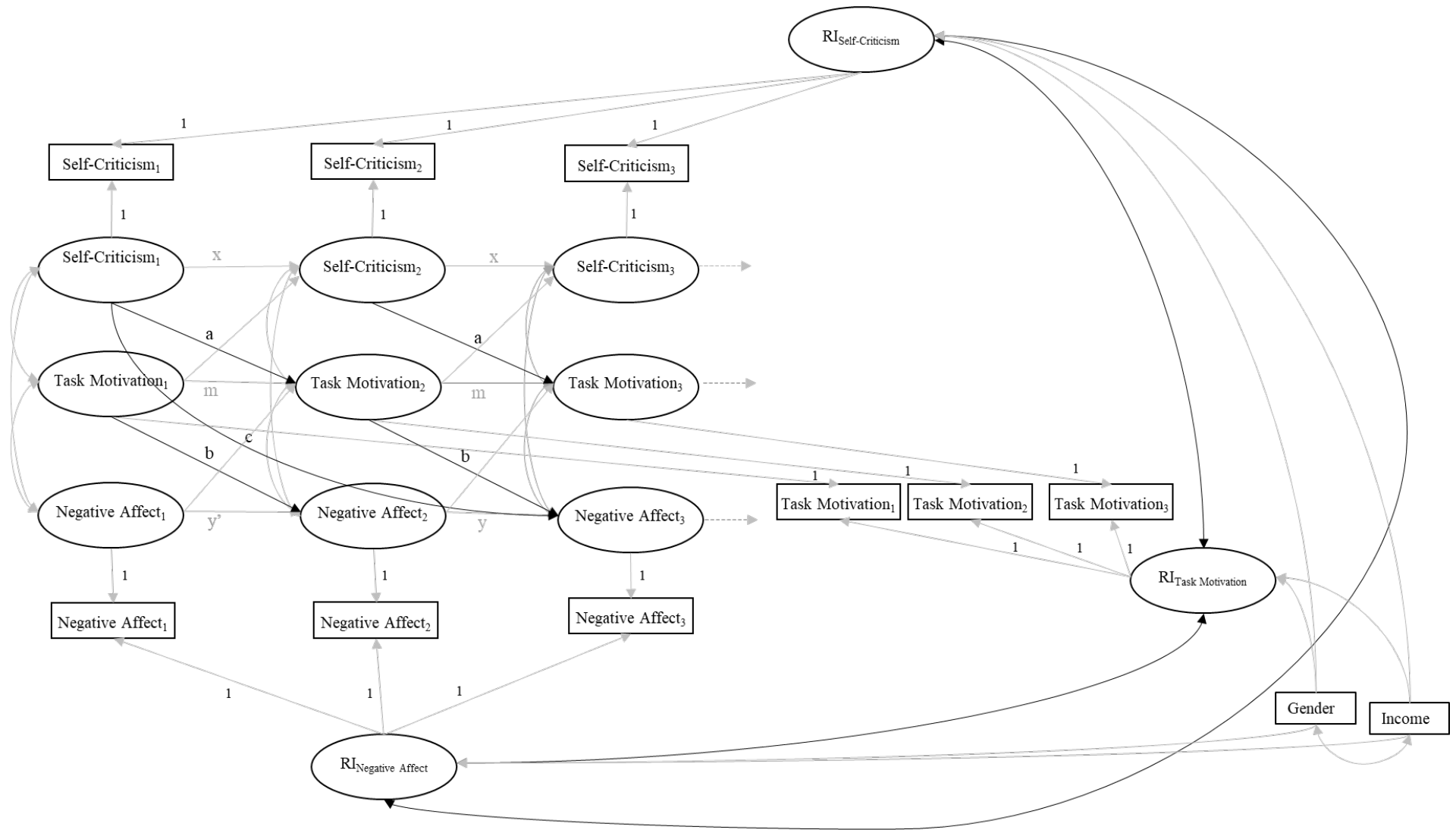
Random Intercept Cross-Lagged Panel Model for SAPS—Discrepancy, Task Persistence, and Self-Efficacy Positive Reinforcement



Note. Subscripts denote study day. The first 3 of 10 days of the study are represented. RI = random intercept. Fixed factor loadings of 1 are shown on paths from random intercepts and within-person components to observed indicators. Unstandardized coefficients are shown on freely estimated paths. Standardized regression coefficients are not reported for autoregressive and cross-lagged effects because freely estimated within-person residual variances produce time-varying standardized estimates that do not reduce to a single interpretable value. Within-person variances and residual variances were freely estimated at each timepoint. Gender and income are time-invariant, dummy coded covariates regressed onto the random intercepts. See Table 10 for additional model information.

Figure 6

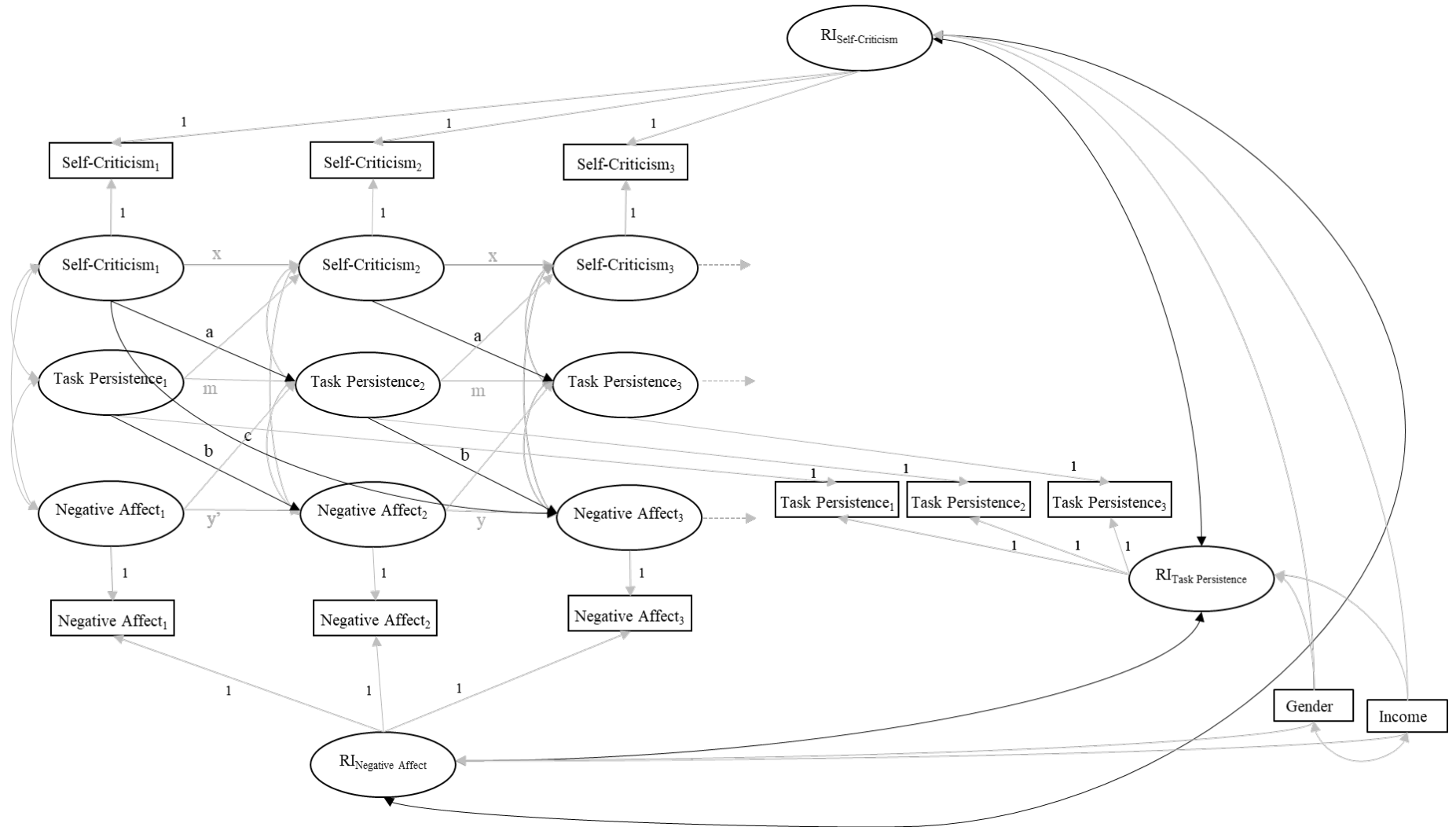
Random Intercept Cross-Lagged Panel Model for SAPS—Discrepancy, Task Motivation, and Negative Affect



Note. Subscripts denote study day. The first 3 of 10 days of the study are represented. RI = random intercept. Fixed factor loadings of 1 are shown on paths from random intercepts and within-person components to observed indicators. Unstandardized coefficients are shown on freely estimated paths. Standardized regression coefficients are not reported for autoregressive and cross-lagged effects because freely estimated within-person residual variances produce time-varying standardized estimates that do not reduce to a single interpretable value. Within-person variances and residual variances were freely estimated at each timepoint. Gender and income are time-invariant, dummy coded covariates regressed onto the random intercepts. See Table 11 for additional model information.

Figure 7

Random Intercept Cross-Lagged Panel Model for SAPS—Discrepancy, Task Persistence, and Negative Affect



Note. Subscripts denote study day. The first 3 of 10 days of the study are represented. RI = random intercept. Fixed factor loadings of 1 are shown on paths from random intercepts and within-person components to observed indicators. Unstandardized coefficients are shown on freely estimated paths. Standardized regression coefficients are not reported for autoregressive and cross-lagged effects because freely estimated within-person residual variances produce time-varying standardized estimates that do not reduce to a single interpretable value. Within-person variances and residual variances were freely estimated at each timepoint. Gender and income are time-invariant, dummy coded covariates regressed onto the random intercepts. See Table 12 for additional model information.

Conclusion

This dissertation contributes to a growing literature on AA mental health by advancing an account of self-criticism rooted in the broader structural conditions in which AAs develop and live. Across both studies, findings make clear that neither the origins nor the sustaining forces of self-criticism among AAs can be attributed to culture, family, or racialization in isolation. Rather, self-criticism emerges and persists at their intersection — shaped by the downstream effects of stereotypes like the model minority myth and the perpetual foreigner stereotype that position AAs within a particular set of racialized social expectations, and which, over time and through repetition, become indistinguishable from personal standards. Perhaps the most consequential finding is that self-criticism in AAs is not an individual- or family-level pathology, but a functional adaptation to racialized pressures that offer tangible motivational and behavioral returns, making it feel indispensable in environments that demand exceptional performance as the price of security and belonging, even as it quietly erodes self-efficacy, emotional well-being, and quality of life.

Conceptualizing self-criticism as structurally produced rather than a personal or cultural trait carries meaningful implications for how the field approaches both research and intervention. Processes driving and underlying internalized racism in AAs remain understudied and poorly understood (Hwang, 2021), yet this dissertation's findings point toward internalized racism as a plausible link between race-related stress, self-criticism, and the transdiagnostic problems underlying mental health disparities among AA populations. Future research should prioritize longitudinal designs capable of tracing this developmental pathway, particularly during sensitive periods where individual-, family-, or community-level education may make early intervention both possible and effective. Measurement development is also needed, as existing tools do not

adequately capture the internalized achievement pressures most directly implicated in this dissertation's findings. Clinically, interventions that engage the intersecting racial, cultural, and familial origins of self-criticism and offer AAs an alternative pathway to achievement and belonging are needed. Self-compassion and radical healing frameworks adapted to address the unique racialization of AAs represent promising directions in this regard. Critically, however, individually focused approaches alone are insufficient: systemic efforts to identify and challenge model minority expectations and perpetual foreigner threats at the campus, workplace, and community level are essential complements to clinical intervention. As Hwang (2021) asserts, "racism functions like a self-perpetuating disease that embeds itself in individuals, communities, and institutions that fail to take an active antiracist stance to eradicate it." The internalization processes documented in this dissertation are one expression of that disease—and understanding them is a necessary prerequisite for disruption and eradication. Ultimately, we hope this work offers a step toward making visible what racist structures have insidiously rendered invisible: the way racialized conditions may inscribe themselves into the inner lives of AA young adults, and the steep psychological costs quietly paid in exchange for belonging.

Appendices

Appendix A: Baseline Survey

Demographics

1. What is your first name?
2. What is your last name?
3. What is your phone number?
4. What is your email address?
5. What is your preferred method of contact? (phone/email)
6. What is your age?
7. What is your gender? (Cisgender male/Cisgender female/Transgender male / Transgender female / Non-binary / Gender non-conforming / Genderfluid / Prefer Not to Answer)
8. Do you identify as multiracial Asian? (No/Yes—please specify races)
9. Which Asian American ethnicities describe you? (Select all that apply) (Chinese/ Japanese / Korean / Taiwanese/ Okinawan / Manchurian / Thai / Cambodian / Filipinx / Vietnamese / Burmese / Hmong / Indonesian / Mien / Laotian / Malaysian / Singaporean / Indian / Pakistani / Sri Lankan / Punjabi / Nepalese / Bangladeshi /
10. Other – please specify)
11. Do you fluently speak, read, or write a language other than English? (No / Yes—please specify)
12. In what country were you born? (United States/ China / Japan / Korea / Taiwan / Thailand / Cambodia / Philippines / Vietnam / Myanmar (Burma) / Indonesia / Laos / Malaysia / Singapore / India / Pakistan / Sri Lanka / Nepal / Bangladesh / Other – please specify)
13. What is your estimated annual family income? (\$0-\$24,999 / \$25,000-\$49,999 / \$50,000-\$74,999 / \$75,000-\$99,999 / \$100,000-\$124,999 / \$125,000-\$149,999 / \$150,000-\$174,999 / \$175,000-\$199,000 / \$200,000+)
14. What is your mother's / primary caregiver's highest completed level of education? (no schooling completed / grades 1 through 11 / 12th grade / high school diploma / GED or alternative credential / some college credit, no degree / associate's degree / bachelor's degree / master's degree / professional degree beyond bachelor's (e.g. MD, DDS, JD) / doctoral degree (e.g. PhD, EdD)
15. What is your father's highest completed level of education? (no schooling completed / nursery school / grades 1 through 11 / 12th grade / high school diploma / GED or alternative credential / some college credit, no degree / associate's degree / bachelor's degree / master's degree / professional degree beyond bachelor's (e.g. MD, DDS, JD) / doctoral degree (e.g. PhD, EdD)
16. What is your generational status? (1st generation (born outside the US) / 2nd generation (at least 1 foreign-born parent) / 3rd generation and higher (both parents are born in the US)
17. Have you received professional mental health services in the past year? (Yes/No)
18. What is the zipcode of the address where you primarily grew up?
19. What is the zipcode of your current address?

Asian American Values Scale, Multidimensional (Kim, Li, & Ng, 2005)

Use the scale below to indicate the extent to which you agree with the value expressed in each statement.

- 1 = Strongly Disagree
- 2 = Moderately Disagree
- 3 = Mildly Disagree
- 4 = Neither Agree nor Disagree
- 5 = Mildly Agree
- 6 = Moderately Agree
- 7 = Strongly Agree

*reverse scored

Calculate subscale scores by summing item scores.

Family Recognition through Achievement Subscale

1. One should achieve academically since it reflects on one's family.
2. Succeeding occupationally is an important way of making one's family proud.
3. Getting into a good school reflects well on one's family.
4. Failing academically brings shame to one's family.
5. One should go as far as one can academically and professionally on behalf of one's family.
6. One's academic and occupational reputation reflects the family's reputation.
7. Academic achievement should be highly valued among family members.
8. One's achievement and status reflect on the whole family.
9. Making achievements is an important way to show one's appreciation for one's family.
10. One's educational success is a sign of personal and familial character.
11. One should work hard so that one won't be a disappointment to one's family.
12. Receiving awards for excellence need not reflect well on one's family.*
13. Children's achievements need not bring honor to their parents. *

Relational Induction (Fung & Lau, 2012)—Adapted for child's perspective, original scale uses parent's perspective

Please use the following scale to assess how well these items describe your mother/father.

- 1 = Not at all like her /him
- 2 = Somewhat like her/him
- 3 = A lot like her/him

1. Tells me that my behavior affects how other people think of me.
2. Might say, "when you don't listen, that shows you don't care about me."
3. Tells me that I shouldn't do anything that makes me ashamed.
4. Might say, "when you misbehave, people think I am a bad parent."
5. Tells me they feel humiliated when I misbehave.
6. Might say, "if you really care for me, you will not do things that cause me worry."
7. Might say "I take good care of you, so you should listen to me."
8. Tells me that I need to think about how much they have done for me.
9. Makes me aware of how hard they work to provide for me.
10. Often conveys how hard it is to raise a child so that I appreciate them more.
11. Gives me a cold shoulder when I have let them down.
12. Tells me that they don't like me when I don't listen.

13. Will avoid looking at me when I have disappointed them.
14. Openly compares me to other children who behave better.
15. Might say, “why can’t you be more like ____” (name of a well-behaved child)

Internalized Racism in Asian Americans Scale (Choi, Israel, & Maeda, 2017)

Please rate how much you agree or disagree with each statement using the scale below.

- 1 = Strongly Disagree
- 2 = Mostly Disagree
- 3 = Slightly Disagree
- 4 = Slightly Agree
- 5 = Mostly Agree
- 6 = Strongly Agree

When you see the term Asian, please feel free to consider whoever comes to mind for you, including the full range of Asian and Asian Americans in the United States.

1. I sometimes wish I weren’t born Asian.
2. It’s unfair that I was born Asian.
3. My life would be better if I wasn’t Asian.
4. My feelings toward Asians tend to be negative.
5. Asians are physically weaker than non-Asians.
6. Asian men are more feminine than non-Asian men.
7. Asian men can’t satisfy their sexual partners.
8. Asians tend to be passive.
9. Asians tend to be socially awkward.
10. Asians don’t make good leaders.
11. Many Asians would be more physically attractive if they had surgery to look more White.
12. Asians tend to all look the same to me.
13. Asians are less physically attractive than Whites.
14. Lighter skin is generally more attractive than darker skin.

Internalization of the Model Minority Myth Measure, Achievement Orientation (Yoo & Steger, 2010)

Please rate how much you agree or disagree with each statement using the scale below.

- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Somewhat Disagree
- 4 = Neither agree nor disagree
- 5 = Somewhat Agree
- 6 = Agree
- 7 = Strongly Agree

In comparison to other racially marginalized groups (e.g. Black Americans, Latinx individuals, Indigenous peoples):

1. Asian Americans have stronger work ethics
2. Asian Americans are harder workers

3. Despite experiences with racism, Asian Americans are more likely to achieve academic and economic success.
4. Asian Americans are more motivated to be successful.
5. Asian Americans generally have higher grade point averages in school because academic success is important.
6. Asian Americans get better grades in school because they study harder.
7. Asian Americans generally perform better on standardized exams (i.e. SAT) because of their values in academic achievement.
8. Asian Americans make more money because they work harder.
9. Asian Americans are more likely to be good at math and science.
10. Asian Americans are more likely to persist through tough situations.

Everyday Discrimination Scale (Krieger et al., 2005; Taylor et al., 2004) –adapted to focus on race.

In your day-to-day life, how often do any of the following things happen to you due to your race or ethnicity?

- 0 = Never
- 1 = Less than once a year
- 2 = A few times a year
- 3 = A few times a month
- 4 = At least once a week
- 5 = Almost every day

1. You were treated with less courtesy than other people.
2. You were treated with less respect than other people.
3. You received poorer service than other people at restaurants or stores.
4. People acted as if they think you are not smart.
5. People acted as if they are afraid of you.
6. People acted as if they think you are dishonest.
7. People acted as if they're better than you are.
8. You were called names or insulted.
9. You were threatened or harassed.

Racial Microaggressions (Ong et al., 2013)

Please select the events below that you have experienced in your day-to-day life. (Checklist)

1. White people stare at me as if I didn't belong in the same place with them.
2. While at a restaurant, I notice that I am ignored, overlooked, or not given the same service as White individuals.
3. I am overlooked or am told an offensive joke or comment concerning how Asians talk.
4. I am teased for not using Western utensils (e.g. fork, knife).
5. I overhear a conversation about Asians being really good at math or science.
6. I am asked where I was born.
7. I notice that Asian characters in American TV shows either speak bad or heavily accented English.

8. I am told I speak good English.
9. Someone I don't know treats me as if I am stupid and need things explained to me slowly.
10. I am told or overhear that Asian women are considered fascinating or exotic by others.
11. I overhear it suggested that many women find Asian men unattractive.
12. I hear it suggested that Asian women are passive.
13. I notice on TV that an Asian male leading character does not engage in physical contact with a female leading character even when the plot would seem to call for it.
14. I am complimented on my Asian physical features (e.g. smooth skin, straight hair).
15. I overhear someone saying that all Asians look alike.
16. I am mistaken for someone else of my same race.
17. I hear it suggested that all Asian food tastes the same.
18. A white person fails to apologize for stepping on my foot or bumping into me.
19. I hear it suggested that Asians do not experience as much discrimination as other minorities
20. Other racial microaggression: Please describe (open-text box response).

Forms of Self-Criticizing/Attacking & Self-Reassuring Scale (Gilbert et al., 2004; Baiao et al., 2015)

When things go wrong in our lives or don't work out as we hoped, and we feel we could have done better, we sometimes have *negative and self-critical thoughts and feelings*. These may take the form of feeling worthless, useless or inferior etc. However, people can also try to be supportive of themselves. Below are a series of thoughts and feelings that people sometimes have. Read each statement carefully and circle the number that best describes how much each statement is true for you.

- 0 = Not at all like me
- 1 = A little bit like me
- 2 = Moderately like me
- 3 = Quite a bit like me
- 4 = Extremely like me

1. I am easily disappointed with myself.
2. There is a part of me that puts me down.
3. I am able to remind myself of positive things about myself.
4. I find it difficult to control my anger and frustration at myself.
5. I find it easy to forgive myself.
6. There is a part of me that feels I am not good enough.
7. I feel beaten down by my own self-critical thoughts.
8. I still like being me.
9. I have a sense of disgust with myself.
10. I can still feel lovable and acceptable.
11. I stop caring about myself
12. I find it easy to like myself.
13. I remember and dwell on my failings.
14. I call myself names.
15. I am gentle and supportive with myself.
16. I can't accept failures and setbacks without feeling inadequate.

17. I think I deserve my self-criticism.
18. I am able to care and look after myself.
19. There is a part of me that wants to get rid of the bits I don't like.
20. I encourage myself for the future.
21. I do not like being me.

Almost Perfect Scale—Short Form, Revised (Rice, Richardson, & Tueller, 2014)

The following items are designed to measure certain attitudes people have toward themselves, their performance, and toward others. Please rate the statements using the following scale:

- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Slightly Disagree
- 4 = Neutral
- 5 = Slightly Agree
- 6 = Agree
- 7 = Strongly Agree

Discrepancy Subscale

1. Doing my best never seems to be enough
2. My performance rarely measures up to my standards
3. I am hardly ever satisfied with my performance
4. I often feel disappointment after completing a task because I know I could have done better

Interest for Qualitative Interview

Are you interested in participating in a 60-minute interview about your self-talk, mood, and behaviors for 1 additional course credit / \$20 compensation? (Y/N)

Appendix B: Daily Diary Survey

Daily Affect—Internationally Reliable Short-Form of the Positive and Negative Affect Scale (Thompson, 2007)

This scale consists of a number of words and phrases that describe different feelings and emotions. Indicate to what extent you felt this way today:

- 1 = very slightly or not at all
- 2 = a little
- 3 = moderately
- 4 = quite a bit
- 5 = extremely

Negative Affect

- 1. Upset
- 2. Hostile
- 3. Ashamed
- 4. Nervous
- 5. Afraid

Academic/Professional Demands, Task Motivation, and Task Persistence

- 1. What was the most challenging academic or professional task you performed today?
(open-text response)
- 2. On a scale of 1 (not at all) to 5 (a great deal), how motivated were you to complete this task?
(Likert scale from 1 to 5)
- 3. On a scale of 1 (not at all) to 5 (a great deal), how persistent were you in completing this task despite setbacks that may have arisen?
- 4. On a scale of 1 (not at all true) to 5 (a great deal), did you work hard to do well on the task even if you didn't like what you were doing?
- 5. On a scale of 1 (not at all true) to 5 (a great deal), even if the task was dull and uninteresting, did you manage to keep working until you finished?

Almost Perfect Scale—Short Form, Revised, Discrepancy Subscale

Please rate how you felt about your attitudes toward your performance today.

- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Slightly Disagree
- 4 = Neutral
- 5 = Slightly Agree
- 6 = Agree
- 7 = Strongly Agree

- 1. Doing my best didn't seem to be enough
- 2. My performance didn't measure up to my standards
- 3. I wasn't satisfied with my performance

4. I felt disappointed after completing a task because I know I could have done better

General Self-Efficacy (Schwarzer & Jerusalem, 1995) – pulled 4 items from original 10-item scale

Please rate the statements below with the following scale:

- 1 = Not at all true
- 2 = Hardly true
- 3 = Moderately true
- 4 = Exactly true

Today:

1. I felt I could solve difficult problems if I tried hard enough.
2. I felt I could handle whatever came my way.

Appendix C: Interview Script

**Note.* Questions in bold are open-ended, structured questions; questions in parentheses are optional probes dependent upon participant responses. Probes are only used when participant has not touched on the topic in their open-ended response.

Hi [PARTICIPANT NAME],

Thanks so much for participating in this interview today! The purpose of this interview today is to give you a bit of feedback about your levels of self-criticism based on the online questionnaire that you filled out and to ask you some questions where you think your self-criticism comes from and how it affects you. The interview will be video and audio recorded for research purposes and we will only keep your audio recording for transcriptions so your face won't be tied to anything you say. We will also transcribe the interviews for research purposes so that nobody hears your voice or sees your face. Do you have any questions before we get started? [HIT RECORD].

Feedback on Self-Criticism: Let's start by talking a little bit about your self-criticism. Based on the initial questionnaire you filled out, you scored [INSERT SCORE] **33** on the self-criticism questionnaire, which above the 75th percentile score for other undergraduate men / women who took the same questionnaire (24 for women, 25 for men). This is a bit high relative to others who have completed this questionnaire in previous research studies. How is this information landing with you? (Is it expected or is it a surprise?) [PAUSE, ALLOW THE PARTICIPANT TO REACT].

The purpose of this interview today is to understand more about where you think your self-criticism comes from and how it affects you. So...

Self-Critical Contexts:

- 1. In what parts of your life does self-criticism show up the most?**
- 2. Can you give me an example of a time when you were self-critical?**
 - 8a. (What triggered your self-criticism? [event, thought, emotion, behavior?])
 - 8b. (How did your self-criticism affect you in this situation? Did it help you in any way? Did it hurt you in any way?)
 - 8c. (Did it have an impact on your mood?)
 - 8d. (Did it have an impact on your behavior?)
 - 8e. (What was your takeaway from this situation?)
- 3. Can you give me another example?**

(same probes as above)

Origins of Self-Criticism:

- 4. Where do you think this self-criticism comes from?**
 - 1a. (Anything about your family or how you were raised?)
 - 1b. (Anything about your culture or background?)
 - 1c. (Anything about being Asian American?)

Effects of Self-Criticism:

5. How does your self-criticism affect you?

2a. (Do you think being self-critical helps you in any way?)

2b. (Do you think being self-critical hurts you in any way?)

6. How does self-criticism impact your mood?

7. How long does [INSERT IMPACT] last?

8. How does self-criticism impact your behavior?

9. Do you have any desire to change your self-criticism?

6a. (If yes, how would you want to change your self-criticism? What do you think would be the impact of this change?)

6b. (If no, why not?)

Conclusion: OK, those are all the questions I have for you today. Thank you SO much for participating in this interview, I really appreciate you taking the time to participate in this research! Do you have any questions for me before we wrap up? [GIVE PARTICIPANTS DETAILS ABOUT COMPENSATION –1 SONA credit or \$20 gift card]. LINK TO KRISTIN NEFF SELF-COMPASSION PRACTICES.

End call.

Appendix D: R Syntax for Main Analyses

Section 1: Confirmatory Factor Analysis and Structural Equation Model

Data preparation and initial measurement model (CFA)

```
#####  
##### DISSERTATION ANALYSIS SYNTAX #####  
#####  
#####  
  
##### INITIAL MEASUREMENT MODEL 1  
library(lavaan)  
library(dplyr)  
  
# -----  
# Standardize continuous indicators only  
# -----  
vars_to_standardize <- c("iraas_mean", "edsFreq", "microaggressions",  
                          "risMom", "risDad", "aavsFamily")  
  
dataBase <- dataBase %>%  
  mutate(across(all_of(vars_to_standardize), ~ as.numeric(scale(.))))  
  
# -----  
# CFA model with theoretically justified residual covariance  
# iraas_mean and microaggressions share conceptual/method overlap  
# beyond the RaceStress latent factor  
# -----  
cfa_model_v1 <- '  
  # Factor 1: Race-related stress  
  RaceStress      =~ iraas_mean + edsFreq + microaggressions  
  
  # Factor 2: Heritage culture  
  HeritageCulture =~ risMom + risDad + aavsFamily
```

```

# Residual covariance
  iraas_mean ~~ microaggressions

,

cfa_fit_v1 <- cfa(cfa_model_v1,
                  data = dataBase,
                  estimator = "MLR",
                  missing = "fiml",
                  std.lv = TRUE)

summary(cfa_fit_v1,
        fit.measures = TRUE,
        standardized = TRUE,
        rsquare = TRUE)

fitMeasures(cfa_fit_v1, c("chisq.scaled", "df.scaled", "pvalue.scaled",
                          "cfi.robust", "tli.robust",
                          "rmsea.robust", "rmsea.ci.lower.robust",
                          "rmsea.ci.upper.robust", "srmr"))

modindices(cfa_fit_v1, sort. = TRUE, maximum.number = 10)

```

Initial structural model

```

#####
##### STRUCTURAL MODEL #####
#####
#####

# -----
# Step 1: Standardize variables not standardized in the CFA
# -----

```

```

vars_to_standardize_new <- c("im4Ach", "sapsrDis")

dataBase <- dataBase %>%
  mutate(across(all_of(vars_to_standardize_new), ~ as.numeric(scale(.))))

# -----
# Step 2: full structural model
# -----

sem_model <- '
# ----- Measurement model -----
RaceStress      =~ iraas_mean + edsFreq + microaggressions
HeritageCulture =~ risMom + risDad + aavsFamily

# Residual covariance established in CFA retained
iraas_mean ~~ microaggressions

# ----- Structural model -----
# Observed outcome regressed on:
# - Two latent predictors
# - One observed predictor (im4Ach)
# - Four dummy-coded covariates
sapsrDis ~ RaceStress + HeritageCulture + im4Ach +
           lowIncome + middleIncome + cisFemale + nonbinaryTrans
'

# -----
# Step 3: Fit structural model
# -----

sem_fit <- sem(sem_model,
               data = dataBase,
               estimator = "MLR",
               missing = "fiml",
               std.lv = TRUE)

```

```
# -----
# Step 4: Inspect results
# -----

summary(sem_fit,
        fit.measures = TRUE,
        standardized = TRUE,
        rsquare = TRUE)

fitMeasures(sem_fit, c("chisq.scaled", "df.scaled", "pvalue.scaled",
                      "cfi.robust", "tli.robust",
                      "rmsea.robust", "rmsea.ci.lower.robust",
                      "rmsea.ci.upper.robust", "srmr"))

modindices(sem_fit, sort. = TRUE, maximum.number = 10)
```

Final structural model

```
#####
#####

### FINAL STRUCTURAL MODEL, IM4 REMOVED AS MEDIATOR AND REMOVED FROM MODEL
# -----
# Structural model -- final specification
# im4Ach removed based on empirical evidence:
# -----

sem_model_v2 <- '
# ----- Measurement model (carried forward from CFA) -----
RaceStress      =~ iraas_mean + edsFreq + microaggressions
HeritageCulture =~ risMom + risDad + aavsFamily

# Residual covariance retained from CFA
iraas_mean ~~ microaggressions

# ----- Structural model -----
# sapsrDis predicted by both latent factors and covariates
```

```

# im4Ach removed -- not a significant predictor or mediator
sapsrDis ~ RaceStress + HeritageCulture +
          lowIncome + middleIncome + cisFemale + nonbinaryTrans
,

# -----
# Fit the model
# -----

sem_fit_v2 <- sem(sem_model_v2,
                 data = dataBase,
                 estimator = "MLR",
                 missing = "fiml",
                 std.lv = TRUE)

# -----
# Inspect results
# -----

summary(sem_fit_v2,
        fit.measures = TRUE,
        standardized = TRUE,
        rsquare = TRUE)

fitMeasures(sem_fit_v2, c("chisq.scaled", "df.scaled", "pvalue.scaled",
                        "cfi.robust", "tli.robust",
                        "rmsea.robust", "rmsea.ci.lower.robust",
                        "rmsea.ci.upper.robust", "srmr"))

modindices(sem_fit_v2, sort. = TRUE, maximum.number = 10)

```

Section 2: Random Intercept Cross-Lagged Panel Models

Data preparation

```
#read data
```

```

dailyWide<-read.csv("0_Self Criticism in AAs_Daily Diary_CLEAN_WIDE_FINAL.csv")

###recode gender variable
library(dplyr)
dailyWide$gender_recoded<-recode(dailyWide$gender,

                                "1"= 1,
                                "2"= 2,
                                "3"= 3,
                                "4"= 3,
                                "5"= 3,
                                "6"= 3,
                                "7"= 3,
                                "8"= 3)

##recode income
dailyWide$income_recoded<-recode(dailyWide$income,

                                "1"= 1,
                                "2"= 1,
                                "3"= 2,
                                "4"= 2,
                                "5"= 2,
                                "6"= 2,
                                "7"= 2,
                                "8"= 3,
                                "9"=3)

##dummy for gender, 1 = male = ref
library(dplyr)
dailyWide <- dailyWide %>%
  mutate(
    cisFemale = if_else(gender_recoded == 2, 1, 0),
    nonbinaryTrans = if_else(gender_recoded == 3, 1, 0)
  )

```

```
##dummy for income, 3 = high income = ref
library(dplyr)

dailyWide <- dailyWide %>%
  mutate(
    lowIncome      = if_else(income_recoded == 1, 1, 0),
    middleIncome = if_else(income_recoded == 2, 1, 0)
  )
```

Self-Criticism → Task Motivation → Negative Affect Model

```
###Model 12: SAPSR--> Task Motivation ---> Negative Affect
##### BASELINE MODEL, BIDIRECTIONAL CROSS-LAGS

library(lavaan)

#clear variables
RIx=RIIm=RIy=obs_x=obs_y=obs_m=wx=wy=wm=NULL

# helper to map time index to column name
colname <- function(prefix, t) sprintf("%s.%d", prefix, t)

# initialize list of lavaan statements
mod_lines <- list()

# 1) Random intercept definitions
mod_lines <- c(mod_lines,
  sprintf("RIx =~ %s",
    paste0("1*", colname("sapsrDis", 1:10), collapse = " + ")),
  sprintf("RIIm =~ %s",
    paste0("1*", colname("motive", 1:10), collapse = " + ")),
  sprintf("RIy =~ %s",
    paste0("1*", colname("panasNA", 1:10), collapse = " + "))
```

```

)

# 1a) Regress each RI onto the four level-2 covariates with named coefficients
#
#   Here:
#       - For "RIx ~ ..." we label lowIncome → bx1, middleIncome → bx2, nonbinaryTrans
→ bx3, cisFemale → bx4
#       - For "RIy ~ ..." we label lowIncome → by1, middleIncome → by2, nonbinaryTrans
→ by3, cisFemale → by4

mod_lines <- c(mod_lines,
               "# regress random intercepts on time-invariant covariates (with
named betas)",
               "RIx ~ bx1*lowIncome      + bx2*middleIncome      + bx3*nonbinaryTrans
+ bx4*cisFemale",
               "RIy ~ by1*lowIncome      + by2*middleIncome      + by3*nonbinaryTrans
+ by4*cisFemale",
               "RIy ~ by1*lowIncome      + by2*middleIncome      + by3*nonbinaryTrans
+ by4*cisFemale"
)

# 2) Within-person latents & fix observed residuals to zero
for (t in 1:10) {
  obs_x <- colname("sapsrDis", t)
  obs_m <- colname("motive", t)
  obs_y <- colname("panasNA", t)

  mod_lines <- c(mod_lines,
                 # within-person latent factors
                 sprintf("wx%d =~ 1*s", t, obs_x),
                 sprintf("wm%d =~ 1*s", t, obs_m),
                 sprintf("wy%d =~ 1*s", t, obs_y),

                 # FIX THE *OBSERVED* RESIDUAL VARIANCES TO ZERO

```

```

        sprintf("%s ~~ 0*s", obs_x, obs_x),
        sprintf("%s ~~ 0*s", obs_m, obs_m),
        sprintf("%s ~~ 0*s", obs_y, obs_y)
    )
}

# 3) within-person correlations across all timepoints
# Replace the fixed t=1 correlations with a loop over t = 1-10:

for (t in 1:10) {
    mod_lines <- c(mod_lines,
        sprintf("wx%d ~~ wm%d", t, t),
        sprintf("wm%d ~~ wy%d", t, t),
        sprintf("wx%d ~~ wy%d", t, t))
}

# 3a) Add MI-suggested across-wave residual covariance (observed indicators)
mod_lines <- c(mod_lines,
    "panasNA.3 ~~ panasNA.8")

# 4) Residuals uncorrelated with RI at time 1
mod_lines <- c(mod_lines,
    "wx1 ~~ 0*RIx + 0*RIy",
    "wm1 ~~ 0*RIx + 0*RIy",
    "wy1 ~~ 0*RIx + 0*RIy"
)

# 5) Autoregressive & cross-lag paths for t = 2-10,
#     plus  $M_{t-1} \rightarrow X_t$  (d) and  $Y_{t-1} \rightarrow M_t$  (e)
for (t in 2:10) {
    mod_lines <- c(mod_lines,
        #  $X_t \sim \text{auto} + 1\text{-day cross-lag from } M_{t-1}$ 
        sprintf("wx%d ~ coe.x*wx%d + d*wm%d", t, t-1, t-1),

```

```

    sprintf("wx%d ~~ wx%d", t, t),

    #  $M_t \sim \text{auto} + 1\text{-day cross-lag from } X_{t-1} + 1\text{-day cross-lag from } Y_{t-1}$ 
    sprintf("wm%d ~ coe.m*wm%d + a*wx%d + e*wy%d",
            t, t-1, # coe.m  $\times$   $wm_{t-1}$ 
            t-1, # a  $\times$   $wx_{t-1}$ 
            t-1), # e  $\times$   $wy_{t-1}$ 
    sprintf("wm%d ~~ wm%d", t, t),

    #  $Y_t \sim \text{auto} + M_{t-1} + X_{t-1}e$ )
    if (t >= 3) {
        c(
            sprintf("wy%d ~ coe.y*wy%d + b*wm%d + c*wx%d",
                    t, t-1, # coe.y  $\times$   $wy_{t-1}$ 
                    t-1, # b  $\times$   $wm_{t-1}$ 
                    t-2), # c  $\times$   $wx_{t-2}$ 
            sprintf("wy%d ~~ wy%d", t, t)
        )
    } else {
        c(
            sprintf("wy%d ~ coe.y*wy%d + b*wm%d", t, t-1, t-1),
            sprintf("wy%d ~~ wy%d", t, t)
        )
    }
}

# 6) Define indirect & total effects
mod_lines <- c(mod_lines,
               "ab := a*b",
               "total := c + (a*b)"
)

```

```

# 7) Collapse into one model string
model_syntax12 <- paste(mod_lines, collapse = "\n")

# 8) Fit the model
fit12 <- sem(model_syntax12,
             data=dailyWide,
             estimator = "ML",
             test="yuan.bentler",
             missing="FIML",
             se = "robust",
             parallel = "snow",
             ncpus = 4,
             iseed = 1)

# 9) Summarize
summary(fit12, fit.measures = TRUE, standardized = TRUE)
options(max.print = 999999)
parameterEstimates(fit12, boot.ci.type="perc")

```

Self-Criticism → Task Persistence → Negative Affect Model

```

### MODEL 19

## SELF-CRIT (SHORT ALMOST PERFECT SCALE) --> TASK PERSISTENCE --> NEGATIVE AFFECT

#clear variables
RIx=RIy=obs_x=obs_y=obs_m=wx=wy=wm=NULL

# helper to map time index to column name
colname <- function(prefix, t) sprintf("%s.%d", prefix, t)

# initialize list of lavaan statements
mod_lines <- list()

# 1) Random intercept definitions

```

```

mod_lines <- c(mod_lines,
               sprintf("RIx =~ %s",
                       paste0("1*", colname("sapsrDis", 1:10), collapse = " + ")),
               sprintf("RIy =~ %s",
                       paste0("1*", colname("pers_mean", 1:10), collapse = " + ")),
               sprintf("RIy =~ %s",
                       paste0("1*", colname("panasNA", 1:10), collapse = " + "))
               )

# 1a) Regress each RI onto the four level-2 covariates with named coefficients
#
#   Here:
#       - For "RIx ~ ..." we label lowIncome → bx1, middleIncome → bx2, nonbinaryTrans
#       → bx3, cisFemale → bx4
#       - For "RIy ~ ..." we label lowIncome → by1, middleIncome → by2, nonbinaryTrans
#       → by3, cisFemale → by4

mod_lines <- c(mod_lines,
               "# regress random intercepts on time-invariant covariates (with
               named betas)",
               "RIx ~ bx1*lowIncome + bx2*middleIncome + bx3*nonbinaryTrans
               + bx4*cisFemale",
               "RIy ~ by1*lowIncome + by2*middleIncome + by3*nonbinaryTrans
               + by4*cisFemale",
               )

# 2) Within-person latents & fix observed residuals to zero
for (t in 1:10) {
  obs_x <- colname("sapsrDis", t)
  obs_m <- colname("pers_mean", t)
  obs_y <- colname("panasNA", t)

```

```

mod_lines <- c(mod_lines,
               # within-person latent factors
               sprintf("wx%d =~ 1*s", t, obs_x),
               sprintf("wm%d =~ 1*s", t, obs_m),
               sprintf("wy%d =~ 1*s", t, obs_y),

               # FIX THE *OBSERVED* RESIDUAL VARIANCES TO ZERO
               sprintf("%s ~~ 0*s", obs_x, obs_x),
               sprintf("%s ~~ 0*s", obs_m, obs_m),
               sprintf("%s ~~ 0*s", obs_y, obs_y)
               )
}

#2a: Add covariances based on MI suggestions
mod_lines <- c(mod_lines,
               "wy1 ~~ wy7",
               "wy3~~wy8",
               "wx7~~wx9")

# 3) within-person correlations across all timepoints
# Replace the fixed t=1 correlations with a loop over t = 1-10:

for (t in 1:10) {
  mod_lines <- c(mod_lines,
                 sprintf("wx%d ~~ wm%d", t, t),
                 sprintf("wm%d ~~ wy%d", t, t),
                 sprintf("wx%d ~~ wy%d", t, t))
}

# 4) Residuals uncorrelated with RI at time 1
mod_lines <- c(mod_lines,
               "wx1 ~~ 0*RIx + 0*RIy",
               "wm1 ~~ 0*RIx + 0*RIy",

```

```

        "wy1 ~~ 0*RIx + 0*RIy + 0*RIy"
    )

# 5) Autoregressive & cross-lag paths for t = 2-10,
#     plus Mt-1→Xt (d) and Yt-1→Mt (e)
for (t in 2:10) {
    mod_lines <- c(mod_lines,

        # Xt ~ auto + 1-day cross-lag from Mt-1
        sprintf("wx%d ~ coe.x*wx%d + d*wm%d", t, t-1, t-1),
        sprintf("wx%d ~~ wx%d", t, t),

        # Mt ~ auto + 1-day cross-lag from Xt-1 + 1-day cross-lag from Yt-1
        sprintf("wm%d ~ coe.m*wm%d + a*wx%d + e*wy%d",
            t, t-1, # coe.m × wmt-1
            t-1, # a × wxt-1
            t-1), # e × wyt-1
        sprintf("wm%d ~~ wm%d", t, t),

        # Yt ~ auto + Mt-1 + Xt-1e)
        if (t >= 3) {
            c(
                sprintf("wy%d ~ coe.y*wy%d + b*wm%d + c*wx%d",
                    t, t-1, # coe.y × wyt-1
                    t-1, # b × wmt-1
                    t-2), # c × wxt-2
                sprintf("wy%d ~~ wy%d", t, t)
            )
        } else {
            c(
                sprintf("wy%d ~ coe.y*wy%d + b*wm%d", t, t-1, t-1),
                sprintf("wy%d ~~ wy%d", t, t)
            )
        }
    }
}

```

```

)
}

# 6) Define indirect & total effects
mod_lines <- c(mod_lines,
               "ab := a*b",
               "total := c + (a*b)"
)

# 7) Collapse into one model string
model_syntax19 <- paste(mod_lines, collapse = "\n")

# 8) Fit the model
fit19 <- sem(model_syntax19,
             data=dailyWide,
             estimator = "ML",
             test="yuan.bentler",
             missing="FIML",
             se = "robust",
             parallel = "snow",
             ncpus = 4,
             iseed = 1)

# 9) Summarize
summary(fit19, fit.measures = TRUE, standardized = TRUE)
options(max.print = 999999)
parameterEstimates(fit19, boot.ci.type="perc")

```

Self-Criticism → Task Motivation → Self-Efficacy Model

```

###Model 23: SAPSR--> Task Motivation ---> Self Efficacy

#clear variables

RIx=RIy=obs_x=obs_y=obs_m=wx=wy=wm=NULL

```

```

# helper to map time index to column name
colname <- function(prefix, t) sprintf("%s.%d", prefix, t)

# initialize list of lavaan statements
mod_lines <- list()

# 1) Random intercept definitions
mod_lines <- c(mod_lines,
               sprintf("RIx =~ %s",
                       paste0("1*", colname("sapsrDis", 1:10), collapse = " + ")),
               sprintf("RIy =~ %s",
                       paste0("1*", colname("motive", 1:10), collapse = " + ")),
               sprintf("RIz =~ %s",
                       paste0("1*", colname("selfEff", 1:10), collapse = " + "))
               )

# 1a) Regress each RI onto the four level-2 covariates with named coefficients
#
#   Here:
#
#   - For "RIx ~ ..." we label lowIncome → bx1, middleIncome → bx2, nonbinaryTrans
#   → bx3, cisFemale → bx4
#
#   - For "RIy ~ ..." we label lowIncome → bm1, middleIncome → bm2, nonbinaryTrans
#   → bm3, cisFemale → bm4
#
#   - For "RIz ~ ..." we label lowIncome → by1, middleIncome → by2, nonbinaryTrans
#   → by3, cisFemale → by4

mod_lines <- c(mod_lines,
               "# regress random intercepts on time-invariant covariates (with
               named betas)",
               "RIx ~ bx1*lowIncome + bx2*middleIncome + bx3*nonbinaryTrans
               + bx4*cisFemale",
               "RIy ~ bm1*lowIncome + bm2*middleIncome + bm3*nonbinaryTrans
               + bm4*cisFemale",
               "RIz ~ by1*lowIncome + by2*middleIncome + by3*nonbinaryTrans
               + by4*cisFemale"
               )

```

```

)

# 2) Within-person latents & fix observed residuals to zero
for (t in 1:10) {
  obs_x <- colname("sapsrDis", t)
  obs_m <- colname("motive", t)
  obs_y <- colname("selfEff", t)

  mod_lines <- c(mod_lines,
    # within-person latent factors
    sprintf("wx%d =~ 1*s", t, obs_x),
    sprintf("wm%d =~ 1*s", t, obs_m),
    sprintf("wy%d =~ 1*s", t, obs_y),

    # FIX THE *OBSERVED* RESIDUAL VARIANCES TO ZERO
    sprintf("%s ~~ 0*s", obs_x, obs_x),
    sprintf("%s ~~ 0*s", obs_m, obs_m),
    sprintf("%s ~~ 0*s", obs_y, obs_y)
  )
}

# 3) within-person correlations across all timepoints
# Replace the fixed t=1 correlations with a loop over t = 1-10:

for (t in 1:10) {
  mod_lines <- c(mod_lines,
    sprintf("wx%d ~~ wm%d", t, t),
    sprintf("wm%d ~~ wy%d", t, t),
    sprintf("wx%d ~~ wy%d", t, t))
}

# 4) Residuals uncorrelated with RI at time 1
mod_lines <- c(mod_lines,

```

```

        "wx1 ~~ 0*RIx + 0*RIIm + 0*RIy",
        "wm1 ~~ 0*RIx + 0*RIIm + 0*RIy",
        "wy1 ~~ 0*RIx + 0*RIIm + 0*RIy"
    )

# 5) Autoregressive & cross-lag paths for t = 2-10,
#     plus  $M_{t-1} \rightarrow X_t$  (d) and  $Y_{t-1} \rightarrow M_t$  (e)
for (t in 2:10) {
    mod_lines <- c(mod_lines,

        #  $X_t \sim \text{auto} + 1\text{-day cross-lag from } M_{t-1}$ 
        sprintf("wx%d ~ coe.x*wx%d + d*wm%d", t, t-1, t-1),
        sprintf("wx%d ~~ wx%d", t, t),

        #  $M_t \sim \text{auto} + 1\text{-day cross-lag from } X_{t-1} + 1\text{-day cross-lag from } Y_{t-1}$ 
        sprintf("wm%d ~ coe.m*wm%d + a*wx%d + e*wy%d",
            t, t-1, # coe.m  $\times$   $w_{m,t-1}$ 
            t-1, # a  $\times$   $w_{x,t-1}$ 
            t-1), # e  $\times$   $w_{y,t-1}$ 
        sprintf("wm%d ~~ wm%d", t, t),

        #  $Y_t \sim \text{auto} + M_{t-1} + X_{t-1}e$ 
        if (t >= 3) {
            c(
                sprintf("wy%d ~ coe.y*wy%d + b*wm%d + c*wx%d",
                    t, t-1, # coe.y  $\times$   $w_{y,t-1}$ 
                    t-1, # b  $\times$   $w_{m,t-1}$ 
                    t-2), # c  $\times$   $w_{x,t-2}$ 
                sprintf("wy%d ~~ wy%d", t, t)
            )
        } else {
            c(
                sprintf("wy%d ~ coe.y*wy%d + b*wm%d", t, t-1, t-1),
                sprintf("wy%d ~~ wy%d", t, t)
            )
        }
    }
}

```

```

    )
  }
)
}

# 6) Define indirect & total effects
mod_lines <- c(mod_lines,
               "ab := a*b",
               "total := c + (a*b)"
)

# 7) Collapse into one model string
model_syntax23 <- paste(mod_lines, collapse = "\n")

# 8) Fit the model
fit23 <- sem(model_syntax23,
             data=dailyWide,
             estimator = "ML",
             test="yuan.bentler",
             missing="FIML",
             se = "robust",
             parallel = "snow",
             ncpus = 4,
             iseed = 1)

# 9) Summarize
summary(fit23, fit.measures = TRUE, standardized = TRUE)
options(max.print = 999999)
parameterEstimates(fit23, boot.ci.type="perc")

```

Self-Criticism → Task Persistence → Self-Efficacy Model

```

### MODEL 28 BASELINE MODEL WITH WITHIN-PERSON RESIDUAL COVARIANCE EQUALITY
CONSTRAINT FREED

## SELF-CRIT (SHORT ALMOST PERFECT SCALE) --> TASK PERSISTENCE --> SELF EFFICACY

```

```

### BIDIRECTIONAL LAG PLUS INCOME AND GENDER AS LEVEL 2 COVARIATES

#clear variables
RIx=RIm=RIy=obs_x=obs_y=obs_m=wx=wy=wm=NULL

# helper to map time index to column name
colname <- function(prefix, t) sprintf("%s.%d", prefix, t)

# initialize list of lavaan statements
mod_lines <- list()

# 1) Random intercept definitions
mod_lines <- c(mod_lines,
               sprintf("RIx =~ %s",
                       paste0("1*", colname("sapsrDis", 1:10), collapse = " + ")),
               sprintf("RIm =~ %s",
                       paste0("1*", colname("pers_mean", 1:10), collapse = " + ")),
               sprintf("RIy =~ %s",
                       paste0("1*", colname("selfEff", 1:10), collapse = " + "))
               )

# 1a) Regress each RI onto the four level-2 covariates with named coefficients
#
#   Here:
#       - For "RIx ~ ..." we label lowIncome → bx1, middleIncome → bx2, nonbinaryTrans
→ bx3, cisFemale → bx4
#       - For "RIm ~ ..." we label lowIncome → bm1, middleIncome → bm2, nonbinaryTrans
→ bm3, cisFemale → bm4
#       - For "RIy ~ ..." we label lowIncome → by1, middleIncome → by2, nonbinaryTrans
→ by3, cisFemale → by4

mod_lines <- c(mod_lines,
               "# regress random intercepts on time-invariant covariates (with
named betas)",

```

```

        "RIx  ~ bx1*lowIncome      + bx2*middleIncome      + bx3*nonbinaryTrans
+ bx4*cisFemale",

        "RIy  ~ by1*lowIncome      + by2*middleIncome      + by3*nonbinaryTrans
+ by4*cisFemale"
)

# 2) Within-person latents & fix observed residuals to zero
for (t in 1:10) {
  obs_x <- colname("sapsrDis", t)
  obs_m <- colname("pers_mean", t)
  obs_y <- colname("selfEff", t)

  mod_lines <- c(mod_lines,
    # within-person latent factors
    sprintf("wx%d =~ 1*%s", t, obs_x),
    sprintf("wm%d =~ 1*%s", t, obs_m),
    sprintf("wy%d =~ 1*%s", t, obs_y),

    # FIX THE *OBSERVED* RESIDUAL VARIANCES TO ZERO
    sprintf("%s ~~ 0*%s", obs_x, obs_x),
    sprintf("%s ~~ 0*%s", obs_m, obs_m),
    sprintf("%s ~~ 0*%s", obs_y, obs_y)
  )
}

# 3) within-person correlations across all timepoints
# Replace the fixed t=1 correlations with a loop over t = 1-10:

for (t in 1:10) {
  mod_lines <- c(mod_lines,
    sprintf("wx%d ~~ wm%d", t, t),
    sprintf("wm%d ~~ wy%d", t, t),

```

```

        sprintf("wx%d ~~ wy%d", t, t))
}

# 4) Residuals uncorrelated with RI at time 1
mod_lines <- c(mod_lines,
               "wx1 ~~ 0*RIx + 0*RIy",
               "wm1 ~~ 0*RIx + 0*RIy",
               "wy1 ~~ 0*RIx + 0*RIy"
)

# 5) Autoregressive & cross-lag paths for t = 2-10,
#     plus  $M_{t-1} \rightarrow X_t$  (d) and  $Y_{t-1} \rightarrow M_t$  (e)
for (t in 2:10) {
  mod_lines <- c(mod_lines,
                 #  $X_t \sim \text{auto} + 1\text{-day cross-lag from } M_{t-1}$ 
                 sprintf("wx%d ~ coe.x*wx%d + d*wm%d", t, t-1, t-1),
                 sprintf("wx%d ~~ wx%d", t, t),

                 #  $M_t \sim \text{auto} + 1\text{-day cross-lag from } X_{t-1} + 1\text{-day cross-lag from } Y_{t-1}$ 
                 sprintf("wm%d ~ coe.m*wm%d + a*wx%d + e*wy%d",
                           t, t-1, # coe.m  $\times$   $w_{m,t-1}$ 
                           t-1,    # a  $\times$   $w_{x,t-1}$ 
                           t-1),  # e  $\times$   $w_{y,t-1}$ 
                 sprintf("wm%d ~~ wm%d", t, t),

                 #  $Y_t \sim \text{auto} + M_{t-1} + X_{t-1}e$ 
                 if (t >= 3) {
                   c(
                     sprintf("wy%d ~ coe.y*wy%d + b*wm%d + c*wx%d",
                               t, t-1, # coe.y  $\times$   $w_{y,t-1}$ 
                               t-1,    # b  $\times$   $w_{m,t-1}$ 
                               t-2),  # c  $\times$   $w_{x,t-2}$ 
                     sprintf("wy%d ~~ wy%d", t, t)
                   )
                 }
  )
}

```

```

        )
    } else {
        c(
            sprintf("wy%d ~ coe.y*wy%d + b*wm%d", t, t-1, t-1),
            sprintf("wy%d ~~ wy%d", t, t)
        )
    }
}

)
}

# 6) Define indirect & total effects
mod_lines <- c(mod_lines,
               "ab := a*b",
               "total := c + (a*b)"
)

# 7) Collapse into one model string
model_syntax28 <- paste(mod_lines, collapse = "\n")

# 8) Fit the model
fit28 <- sem(model_syntax28,
             data=dailyWide,
             estimator = "ML",
             test="yuan.bentler",
             missing="FIML",
             se = "robust",
             parallel = "snow",
             ncpus = 4,
             iseed = 1)

# 9) Summarize
summary(fit28, fit.measures = TRUE, standardized = TRUE)
options(max.print = 999999)

```

```
parameterEstimates(fit28,boot.ci.type="perc"
```

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