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Pia Montenegro March 20, 2023

Dimensions of Perfectionism and their Relationships with Mental Health and Culture

by

Pia Montenegro

Dr. Allison LoPilato
Dr. Hillary Rodman
Co-Advisers

Psychology

Dr. Allison LoPilato
Dr. Hillary Rodman

Co-Advisers

Dr. Andrew Kazama

Committee Member

Dr. Zhiyun Gong

Committee Member

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Dr. Hillary Rodman

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Abstract

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Perfectionism is consistently associated with mental health symptoms. Recent evidence suggests that different dimensions of perfectionism may have distinct associations with mental health and differ in prevalence across cultures. The current study examined two different dimensions of perfectionism - trait perfectionism (the need to be perfect) and perfectionistic self-presentation (PSP; the need to look perfect) - to determine whether these dimensions have unique associations with mental health symptoms and whether these associations are moderated by culture. Participants were college students (n = 179) who identified as White (n = 50), Black (n = 32), Asian (n = 50), or Latinx (n = 47) and completed self-report measures of perfectionism, depression, anxiety, insomnia, and racial/ethnic background. We found that (1) both dimensions of perfectionism were predictors of depression and anxiety and but not insomnia, (2) scores of both trait perfectionism and subscales of PSP differed across racial/ethnic groups, and (3) culture moderated the relationship between trait perfectionism and somatic depression symptoms and the relationship between PSP and cognitive anxiety symptoms. Perfectionism-targeted interventions should consider tackling both forms of perfectionism and accounting for cultural background to relieve mental health issues most effectively.

Key Words: perfectionism, perfectionistic self-presentation, depression, anxiety, insomnia, race, ethnicity

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Table of Contents

Dimensions of Perfectionism and their Relationships with Mental Health and Culture

Perfectionism has been linked with the rise of mental health problems among college students (Smith, Saklofske, et al., 2017; Curran & Hill, 2019) and has become an intensive area of investigation in the fields of clinical and social psychology. Specifically, perfectionism has been associated with depression (Smith, Saklofske, et al., 2017), anxiety (Smith, Vidovic, et al., 2017), eating/body disorders (Hewitt et al., 1995), and social phobia (Nepon et al., 2016; Newby et al., 2017). Given the reported rise in perfectionism among college-aged students in the last decade (Curran & Hill, 2019) and its association with a wide range of mental health disorders (Newman et al., 2019; Christian et al., 2021), there has been increased interest in targeting perfectionism in interventions (Arpin-Cribbie et al., 2012; James & Rimes, 2017).

However, there are two critical gaps in our knowledge regarding perfectionism and mental health. First, it is unclear exactly which dimensions of perfectionism confer risk for mental health problems. Perfectionism is a broad multidimensional construct. While there is general consensus that it is characterized by a tendency to set extremely high expectations for one's "ideal" self and involves being critical of behavior that does not align with that model (Hewitt & Flett, 1991), this can manifest in different ways and across multiple domains of life (e.g., academics, body image, family life). Studies on perfectionism vary in their focus, definitions, and measures, which makes it difficult to determine which specific aspects of perfectionism are predictors/risk factors for various mental health symptoms. Second, it is largely unknown how culture influences perfectionism for certain racial/ethnic groups. For example, we know Asians tend to have higher levels of perfectionistic tendencies across several measures compared to White people and/or Americans (Castro & Rice, 2003; Smith et al., 2017; Wang et al., 2019), but only other-oriented perfectionism has been consistently studied when comparing Black people to other races (Nilsson et al., 1999; van Hanswijck de Jonge & Waller,

2003). Most cross-cultural studies on perfectionism to date have focused on Western vs Eastern cultures (Franche et al., 2012; Smith, Saklofske, et al., 2017; Wang et al., 2019) with mostly White and Asian participants. There is a striking lack of Black or Latinx representation in studies, which is problematic given that these populations account for 32.5% of the US population (US Census Bureau, 2020). A clearer understanding of how different dimensions of perfectionism relate to specific mental health problems, and how these associations vary by culture will help inform intervention efforts.

Definitions and Dimensions of Perfectionism

As noted, a key challenge in the study of perfectionism is the variety of definitions and measures used. 'Perfectionism' is an umbrella term that can be used to indicate perceptions, thoughts, or behaviors, can be focused on oneself, others, skills, relationships, etc. As a result, there are several different measures for assessing perfectionism (e.g., Frost Multidimensional Perfectionism Scale (MPS), Hewitt & Flett MPS, Almost Perfect Scale, Burns Perfectionism Scale, Perfectionistic Cognitions Inventory) with different definitions and focuses, which makes it difficult to synthesize finding. For example, the Almost Perfect Scale focuses on adaptive vs maladaptive perfectionism, while the Perfectionistic Cognitions Inventory focuses on automatic perfectionistic thoughts. In recent years the Big Three Perfectionism Scale (BTPS; Smith, Saklofske, et al., 2016) was developed to improve the cohesion and consistency among definitions and measures of perfectionism. The BTPS is a combination of factors from various measures that were deemed to be "worthy of inclusion in contemporary perfectionism" after a literature review (Smith, Saklofske, et al., 2016). See Table 1 for how each part of the BTPS is related to other perfectionism measures and studies.

Trait Perfectionism

Most research on perfectionism to date has focused on t*rait perfectionism*, which is considered a stable aspect of personality that is centered on an internal drive for oneself and others *to be perfect* (Hewitt et al., 2003). For example, a high school student high on trait perfectionism will take all AP classes and strive to get straight A's because they believe being successful and intelligent requires this. Trait perfectionism has been demonstrated to exist across different groups (age, gender, culture) and although the source/focus for perfection may differ (parents, relationships, athletics), it is characterized by the individual pursuing the ideal self regardless of whether they are in private or in public and does not necessarily consider the expectations of those around them.

Trait perfectionism is made up of three factors: (1) rigid perfectionism, (2) self-critical perfectionism, and (3) narcissistic perfectionism (Smith et al. 2016; See Table 1). Rigid perfectionism emphasizes that one's own performance must consistently be perfect and is made up of two subfactors - self-oriented perfectionism and self-worth contingencies. Self-critical perfectionism comprises how the person views their own perfectionism and what they think others expect of them and is characterized by four subfactors - concerns over mistakes, doubts about action, self-criticism, and socially-prescribed perfectionism. Finally, narcissistic perfectionism is the belief that the person and others must be perfect and is characterized by four subfactors - other-oriented perfectionism, hypercriticism, grandiosity, and entitlement. To see definitions for each subfactor, refer to Table 1. The Big Three Perfectionism Scale (Smith, Saklofske, et al., 2016) is used to assess trait perfectionism. Given the range of factors and subfactors that comprise trait perfectionism, much of the research on perfectionism and mental health has looked at associations with the subfactors.

Perfectionistic Self-Presentation (PSP)

In contrast, other studies have focused on *perfectionistic self-presentation (PSP),* which is centered on social behaviors a person engages in to *appear perfect* to those around them, even if the person does not have perfectionistic expectations for themselves (Hewitt et al., 2003). A high school student high on PSP, may take all AP classes but not necessarily strive to get straight A's. They tell everyone they are taking rigorous college-level courses but do not share their grades. This is PSP behavior as the student does not necessarily have the internal drive to meet the high-standard (i.e., all A's) but rather has a drive to *appear* that they are high-achieving. PSP is about having an ideal *public* self, so while an individual might not be perfect in private (i.e., not having straight As), at least they'll appear perfect in public and will consider the expectations of those around them in doing so.

PSP is made up of three subscales: (1) nondisplay of imperfection, (2) nondisclosure of imperfection, and (3) perfectionistic self-promotion (Hewitt et al. 2003). Nondisplay and nondisclosure of imperfection involve avoiding behavior and conversations that would reveal imperfections, respectively. Perfectionistic self-promotion refers to behavior in which an individual actively promotes how perfect they are to others.

This distinction between the need to be perfect (trait perfectionism) and the need to seem perfect to others (PSP) is important and may have implications for mental health. While trait perfectionism and PSP are related, the two dimensions have been found to not be redundant with one another (Hewitt et al., 2003) and are thought to reflect two distinct dimensions of perfectionism.

Perfectionism and Mental Illness

The most prevalent mental health symptoms among college students are anxiety, depression, and insomnia (Jiang et al., 2015; Eisenberg et al., 2021). Despite the prevalence of

these three mental health symptoms, much of the research comparing trait perfectionism and PSP has primarily studied symptoms of social anxiety (anxiety in the social domain) and eating/body disorders as both revolve around worry over the perception *other people* may have of them. A better understanding of perfectionism's associations with anxiety, depression, and insomnia is needed to develop intervention strategies to relieve these common mental health symptoms among college students.

Anxiety

Trait Perfectionism and Anxiety. A meta-analysis of 11 longitudinal studies found that trait perfectionism is a predictor of and a risk factor for anxiety symptoms (Smith, Vidovic, et al., 2017). When considering the relationship between anxiety and trait perfectionism in the context of college students, studies have looked at how it impacts academics. Research has found that various subfactors of trait perfectionism are associated with higher levels of test anxiety (Burcaş & Creţu, 2020), anxiety about statistical abilities, (Onwuegbuzie & Daley, 1999; Walsh & Ugumba-Agwunobi, 2002), and imposter syndrome (Pannhausen et al., 2020), all of which may impact academic achievement and performance. This evidence suggests that trait perfectionism is related to various types of anxiety, particularly in undergraduate populations.

PSP and Anxiety. PSP is most strongly associated with social phobia (i.e., anxiety about social situations), though some factors were modestly associated with other forms of anxiety in previous research (state and trait anxiety, agoraphobia; Hewitt et al., 2003). Interestingly both anticipatory processing – a thought process that brings about worry before an anxiety-provoking situation – and anxiety sensitivity – thinking anxiety symptoms reflect imminent danger – have moderate relations with PSP (Vassilopoulos et al., 2017). Given that these processes underlie and

increase risk for a range of anxiety disorders, it is likely that PSP increases risk for anxiety problems more broadly.

Trait Perfectionism vs. PSP in Anxiety. Based on the few studies that have specifically compared trait perfectionism and PSP, PSP seems to have stronger associations with anxiety than trait perfectionism does. Flett and colleagues (2004) found that anxiety sensitivity was moderately correlated with PSP and socially-prescribed perfectionism – a subfactor of trait perfectionism. While all trait perfectionism factors and two PSP subscales (i.e., Perfectionistic Self-Promotion and Nondisplay of Imperfection) were associated with anxiety sensitivity, the PSP subscales explained more variance in anxiety sensitivity than the trait perfectionism factors did (Flett et al., 2004). Notably, academic stress, imposter syndrome, and communication anxiety all have stronger associations with PSP than trait perfectionism (Cowie et al., 2018), suggesting that academic anxieties may be more affected by worry over appearing perfect in school than worry about achieving the perfect grade. Finally, social anxiety has repeatedly been found to be more strongly correlated with PSP than with trait perfectionism (Nepon et al., 2016; Newby et al., 2017) and all PSP subscales and socially-prescribed perfectionism (trait perfectionism subfactor) predicted social anxiety symptoms (Hewitt et al., 2003). While both trait perfectionism and PSP have been associated with anxiety, when compared directly, PSP appears to be a stronger predictor for anxiety symptoms relative to trait perfectionism.

Depression

Trait Perfectionism and Depression. A meta-analysis of 10 longitudinal studies found that trait perfectionism and its subfactors are predictors and vulnerability factors for depressive symptoms (Smith, Sherry, et al., 2016). Specifically, subfactors of self-criticism, concern over mistakes, doubts about actions and socially-prescribed perfectionism have been identified as risk

factors for depressive symptoms (Sherry et al., 2013). As for other subfactors, self-oriented perfectionism is moderately related to depression (Hewitt et al., 2008), but is not a consistent risk factor (Sherry et al., 2013). One study on self-oriented perfectionism found that, when the subfactor is accompanied by depression, the two predicted greater achievement-related stress (La Rocque et al., 2016). It seems then that even if a subfactor of trait perfectionism is not a risk factor for depression, the pairing of trait perfectionism and depression can still contribute to worsened mental health for college students, which makes assessing for a relationship between the two important.

PSP and Depression. While the research on PSP and depression is more limited, available evidence suggests PSP is also associated with depression (Hewitt et al., 2003; Kehayes & Mackinnon, 2019), particularly with the subscale of nondisclosure of imperfection (Hewitt et al., 2003; Nepon et al., 2011). Hewitt et al.'s (2008) study found that people with higher levels of PSP who had concerns about depression experienced distress before, during, and after a clinical interview took place. This could be concerning as college students with PSP tendencies may be more hesitant to approach mental health services should they be experiencing depressive symptoms and be unlikely to return should they take that step.

Trait Perfectionism vs. PSP in Depression. Findings have been mixed in the few studies that have directly compared trait perfectionism and PSP. For example, some have found that only socially-prescribed perfectionism (subfactor of trait perfectionism) and PSP have significant associations with depression (Hewitt et al., 2003; Besser et al., 2010; Flett et al., 2012), while others have found that the self-oriented perfectionism (subfactor of trait perfectionism) is related to depression (Hewitt et al., 2008; Nepon et al., 2016).

One issue with these studies is that only the Hewitt & Flett Multidimensional Perfectionism Scale (MPS) was used, so other measures of perfectionism such as the Frost MPS – an equally popular measure of trait perfectionism in the field – are excluded and not necessarily captured by the Hewitt & Flett MPS. The Frost MPS factors – such as concern over mistakes or doubts about actions – have significant relations with depression (Smith, Saklofske, et al., 2017) and are vulnerability factors for depression (Smith, Sherry, et al., 2016) but have not been compared to PSP. Additionally, the socially-prescribed perfectionism factor of the Hewitt & Flett MPS is more strongly and consistently associated with the subscales of PSP than the other trait perfectionism subfactors (Hewitt et al., 2003). Questions assessing for socially-prescribed perfectionism comprises 37% of the Hewitt & Flett MPS, so this subfactor of trait perfectionism may be affecting results comparing trait perfectionism to PSP.

The present study uses the BTPS to assess trait perfectionism more broadly. The benefits of the BTPS are that it combines several measures of trait perfectionism (see Table 1) that have yet to be compared alongside PSP. Additionally, socially-prescribed perfectionism (subfactor of trait perfectionism) comprises less than 11% of the questions on the BTPS, so the BTPS's overlap with PSP is smaller. A recent study assessing the BTPS's ability to predict depression and social anxiety found that the factors of the BTPS had similar or even stronger correlations with depression than the PSP subscales (Casale et al., 2019). These findings suggest that trait perfectionism may be the stronger predictor for depressive symptoms.

Insomnia

Trait perfectionism has been shown to be related to various sleep disturbances, such as insomnia (Stricker et al., 2022), but these relations differ across subfactors and time. For example, self-oriented perfectionism – a factor of trait perfectionism - predicts insomnia

symptoms 2 years later, while socially-prescribed perfectionism – a different factor of trait perfectionism - is a reliable predictor of insomnia symptoms over time (Azevedo et al., 2010). Additionally, concern over mistakes and doubts about actions are consistently related to insomnia symptoms over time (Lombardo et al., 2013; Brand et al., 2015) and are greater in insomnia patients compared to healthy controls (Vincent & Walker, 2000). There are no studies to date investigating PSP's potential influence on insomnia. Given the documented associations between trait perfectionism subscales and insomnia, the fact that insomnia is a common symptom of depression, and that trait perfectionism appears more strongly associated with depression than PSP, it is likely that trait perfectionism is more strongly related to insomnia symptoms. However, given the dearth of studies on insomnia and PSP, further investigation is needed.

Culture and Perfectionism

Culture is a major influence on a person's social psychology, so it is important to assess if and how perfectionism varies with cultural background (i.e., race/ethnicity, immigration history). Evidence points to important cultural differences in perfectionism. For example, among subfactors of trait perfectionism, Asian Americans report greater concern over mistakes and doubts about actions than do Caucasian Americans (Chang, 1998; Castro & Rice, 2003) and African Americans (Castro & Rice, 2003). Additionally, Asian Canadians report greater self-oriented and socially-prescribed perfectionism than European Canadians (Franche et al., 2012). When comparing Caucasian and African Americans, African Americans report greater other-oriented perfectionism (Nilsson et al., 1999; van Hanswijck de Jonge & Waller, 2003). As for PSP, Chinese had higher levels of PSP than Americans (Wang et al., 2019).

There are several possible explanations for cultural differences in perfectionism related to eastern vs. western ideologies, racial stereotyping, and discrimination. Asian communities tend to promote collectivist ideology where everyone reflects the community, so the individual being perfect would suggest the community is also perfect (DiBartolo & Rendón, 2012). This differs from individualist cultures, where perfection is only reflected on the individual and not the community they come from. This collectivist ideology may underlie Asians' high scores for both trait perfectionism and PSP relative to Caucasians, who come from a more individualist context, as Asians have the added pressure of representing their community. African American parents may encourage their children to strive for perfection to combat negative racial stereotypes and social inequality (Anyiwo et al., 2018), resulting in other-oriented perfectionism being prevalent among African American communities (DiBartolo & Rendón, 2012). However, these studies on the perspective of Western vs Eastern values (Franche et al., 2012) or Black vs White (Nilsson et al., 1999), fail to account for cultures that do not fit neatly into either category, such as Latinx. No cross-cultural studies have thus far investigated differences in levels of trait perfectionism or PSP between Latinx and any other group. This is a problem given that Latinx made up about 18% of the U.S. population in 2017 (Noe-Bustamante & Flores, 2019) and accounted for over 50% of US population growth from 2010 to 2020 (Treisman, 2021), meaning a large portion of the country is being neglected in perfectionism research. One study investigating perfectionism between Latinx and Asians found that while Asians report having both personal standards and perfectionistic families, more Latinx view themselves as having perfectionistic families but not having personal standards rather than both (Fung et al., 2022). Latinx culture has a central value of familism (Calzada et al., 2012) – priority to one's family – suggesting that perfectionism for Latinx may be more driven by familial expectations rather than their own standards for

perfectionism. Therefore, Latinx have more PSP tendencies and Asians, having personal standards, have more trait perfectionism tendencies.

Perfectionism, Mental Health, and Culture

Given the different associations between (1) perfectionism dimensions and mental health problems and (2) culture and perfectionism dimensions, it is important to consider how culture may differentially influence the associations between perfectionism dimensions and mental health. Smith and colleagues (2017) found that while five trait perfectionism subfactors were associated with depression and anxiety in Canadian students, in Chinese students only two of the five subfactors were associated with depression and four of the five subfactors with anxiety. Castro and Rice (2003) found that there was a strong correlation between concern over mistakes and doubts about actions and depression in Asian Americans, but only moderate correlations in African and Caucasian Americans. Additionally, perfectionism predicted depression only for Asian and Caucasian Americans. In Asian Americans, perfectionism accounted for 51% of variance in depression while, in Caucasian Americans, it accounted for 29% of the variance (Castro & Rice, 2003).

To our knowledge, there are only two cross-cultural studies on PSP and mental health. When comparing Chinese and American participants, Wang et al. (2019) found significant correlations between PSP and depression for both groups, and culture was not a significant moderator. However, the study only provided nationalities of the participants, so culture not being a moderator may be due to not investigating the races and ethnicities within the American group. Conversely, Goya Arce & Polo (2016) found that all three PSP subscales were associated with social anxiety, loneliness, and depression for Latinx, but only nondisclosure of imperfection was associated with social anxiety for African Americans. Additionally, the overall sample (both

Latinx and African Americans) had significant correlations between the PSP subscales and the three mental health issues, but depression and loneliness had weak correlations to perfectionistic self-promotion and all the correlations for the overall sample were lower than the correlations for Latinx students only. These cross-cultural studies, though limited, depict the various influences of culture on the relation between perfectionism and mental health.

Previous work has shown that mental health presentation varies by culture, typically focusing on somatic vs psychological symptoms of depression and anxiety (Ryder et al., 2008; Marques et al., 2011; Zhou et al., 2011). Therefore, we decided to investigate cognitive and somatic symptoms of depression and anxiety when looking at culture as a moderator to be more specific in variation of mental health presentation.

The Present Study

The goal of the present study was to better understand the associations between perfectionism, mental health, and culture in a sample of college students. We investigated the unique relations trait perfectionism and PSP had with anxiety, depression, and insomnia across four races/ethnicities: Asian, Black, Latinx, and White. Based on previous work, we predicted that trait perfectionism would be uniquely associated with depression and insomnia symptoms while PSP would be uniquely associated with anxiety symptoms. Additionally, we predicted higher levels of trait perfectionism among Asian participants and higher levels of PSP among Latinx participants. Finally, due to a lack of research in how culture may influence the relation between perfectionism and mental health, we examined whether race/ethnicity moderates the association between dimensions of perfectionism and cognitive and somatic symptoms of depression and anxiety.

Methods

Participants

The sample included 179 undergraduate students from Emory University between 18 - 23 years of age (mean = 19.13, SD = 1.32). Of the 179 participants approximately 68.0% were women, 27.0% were men, 4.5% were non-binary, and 0.5% chose not to say; 50 (27.9%) were Asian or Asian American, 32 (17.9%) were Black or African American, 47 (26.3%) were Hispanic or Latinx, and 50 (27.9%) were White. Participants were recruited through posters hung around Emory University, Emory's Department of Psychology listserv, various student organizations, and Emory's Psychology 110/111 Subject Pool. Students who were in PSYC 110/111 received one research credit for completion of the study. No other compensation was offered. This study was approved by the Emory University IRB.

Measures

Trait Perfectionism

The Big Three Perfectionism Scale (BTPS; Smith, Saklofske, Stoeber, & Sherry, 2016) is a 45 item self-report measure used to assess trait perfectionism. The instrument has three factors: 10 items assess for rigid perfectionism (e.g., Item 1: "I have a strong need to be perfect."), 18 items assess for self-critical perfectionism (e.g., Item 11: "When I make a mistake, I feel like a failure."), and 17 items assess for narcissistic perfectionism (e.g., Item 38: "I am entitled to special treatment."). There are also 10 subfactors split across the three factors: self-oriented perfectionism, self-worth contingencies, concerns over mistakes, doubts about action, self-criticism, socially-prescribed perfectionism, other-oriented perfectionism, hypercriticism, grandiosity, and entitlement. Possible responses ranged from 1 (strongly disagree) to 5 (strongly agree).

The BTPS has excellent reliability with the Cronbach's alpha coefficients ranges from α = .92 to α = .93 for the 3 factors and α = .83 to α = .90 for the 10 subfactors (Smith, Saklofske, Stoeber, & Sherry, 2016). The BTPS shows convergent validity with the the Frost Multidimensional Perfectionism Scale (Frost et al., 1990) and the Hewitt & Flett Multidimensional Perfectionism Scale (Hewitt & Flett, 1991), the two measures most widely used to measure trait perfectionism (Smith, Saklofske, Stoeber, & Sherry, 2016).

Perfectionistic Self-Presentation (PSP)

The Perfectionistic Self-Presentation Scale (PSPS; Hewitt & Flett, 2003) is a 27 item self-report measure that assesses perfectionistic self-presentation (PSP). There are three subscales: 10 items assess for perfectionistic self-promotion (e.g., Item 5: "I try always to present a picture of perfection."), 10 items assess for nondisplay of imperfection (e.g., Item 12: "I do not want people to see me do something unless I am very good at it."), and 7 items assess for nondisclosure of imperfection (e.g., Item 13: "I should always keep my problems to myself."). Possible responses ranged from 1 (Disagree Strongly) to 7 (Agree Strongly).

For reliability of the PSPS, the Cronbach's alpha coefficients ranges from α = .78 to α = .86 for the three subscales (Hewitt & Flett, 2003). For divergent validity, the PSPS is related to the Hewitt & Flett Multidimensional Perfectionism Scale (Hewitt & Flett, 1991) but not redundant ($p < .05$) and for convergent validity, the PSPS is related to peer/relative and clinician ratings of a participant's PSP tendencies ($p < .05$; Hewitt & Flett, 2003). Lack of redundancy between the PSPS and MPS demonstrates that PSP and trait perfectionism are distinct measures of perfectionism.

Depression Severity

The Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996) is a 21 item self-report measure that assesses depression symptom severity. There are two subscales: 12 items assess for cognitive-affective symptoms of depression (e.g., low mood, loss of interest, guilt, hopelessness) and 9 items assess for somatic symptoms of depression (e.g., agitation, poor sleep, appetite). Each question presents four statements that measure the severity of a specific symptom from not present (e.g., Item 3, Statement 1: "I do not feel like a failure.") to very much present (e.g., Item 3, Statement 4: "I feel I am a total failure as a person."). Additional statements were present to account for symptoms that can vary in presentation, such as changes in appetite being weight loss (Item 18, Statement 2a: "My appetite is somewhat less than usual.") or weight gain (Item 18, Statement 2b: "My appetite is somewhat greater than usual.").

For reliability of the BDI-II, the Cronbach's alpha coefficient is $\alpha = .93$ for the total score, $\alpha = .90$ for the cognitive-affective subscale, and $\alpha = .80$ for the somatic subscale (Beck, Steer, & Brown, 1996). The BDI-II shows strong convergent validity with several other well-established depression measures (e.g., Center for Epidemiological Studies of Depression Scale (CES-D), Zung Self-Rating Depression Scale, the Beck Hopelessness Scale, and the Revised Hamilton Psychiatric Rating Scale for Depression (Beck, Steer, & Brown, 1996)).

Anxiety Severity

The State-Trait Inventory for Cognitive and Somatic Anxiety (STICSA; Ree, French, MacLeod, & Locke, 2008) is a 21-item self-report measure that assesses for anxiety symptom severity and is composed of two subscales: 10 items assess for cognitive symptoms of anxiety (e.g., Item 13: "I think the worst will happen.") and 11 items assess for somatic symptoms of anxiety (e.g., Item 6: "I feel dizzy."). Possible responses range from 1 (Not at All) to 4 (Very Much So) in reference to how often, in general, the statement was true of the participants.

For split-half reliability of the STICSA, the Cronbach's alpha coefficients are α = .87 for the cognitive subscale of the trait scale and α = .84 for the somatic subscale of the trait scale (Ree, French, MacLeod, & Locke, 2008). For convergent and divergent validity, the STICSA-trait cognitive and somatic subscales correlate more with State-Trait Anxiety Inventory trait scores ($t(686) = 3.45$, $p < .01$) than BDI-II scores ($t(686) = 1.40$, $p < .08$), demonstrating the STICSA-trait cognitive and somatic subscales are more correlated with anxiety measures rather than depression measures (Ree, French, MacLeod, & Locke, 2008).

Insomnia Severity

The Insomnia Severity Index (ISI; Morin et al., 2011) contains 7 self-report items that assess insomnia severity. The first three items focus on the severity of sleep difficulties (e.g., Item 1: "Difficulty falling asleep.") and the last four items focus on impairment of sleep patterns (e.g., Item 4: "How SATISFIED/DISSATISFIED were you with your current sleep pattern?"). Participants respond on a scale from 0 to 4 for all items. Items 1 through 3 ranged from "None" to "Very Severe", item 4 ranged from "Very Satisfied" to "Very Dissatisfied", and items 5, 6, and 7 ranged from "Not at all Interfering"/"Not at all Noticeable"/"Not at all" to "Very Much Interfering"/"Very Much Noticeable"/"Very Much", respectively.

For reliability of the ISI, Cronbach's alpha coefficient is α = .90 and α = .91 for community and clinical samples, respectively (Morin et al., 2011). For convergent validity, the ISI has significant correlations with measures of fatigue, quality of life, anxiety, and depression ($p < .05$; Morin et al., 2011).

Race/Ethnicity

A Demographics Survey created for the study was used to assess the culture variable. Participant responses to the Race/Ethnicity question were categorized into four categories: Asian or Asian American, Black or African American, Hispanic or Latinx, and White.

Procedure

Participants were either provided a link through Emory's SONA system or scanned a QR code on a flyer to be sent to the study online, which was conducted through a Google Form. They were shown the Consent Form page, which explained the following: the purpose of the study; the procedures and total time for the study (10 to 15 minutes); the potential risk of slight discomfort; the benefit of one research credit for PSYC 110/111 if the participant was from Emory's Psychology 110/111 Subject Pool; that their responses remained anonymous before, during, and after the study; and that the participant would receive no financial compensation. If participants wanted to withdraw from the study, they had to select "I do not consent" on the Consent Form or exit out of the internet tab at any point of the study, as this did not collect their data.

If participants selected "I consent" on the Consent Form, they were sent to the first survey of the study. The surveys were provided in the following order: The BTPS, PSPS, BDI-II, STICSA, ISI, and Demographics Surveys. The first five surveys were labeled as "Survey _" from 1 to 5 to minimize participants altering their responses should they see the survey titles. Participants went through the surveys as separate sections on the Google Form, responding to each question according to each survey's instructions. After submitting the Demographics Survey, participants were sent to a debriefing page that explained the purpose of the study and reaffirmed that the participant's data remained anonymous and should they like to know the overall results of the study, they could contact the student researcher. Upon clicking "Submit" on

the page, the participant's responses were uploaded to a Google Sheet, which were later transferred to an Excel Sheet and deleted from Google Sheets to ensure the safety and confidentiality of participant responses.

Data Analysis

All data preparation and statistical analysis was done using R Studio, version 4.1.2. Prior to analyses, mean imputation procedures were used to handle missing data if participants missed one to three questions across all surveys. The next number of questions missed was 15, so participants who missed more than 15 questions were excluded from data analysis (n = 5). If participants selected "Other" for race/ethnicity, these responses were recoded to one of the four races/ethnicities being studied were it deemed appropriate (e.g., "African" recoded to "Black or African American"). If participants did not fit into one of the four racial/ethnic groups being studied (e.g., "Mixed" or "Hispanic and Asian") or did not answer the race/ethnicity question, then their data was also excluded (n = 14). Due to the racial/ethnic groups being unbalanced, the Asian and White groups were randomly sampled from to reduce their size to 50 respondents each for the final data analysis.

The relationships between mental health and perfectionism met assumptions for linear regression of linearity, normality and constant variance. Due to the high correlation between trait perfectionism and PSP ($r = 0.68$), we checked for issues with multicollinearity to ensure that the relationships between trait perfectionism and mental health symptoms were independent of PSP, and vice versa. The variance inflation factor (VIF) between the two perfectionism measures was 1.863, indicating that there is no issue of multicollinearity. This is consistent with previous research that found high correlations but no multicollinearity (Casale et al., 2019). All variables were standardized to allow for better comparison across measures. Statistical significance was based on $p < 0.05$ and all tests were two-tailed.

Statistical Tests

Multiple linear regression was used to examine whether different dimensions of perfectionism were related to mental health presentation. Models for trait perfectionism and PSP were run separately for each mental health variable (i.e., depression, anxiety, insomnia). AIC stepwise tests were conducted to determine the best model fit of the 10 subfactors of the BTPS. To test whether perfectionism dimensions differed across cultures ANOVA procedures were used. Post-hoc Tukey tests were run for significant ANOVA tests to determine which racial/ethnic groups differed from each other. Finally, multiple regression was used to test whether culture moderated the association between dimensions and perfectionism and mental health presentation. Main effect and interaction terms were included in all models. Race was dummy coded with White entered as the reference group. If an interaction was significant, differences in simple slopes were calculated to determine the specific effect of the interaction.

Results

Means and standard deviations of each measure's scores are provided by race/ethnicity and for the overall sample in Table 2. Scores are standardized starting from Table 3.

Perfectionism and Mental Health

Bi-variate correlations between perfectionism and mental health measures are presented in Table 3. Depression symptoms were positively correlated with both trait perfectionism (r = .40, $p < .001$) and PSP (r = .39, $p < .001$). Anxiety symptoms were also positively correlated with trait perfectionism (r = .52, $p < .001$) and PSP (r = .46, $p < .001$). Insomnia symptoms had a weaker but significant positive correlation with both trait perfectionism (r = .23, $p < .01$) and PSP (r = .26, $p < .001$). All of the trait perfectionism factors and subfactors – with the exception

of the narcissistic perfectionism factor – and the PSP subscales were correlated with depression and anxiety (see Table 3).

Trait perfectionism and PSP were both predictors of depression (β_{TRAIT} = .25, β_{PSP} = .23, $p < .001$) and anxiety (β_{TRAIT} = .39, β_{PSP} = .20, $p < .001$), but not insomnia symptoms (β_{TRAIT} = .10, β_{PSP} = .19, $p > .05$: Table 4). Following the non-significance of trait perfectionism and PSP as predictors of insomnia, partial correlation tests controlling for depression and anxiety were conducted in the relationships between perfectionism and insomnia. The correlations between trait perfectionism and insomnia (r = -.01, t = -.13, p = .89) and PSP and insomnia (r = .05, t = .65, p = .52) were no longer significant, which may explain why neither dimension of perfectionism was a predictor for insomnia symptoms.

Regression analyses for the factors and subfactors of trait perfectionism and subscales of PSP with depression, anxiety, and insomnia symptoms are presented in Tables 5 through 7. For trait perfectionism, the self-critical perfectionism factor was associated with all three mental health symptoms (β = .62, $p < .001$ for depression; β = .53, $p < .001$ for anxiety; and β = .26, $p < .001$ for insomnia); the rigid perfectionism and narcissistic perfectionism factors were not associated with any mental health symptoms. The best Akaike information criterion (AIC) models for the subfactors varied for each mental health symptom. The socially-prescribed perfectionism subfactor was a significant predictor for all three mental health symptoms (β = .14, $p < .05$ for depression; β = .18, $p < .01$ for anxiety; and β = .21, $p < .01$ for insomnia). Interestingly, higher other-oriented perfectionism subfactor predicted lower depression symptoms (β = -.38, $p < .01$). For PSP subscales, nondisplay of imperfection predicted depression (β = .25, $p < .01$) and anxiety symptoms (β = .29, $p < .01$), while nondisclosure of

imperfection predicted all three mental health symptoms (β = .28, $p < .001$ for depression; β = .18, $p < .001$ for insomnia; and β = .29, $p < .05$ for anxiety).

Perfectionism and Culture

ANOVA and post-hoc Tukey test results are provided in Table 8. There were significant group differences in trait perfectionism, specifically in one of its factors and three of its subfactors. Asian students had higher scores than White students in overall trait perfectionism ($F(3, 175) = 2.851$, $p < .05$), the self-critical perfectionism factor ($F(3, 175) = 2.828$, $p < .05$) and the subfactors of concern over mistakes ($F(3, 175) = 3.074$, $p < .05$) and doubts about actions ($F(3, 175) = 2.758$, $p < .05$). Meanwhile, Black students had higher scores than White students in the socially-prescribed perfectionism subfactor ($F(3, 175) = 2.894$, $p < .05$).

There were no significant group differences in overall PSP. However, when looking at the PSP subscales, Latinx students had higher scores of nondisplay of imperfection than White students ($F(3, 175) = 3.03$, $p < .05$) and Black students had higher scores of nondisclosure of imperfection than White students ($F(3, 175) = 3.084$, $p < .05$).

Perfectionism, Mental Health, and Culture

Moderation analyses testing whether culture moderates the association between perfectionism dimensions and somatic vs. cognitive mental health presentations are presented in Tables 9 through 14. Race/ethnicity moderated the relationship between trait perfectionism and somatic symptoms of depression (β = -.39, $p < .05$; see Figure 1). Specifically, the association between trait perfectionism and somatic symptoms of depression was stronger in White students compared to Latinx students. Race/ethnicity also moderated the relationship between PSP and cognitive symptoms of anxiety (β = -.47, $p < .05$; see Figure 2). The association between PSP and cognitive anxiety symptoms was stronger in Black students than in Asian students. While no

other interactions were found to be statistically significant, there was one that approached significance (β = -.34, p = .0572; see Figure 2): White students had a stronger association between PSP and cognitive anxiety symptoms and Asian students.

Discussion

The current study investigated the relations multidimensional perfectionism has with anxiety, depression, and insomnia and across four races/ethnicities: Asian, Black, Latinx, and White. Additionally, we sought to understand the role of culture in the relation between perfectionism and mental health symptoms. Understanding how perfectionism, mental health presentation, and culture are all related may allow for more specific treatment of mental health issues in college students.

Major Findings

Our hypothesis that trait perfectionism would be uniquely associated with depression and insomnia and that PSP would be uniquely associated with anxiety, was not supported. Both trait perfectionism and PSP were associated with depression and anxiety, but not insomnia.

Our second hypothesis that Asian students would have higher scores of trait perfectionism and Latinx students would have higher scores of PSP, was partially supported. Asian students had higher scores for overall trait perfectionism, specifically the self-critical perfectionism factor and its subfactors of concern over mistakes and doubts about actions, than White students. Black students had higher scores of socially-prescribed perfectionism (subfactor of trait perfectionism) than White students. While there were no significant group differences in overall PSP score, there were significant differences for the subscales of PSP. Latinx students had higher levels of nondisplay of imperfection than White students; Black students had higher levels of nondisclosure of imperfection than White students.

Finally, we found evidence that culture moderates the association between dimensions of perfectionism and cognitive and somatic symptoms of depression and anxiety. White students had a stronger relationship between trait perfectionism and somatic symptoms of depression than Latinx students, and Black students had a much stronger relationship between PSP and cognitive symptoms of anxiety than Asian students. There was a third nearly significant interaction, in which White students had a stronger association between PSP and cognitive symptoms of anxiety than Asian students.

Implications

Perfectionism and Mental Health

Our results are inconsistent with some previous studies that found that only PSP has unique associations with depression and anxiety when directly comparing PSP to trait perfectionism (Hewitt et al., 2003; Besser et al., 2010; Cowie et al., 2018). However, the results support other literature showing that trait perfectionism is associated with the two (Di Schiena et al., 2012; Smith, Vidovic, et al., 2017). This discrepancy is likely due to the BTPS more broadly assessing for trait perfectionism by including factors and subfactors from various measures of perfectionism compared to the Hewitt & Flett MPS and can therefore better capture the relationship between trait perfectionism and depression and anxiety. Insomnia was not a predictor of anxiety or depression. However, given that insomnia is a common symptom of depression and may accompany anxiety, sleep problems may be better captured by those variables. While both trait perfectionism and PSP are associated with anxiety and depression symptoms, perfection-targeted interventions for college students should account for whether the student cares more about appearing perfect or being perfect, as this difference may require different intervention approaches.

Perfectionism across Cultures

As for perfectionism and culture, the results are most consistent with previous research showing that Asian students report higher scores of trait perfectionism than White students, specifically the self-critical perfectionism subfactors of concern over mistakes and doubts about actions (Chang, 1998; Castro & Rice, 2003). In Asian culture, education is viewed as a way to gain upward mobility and achieve success (Sue & Okazaki, 1990), and success of an individual is perceived as success of the community due to the collectivist ideology (DiBartolo & Rendón, 2012). Because of this pressure, Asian students may be more critical of themselves because it reflects wanting to improve, which is also valued in Asian culture (Rice et al., 2019; Suh et al., 2022). This would result in the need to be perfect being higher in Asian students, with specific tendencies to be concerned over mistakes and doubting oneself as forms of self-criticism.

Both Black and Latinx students had higher levels of PSP subscales compared to White students. While we did not find higher scores of other-oriented perfectionism (subfactor of trait perfectionism) in Black students as other studies have (Nilsson et al., 1999; van Hanswijck de Jonge & Waller, 2003), Black students had higher scores of socially-prescribed perfectionism (subfactor of trait perfectionism) compared to White students. This finding for high scores of socially-prescribed perfectionism among Black students may be based on the same mechanism that drives high scores of other-oriented perfectionism. Black people must live with racial stereotyping and inequality (Anyiwo et al., 2018) so Black students may pursue perfection by society's standards to combat discrimination. It could be that the driver for perfection in Black students is wanting oneself to be perfect by societal standards (socially-prescribed perfectionism) and if they see positive results from that (i.e., reduced discrimination), then they may want perfection from others in the Black community (other-oriented perfectionism) so everyone can

benefit from the positive results. In other words, other-oriented perfectionism is a consequence of socially-prescribed perfectionism among Black students. Black students also had higher scores of nondisclosure of imperfection (subscale of PSP), which is consistent with previous work (Goya Arce & Polo, 2016), and may also stem from resisting discrimination. Historically, stereotypes of being uneducated and lazy have been used as "justification" for discrimination in the education system against Black people (Taylor et al., 2019). It is more difficult to notice someone is struggling from their behavior compared to them outright saying they are struggling, so Black students may avoid speaking of their imperfections as to not be immediately reduced to the negative stereotypes.

On the other hand, Latinx students had higher scores of nondisplay of imperfection (subscale of PSP) than White students. Latinx culture is collectivist with an emphasis on honor, respect, and pride (Triandis et al., 1988; Aslani et al., 2013). This conflicts with the fact that most Latinx are of a low socioeconomic status both in their home countries and in the U.S. (Graham & Felton, 2005), and since wealth is often used as a measurement of honor and respect in Latin America, Latinx may view their economic disparities as a threat to their appearance to others and defend their honor through extreme behaviors such as altruism and self-sacrifice (Aslani et al., 2013). As such, Latinx students may avoid showing imperfections due to cultural pressure to behave in a way that will provide them with honor they believe they should have.

Culture, Perfectionism and Mental Health

Finally, culture moderating the relationship between perfectionism and mental health is consistent with Goel et al.'s (2019) study where the relationship between parent-oriented perfectionism and eating disorder symptoms varied across racial/ethnic groups. This is the only other study, to our knowledge, that compared perfectionism across the four racial/ethnic groups.

In the relationship between trait perfectionism and somatic symptoms of depression, while Asian, Black, and White Students had moderate to strong associations, Latinx students had a weak association. This is interesting as Latinx had a moderate association in all other relationships between trait perfectionism and depression and anxiety. Latinx culture has a strong stigma against mental health issues and seeking help as Latinx would rather hide symptoms, but if Latinx must speak of their issues, then it is acceptable to talk to family or someone in the church (Eno Louden et al., 2022; Escobar-Galvez et al., 2023). Cognitive symptoms may therefore be more acceptable to express than somatic symptoms, since somatic symptoms are physical manifestations of mental illness that others can see and are counterintuitive to gaining pride and respect (Aslani et al., 2013). Considering the relationship between trait perfectionism had a moderate association with somatic symptoms of anxiety but a weak association with somatic symptoms of depression, social anxiety has been shown to be less stigmatized compared to depression (Anderson et al., 2015; Lynch et al., 2020); therefore symptoms of anxiety may be more acceptable to show in Latinx culture compared to symptoms of depression. As a result, the weak relationship between trait perfectionism and somatic symptoms of depression in Latinx may be due to cultural preferences in expressing mental health issues.

As for the relationship between PSP and cognitive anxiety symptoms, Black, Latinx, and White students had moderate to strong associations between PSP and anxiety symptoms, but Asian students had weak to very weak relationships. Previous research has shown that PSP had no relation with self-esteem in Chinese participants (Wang et al., 2019) but trait perfectionism is a consistent predictor and vulnerability factor of poor mental health outcomes (Nilsson et al., 2008; Yoon & Lau, 2008; Chang, 2013). It may be then that PSP is not as detrimental as trait perfectionism is for Asian students, as East Asian Americans do not experience cultural pressure

to outwardly express themselves (Kim & Sherman, 2007) but still feel the need to be perfect for the sake of their community (DiBartolo & Rendón, 2012). Additionally, considering the interaction between Black and Asian students was significant but the interaction between White and Asian students was not quite significant, this difference implies that the need to look perfect is stronger in Black students than White students. It has been shown that Black students face poorer mental health outcomes due to minority status stress and imposter syndrome (McClain et al., 2016), so needing to appear perfect to combat racial discrimination may compound the already existing mental health issues and result in Black students have a stronger association between PSP and mental health than White students. Overall, these results make it clear that culture should be accounted for when investigating the relationship between perfectionism and mental health issues.

Limitations

There are several limitations that should be noted. First, the sample size was small, which makes it difficult to assess for moderation. Some participants were recruited from cultural organizations around Emory (28%), but recruitment from these organizations was difficult as the only form of compensation that could be offered to students was research credit for PSYC 110/111. As a result, most of our recruitment was dependent on the Psychology Department Subject Pool of 400 to 600 students. PSYC 110/111 students are not expected to have their research credits completed until the end of the semester, so many may have seen the study being advertised but did not sign up, expecting other opportunities for research credit to appear over the semester. About 257 students participated, but only 179 responses were utilized in data analysis due to incomplete responses, students identifying as mixed, and needing to sample from the Asian and White student populations to balance the groups. Additionally, the racial/ethnic

demographics are skewed as of Fall 2022: out of the 8,155 undergraduate students, 32.7% are White, 24.3% are Asian, 11.1% are Hispanic, and 8.5% are Black (Emory University, 2022). Because of this, it was difficult to recruit from the Latinx and Black student populations, resulting in the dataset being unbalanced when it came to Black students in particular.

Second, the data was cross-sectional, so conclusions about risk factors or causality cannot be drawn. While our models assume perfectionism predicts anxiety and depression, it is possible that these mental health symptoms increase perfectionism. For example, self-critical thinking, a common hallmark of depressive disorders, may increase risk for perfectionistic thinking. Smith and colleagues (2021) found that the relationship between trait perfectionism and depression is bidirectional, which may also be the case for PSP and anxiety. Therefore, the relationship between perfectionism and mental health may be a positive feedback loop of increasing perfectionistic standards and worsening mental health issues.

Future Directions

Given the higher levels of PSP-related tendencies in Black and Latinx students compared to White students in this study, future research should prioritize diversifying their sample to include Black and Latinx participants to improve generalizability and to identify important group differences. Black and Latinx students tend to make up a small portion of top universities despite being the largest minorities by population in the U.S. (US Census Bureau, 2020), which means they are underrepresented in mental health research of college students. Considering this study found significant differences between Black and Latinx students with Asian and White students, it is possible that cultural differences are being missed in current research on perfectionism.

Future research in comparing trait perfectionism and PSP should consider implementing longitudinal designs to determine which are risk factors for depression, anxiety, and insomnia, as

the present research could only assess cross-sectional associations. Longitudinal studies would provide more insight into how different aspects of perfectionism may influence mental health over time.

Finally, future studies should use clinical samples to determine if perfectionism-targeted interventions are effective in relieving mental health issues. While our study found associations with sub-threshold mental health symptoms in a general sample, a clinical sample would confirm whether trait perfectionism and PSP have differential associations at clinical levels. This would help determine if targeting the specific manifestations of perfectionism may be more effective in relieving mental health symptoms vs targeting overall perfectionistic tendencies. These studies can also implement the cultural differences found in the present study to see if perfectionism interventions can be generalized across all groups or are more efficient when the cultural background of the patient is accounted for.

Conclusions

This study illustrates the importance of considering how different dimensions of perfection are related to mental health and attending to cultural differences. Perfectionism-targeted intervention can not only focus on the specific manifestation of perfectionism, but also be tailored to the cultural background of the participant to make it more effective in reducing symptoms of depression, anxiety, and insomnia. Overall, the results affirm the relevance of perfectionism to the mental health of college students value and underscore the importance of considering culture differences.

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Table 1

BTPS Factors and Subfactors and the Perfectionism Measures/Studies They Were Adapted From.

Factors	Subfactors	Definitions	Measures/Studies Adapted From
Rigid Perfectionism			
	Self-Oriented Perfectionism	Striving for perfection is important	Hewitt & Flett MPS (Hewitt & Flett, 1991)
	Self-Worth Contingencies	Self-worth is based on perfection	Contingent Self-Worth Scale (DiBartolo et al., 2004)
Self-Critical Perfectionism			Follows Dunkley et al.'s (2003) model of self-critical perfectionism
	Concern Over Mistakes	Overly negative reaction to failures	Frost MPS (Frost et al., 1990)
	Doubts About Actions	Uncertainties about performance	Frost MPS (Frost et al., 1990)
	Self-Criticism	Become self-critical when oneself does not meet personal standards	Self-Critical Perfectionism (Dunkley et al., 2003)
	Socially-Prescribed Perfectionism	Thinking others have perfectionistic expectations for oneself	Hewitt & Flett MPS (Hewitt & Flett, 1991)
Narcissistic Perfectionism			Follows Nealis et al.'s (2015) model of narcissistic perfectionism
	Other-Oriented Perfectionism	Holding perfectionistic expectations for others	Hewitt & Flett MPS (Hewitt & Flett, 1991)
	Hypercriticism	Harsh evaluation of others when they are imperfect	High Standards for Others scale of the Perfectionism Inventory (Hill et al., 2004)
	Entitlement	Oneself is entitled to special treatment	Psychological Entitlement Scale (Campbell et al., 2004)
	Grandiosity	Viewing oneself as perfect or superior to others	Narcissism Subscale of the Dirty Dozen (Jonason & Webster, 2010)

Note. MPS = Multidimensional Perfectionism Scale. Definitions come from factor analysis of BTPS (Smith, Saklofske, et al., 2016).

Table 2

Descriptive Statistics of Scores on Perfectionism and Mental Health Symptoms Measures.

	BTPS Mean (SD)	PSPS Mean (SD)	BDI-II Mean (SD)	STICSA Mean (SD)	ISI Mean (SD)
Asian or Asian American (n = 50)	124.4 (23.22)	119.5 (20.63)	12.62 (10.45)	39.97 (11.75)	9.41 (5.07)
Black or African American (n = 32)	114.5 (30.95)	115.9 (27.02)	15.24 (12.81)	40.79 (12.55)	10.78 (6.57)
Hispanic or Latinx (n = 47)	114.7 (25.16)	119.3 (21.89)	14.43 (8.76)	42.26 (11.95)	10.28 (5.13)
White (n = 50)	109.7 (24.94)	108.2 (24.71)	11.06 (9.68)	38.64 (12.37)	9.14 (5.29)
Overall (n = 179)	116.0 (26.11)	115.7 (23.65)	13.13 (10.33)	40.34 (12.10)	9.81 (5.43)

Note. Possible ranges for the scores are as follows: BTPS 45-225, PSPS 27-189, BDI-II 0-63, STICSA 21-84, ISI 0-28. BTPS = Big Three Perfectionism Scale; PSPS = Perfectionistic Self-Presentation Scale; BDI-II = Beck Depression Inventory-II; STICSA = State-Trait Inventory for Cognitive and Somatic Anxiety; ISI = Insomnia Severity Index.

Table 3

Correlations between Perfectionism and Mental Health Symptoms.

	BDI-II	STISCA	ISI
Trait Perfectionism	.40***	.52***	.23**
Rigid Perfectionism	.24**	.39***	.16*
Self-Oriented Perfectionism	.20**	.32***	.12
Self-Worth Contingencies	.26***	.41***	.18*
Self-Critical Perfectionism	.57***	.59***	.27***
Concern Over Mistakes	.46***	.42***	.23**
Doubts About Actions	.53***	.55***	.17*
Self-Criticism	.48***	.52***	.24**
Socially Prescribed Perfectionism	.34***	.38***	.26***
Narcissistic Perfectionism	-.05	.10	.04
Other-Oriented Perfectionism	-.02	.13	.03
Hypercriticism	.00	.11	.05
Entitlement	-.04	.08	.00
Grandiosity	-.12	.02	.03
Perfectionistic-Self Presentation	.39***	.46***	.26***
Perfectionistic-Self Promotion	.27***	.37***	.15*
Nondisplay of Imperfection	.35***	.42***	.22**
Nondisclosure of Imperfection	.36***	.35***	.31***

Note. Overall dimension of perfectionism is bolded for clarity. Subfactors of the trait perfectionism are italicized to distinguish them from the factors of trait perfectionism. BDI-II = Beck Depression Inventory-II; STICSA = State-Trait Inventory for Cognitive and Somatic Anxiety; ISI = Insomnia Severity Index. *$p < .05$, **$p < .01$, ***$p < .001$

Table 4

Multiple Regression Analyses of Perfectionism Predicting Depression, Anxiety, and Insomnia Symptoms.

Symptom and Predictor	R^2	*F*	*df*	β	*SE*
Depression Symptoms	.19	20.93***	2, 176		
Trait Perfectionism				.25***	.09
Perfectionistic-Self Presentation				.23***	.09
Anxiety Symptoms	.30	36.92***	2, 176		
Trait Perfectionism				.39***	.09
Perfectionistic-Self Presentation				.20***	.09
Insomnia Symptoms	.07	7.038**	2, 176		
Trait Perfectionism				.10	.02
Perfectionistic Self-Presentation				.19•	.02

Note. •$p < .06$, **$p < .01$, ***$p < .001$.

Table 5

Multiple Regression Analyses of Perfectionism Predicting Depression Symptoms.

	R^2	*F*	*df*	β	*SE*
Trait Perfectionism Subscales	.35	30.89**	3, 175		
Rigid Perfectionism				-.05	.07
Self-Critical Perfectionism				.62***	.07
Narcissistic Perfectionism				-.10	.06
Subfactors Model	.35	23.56***	4, 174		
Doubts About Actions				.34***	.08
Self-Criticism				.25**	.08
Socially Prescribed Perfectionism				.14*	.07
Other-Oriented Perfectionism				-.12	.06
Perfectionistic-Self Presentation Subscales	.19	13.48***	3, 175		
Perfectionistic-Self Promotion				-.02	.09
Nondisplay of Imperfection				.25**	.09
Nondisclosure of Imperfection				.28***	.08

Note. Model of perfectionism is bolded for clarity. The subfactors model was based on AIC stepwise modeling, so the model in the table does not include subfactors that were not significant predictors of depression symptoms. *$p < .05$, **$p < .01$, ***$p < .001$

Table 6

Multiple Regression Analyses of Perfectionism Predicting Anxiety Symptoms.

	R^2	*F*	*df*	β	*SE*
Trait Perfectionism Subscales	.35	31.62**	3, 175		
Rigid Perfectionism				.09	.07
Self-Critical Perfectionism				.53***	.07
Narcissistic Perfectionism				.02	.06
Subfactors Model	.39	36.95***	3, 175		
Self-Worth Contingencies				.24***	.06
Doubts About Actions				.41***	.07
Socially Prescribed Perfectionism				.18**	.06
Perfectionistic-Self Presentation Subscales	.22	16.6***	3, 175		
Perfectionistic-Self Promotion				.10	.09
Nondisplay of Imperfection				.29**	.09
Nondisclosure of Imperfection				.18*	.08

Note. Model of perfectionism is bolded for clarity. The subfactors model was based on AIC stepwise modeling, so the model in the table does not include subfactors that were not significant predictors of anxiety symptoms. *$p < .05$, **$p < .01$, ***$p < .001$

Table 7

Multiple Regression Analyses of Perfectionism Predicting Insomnia Symptoms.

	R^2	*F*	*df*	β	*SE*
Trait Perfectionism Subscales	.08	4.778**	3, 175		
Rigid Perfectionism				.02	.09
Self-Critical Perfectionism				.26**	.09
Narcissistic Perfectionism				.00	.08
Subfactors Model	.09	8.866***	2, 176		
Concern Over Mistakes				.17*	.07
Socially Prescribed Perfectionism				.21**	.07
Perfectionistic-Self Presentation Subscales	.11	7.079***	3, 175		
Perfectionistic-Self Promotion				-.08	.10
Nondisplay of Imperfection				.15	.09
Nondisclosure of Imperfection				.29***	.08

Note. Model of perfectionism is bolded for clarity. The subfactors model was based on AIC stepwise modeling, so the model in the table does not include subfactors that were not significant predictors of insomnia symptoms. *$p < .05$, **$p < .01$, ***$p < .001$

Table 8

Univariate Analyses of Scores on the Perfectionism Measures and Subscales across Race/Ethnicity.

	Asian or Asian American M (SD)	Black or African American M (SD)	Hispanic or Latinx M (SD)	White M (SD)	*F*	η^2
Trait Perfectionism	**.32 (.89)**	-.06 (1.19)	-.05 (.96)	**-.24 (.96)**	2.851*	.05
Rigid Perfectionism	.21 (.80)	-.22 (1.16)	-.01 (.97)	-.06 (1.08)	1.378	.02
Self-Critical Perfectionism	**.26 (.85)**	.10 (1.14)	-.02 (1.08)	**-.30 (.92)**	2.828*	.05
Concern Over Mistakes	**.35 (.75)**	-.12 (1.11)	-.06 (1.08)	**-.22 (1.01)**	3.074*	.05
Doubts About Actions	**.19 (.91)**	.23 (1.12)	-.03 (1.09)	**-.30 (.85)**	2.758*	.05
Socially-Prescribed Perfectionism	.01 (1.01)	**.26 (1.13)**	.15 (1.04)	**-.32 (.80)**	2.894*	.05
Narcissistic Perfectionism	.22 (1.08)	-.08 (1.14)	-.08 (.89)	-.15 (.92)	1.155	.02
Perfectionistic-Self Presentation	.16 (.87)	.01 (1.14)	.15 (.93)	-.31 (1.04)	2.516•	.04
Perfectionistic-Self Promotion	.18 (.87)	-.06 (.98)	.01 (1.05)	-.16 (1.09)	1.028	.02
Nondisplay of Imperfection	.12 (.94)	-.10 (1.23)	**.26 (.89)**	**-.30 (.93)**	3.03*	.05
Nondisclosure of Imperfection	.08 (.94)	**.26 (1.03)**	.10 (.85)	**-.34 (1.10)**	3.084*	.05

Note. Overall dimensions of perfectionism are bolded for clarity. Scores that are bolded in the same row indicate the groups significantly differ using post-hoc Tukey tests ($p < .05$). Subfactors of trait perfectionism were not included if they were not significant. •$p < .06$, *$p < .05$.

Table 9

Summary of Moderation Analysis for Total Depression Symptoms

Model		Coefficient β	*SE*	**z**	**p**
Trait Perfectionism					
Depression	Constant	-.08	.13	-.59	.55
	TP Score	.55	.13	4.10	.00***
	Asian	-.10	.19	-.54	.59
	Black	.32	.20	1.58	.11
	Hispanic	.23	.18	1.24	.21
	TP x Asian	-.18	.20	-.91	.36
	TP x Black	-.15	.19	-.81	.42
	TP x Hispanic	-.18	.19	-.94	.35
Difference in Simple	Asian v Black	-.03	.20	-.13	.90
Slopes	Asian v Hispanic	.00	.20	.00	1.00
	Black v Hispanic	.03	.19	.13	.90
PSP					
Depression	Constant	-.08	.13	-.62	.54
	PSP Score	.40	.12	3.26	.00**
	Asian	-.02	.19	-.11	.92
	Black	.30	.21	1.44	.15
	Hispanic	.16	.19	.84	.40
	PSP x Asian	-.15	.19	-.76	.45
	PSP x Black	.12	.19	.62	.54
	PSP x Hispanic	-.02	.19	-.12	.91
Difference in Simple	Asian v Black	-.26	.21	-1.28	.20
Slopes	Asian v Hispanic	-.12	.21	-.60	.55
	Black v Hispanic	.14	.20	.69	.49

Note. For the first models of trait perfectionism and PSP, White students were set as the reference group for data analysis. **$p < .01$, ***$p < .001$.

Table 10

Summary of Moderation Analysis for Cognitive Depression Symptoms

Model		Coefficient β	*SE*	**z**	**p**
Trait Perfectionism					
Cognitive Depression	Constant	-.10	.13	-.77	.44
	TP Score	.47	.14	3.47	.00**
	Asian	.05	.19	.26	.80
	Black	.32	.21	1.52	.13
	Hispanic	.17	.19	.91	.36
	TP x Asian	-.16	.20	-.80	.42
	TP x Black	-.12	.19	-.64	.52
	TP x Hispanic	-.01	.19	-.07	.94
Difference in Simple Slopes	Asian v Black	-.04	.20	-.18	.86
	Asian v Hispanic	-.15	.20	-.72	.47
	Black v Hispanic	-.11	.20	-.57	.57
PSP					
Cognitive Depression	Constant	-.11	.13	-.78	.44
	PSP Score	.35	.12	2.83	.01**
	Asian	.10	.19	.52	.60
	Black	.29	.21	1.40	.16
	Hispanic	.09	.19	.48	.63
	PSP x Asian	-.02	.19	-.11	.92
	PSP x Black	.15	.19	.81	.42
	PSP x Hispanic	.04	.19	.23	.82
Difference in Simple Slopes	Asian v Black	-.17	.21	-.84	.40
	Asian v Hispanic	-.07	.21	-.31	.76
	Black v Hispanic	.11	.20	.54	.59

Note. For the first models of trait perfectionism and PSP, White students were set as the reference group for data analysis. ***p* < .01.

Table 11

Summary of Moderation Analysis for Somatic Depression Symptoms

Model		Coefficient β	*SE*	**z**	**p**
Trait Perfectionism					
Somatic Depression	Constant	-.03	.13	-.20	.84
	TP Score	.56	.13	4.18	.00***
	Asian	-.31	.19	-1.64	.10
	Black	.27	.21	1.34	.18
	Hispanic	.27	.18	1.48	.14
	TP x Asian	-.17	.20	-.89	.38
	TP x Black	-.17	.19	-.89	.38
	TP x Hispanic	-.39	.19	-.204	.04*
Difference in Simple	Asian v Black	-.01	.20	-.03	.98
Slopes	Asian v Hispanic	.22	.20	1.09	.27
	Black v Hispanic	.22	.19	1.15	.25
PSP					
Somatic Depression	Constant	-.03	.14	-.25	.80
	PSP Score	.40	.13	3.22	.00**
	Asian	-.19	.19	-1.01	.31
	Black	.25	.21	1.21	.23
	Hispanic	.23	.19	1.19	.23
	PSP x Asian	-.31	.20	-1.57	.12
	PSP x Black	.04	.19	.22	.83
	PSP x Hispanic	-.12	.19	-.61	.54
Difference in Simple	Asian v Black	-.35	.21	-1.67	.10
Slopes	Asian v Hispanic	-.19	.21	-.90	.37
	Black v Hispanic	.16	.21	.77	.44

Note. For the first models of trait perfectionism and PSP, White students were set as the reference group for data analysis. *$p < .05$, **$p < .01$, ***$p < .001$.

Table 12

Summary of Moderation Analysis for Overall Anxiety Symptoms

		Coefficient			
Model		β	*SE*	**z**	**p**
Trait Perfectionism					
Anxiety	Constant	.01	.12	.07	.95
	TP Score	.62	.13	4.96	.00***
	Asian	-.19	.18	-1.07	.28
	Black	.06	.19	.31	.76
	Hispanic	.18	.17	1.02	.31
	TP x Asian	-.16	.18	-.88	.38
	TP x Black	-.07	.18	-.37	.71
	TP x Hispanic	-.08	.18	-.46	.65
Difference in Simple	Asian v Black	-.10	.18	-.51	.61
Slopes	Asian v Hispanic	-.08	.19	-.43	.67
	Black v Hispanic	.02	.18	.09	.93
PSP					
Anxiety	Constant	.02	.13	.16	.87
	PSP Score	.51	.12	4.32	.00***
	Asian	-.09	.18	-.49	.62
	Black	.01	.20	.05	.96
	Hispanic	.07	.18	.36	.72
	PSP x Asian	-.29	.19	-1.58	.11
	PSP x Black	.11	.18	.58	.56
	PSP x Hispanic	-.04	.18	.23	.82
Difference in Simple	Asian v Black	-.40	.20	-2.02	.04*
Slopes	Asian v Hispanic	-.25	.20	-1.27	.21
	Black v Hispanic	.15	.20	.75	.45

Note. For the first models of trait perfectionism and PSP, White students were set as the reference group for data analysis. *$p < .05$, ***$p < .001$.

Table 13

Summary of Moderation Analysis for Cognitive Anxiety Symptoms

		Coefficient			
Model		β	*SE*	**z**	**p**
Trait Perfectionism					
Cognitive Anxiety	Constant	-.01	.12	-.10	.92
	TP Score	.69	.12	5.61	.00***
	Asian	-.23	.17	-1.32	.19
	Black	.16	.19	.87	.38
	Hispanic	.25	.17	1.48	.14
	TP x Asian	-.26	.18	-1.42	.16
	TP x Black	-.11	.17	-.63	.53
	TP x Hispanic	-.16	.17	-.90	.37
Difference in Simple	Asian v Black	-.15	.18	-.81	.42
Slopes	Asian v Hispanic	-.10	.18	-.54	.59
	Black v Hispanic	.05	.18	.27	.79
PSP					
Cognitive Anxiety	Constant	.00	.12	.01	.99
	PSP Score	.56	.12	4.93	.00***
	Asian	-.14	.17	-.79	.43
	Black	.11	.19	.57	.57
	Hispanic	.14	.18	.77	.44
	PSP x Asian	-.34	.18	-1.91	.06•
	PSP x Black	.13	.18	.74	.46
	PSP x Hispanic	-.08	.18	.44	.66
Difference in Simple	Asian v Black	-.47	.19	-2.47	.01*
Slopes	Asian v Hispanic	-.26	.19	1.37	.17
	Black v Hispanic	.21	.19	1.10	.27

Note. For the first models of trait perfectionism and PSP, White students were set as the reference group for data analysis. •$p < .06$, *$p < .05$, ***$p < .001$.

Table 14

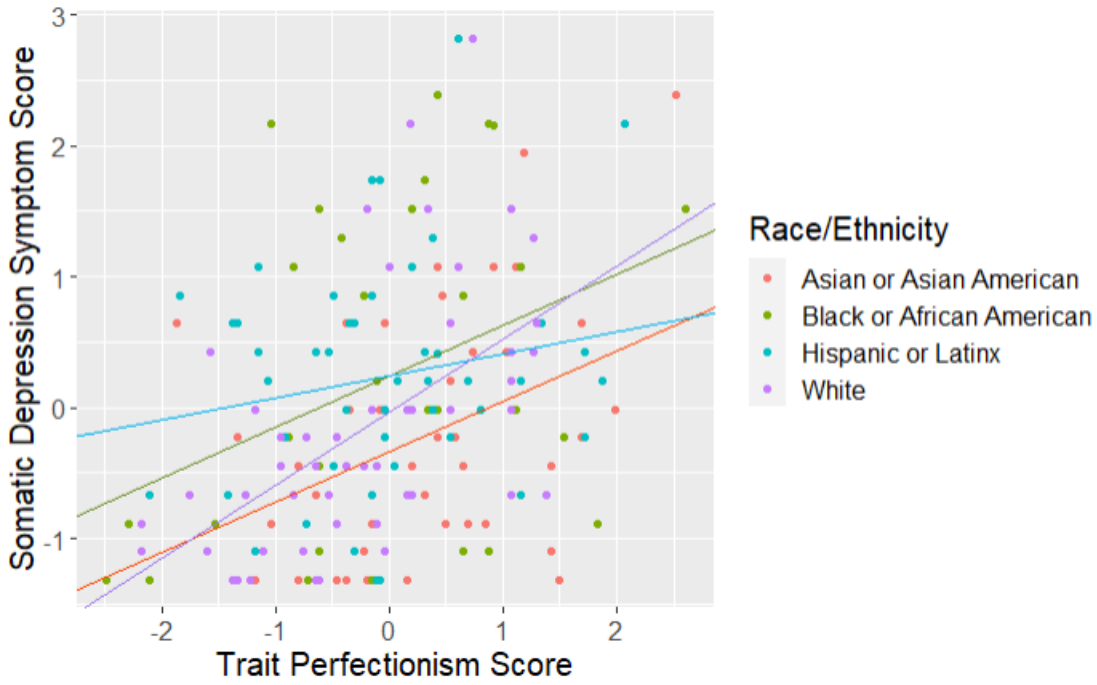
Summary of Moderation Analysis for Somatic Anxiety Symptoms

Model		Coefficient			
		β	*SE*	**z**	**p**
Trait Perfectionism					
Somatic Anxiety	Constant	.03	.13	.24	.81
	TP Score	.41	.14	2.98	.00**
	Asian	-.10	.19	-.52	.60
	Black	-.08	.21	-.40	.69
	Hispanic	.05	.19	.25	.80
	TP x Asian	-.01	.20	-.04	.97
	TP x Black	.00	.19	.01	.99
	TP x Hispanic	.03	.20	.15	.88
Difference in Simple	Asian v Black	-.01	.20	-.05	.96
Slopes	Asian v Hispanic	-.04	.20	-.18	.86
	Black v Hispanic	-.03	.20	-.14	.89
PSP					
Somatic Anxiety	Constant	.04	.14	.29	.77
	PSP Score	.34	.13	2.65	.01**
	Asian	-.01	.19	-.04	.97
	Black	-.12	.22	-.56	.58
	Hispanic	-.04	.20	-.19	.85
	PSP x Asian	-.17	.20	-.85	.40
	PSP x Black	.05	.20	.26	.79
	PSP x Hispanic	.01	.20	.07	.94
Difference in Simple	Asian v Black	-.22	.21	-1.04	.30
Slopes	Asian v Hispanic	-.19	.22	-.86	.39
	Black v Hispanic	.04	.21	.18	.86

Note. For the first models of trait perfectionism and PSP, White students were set as the reference group for data analysis. **$p < .01$

Figure 1

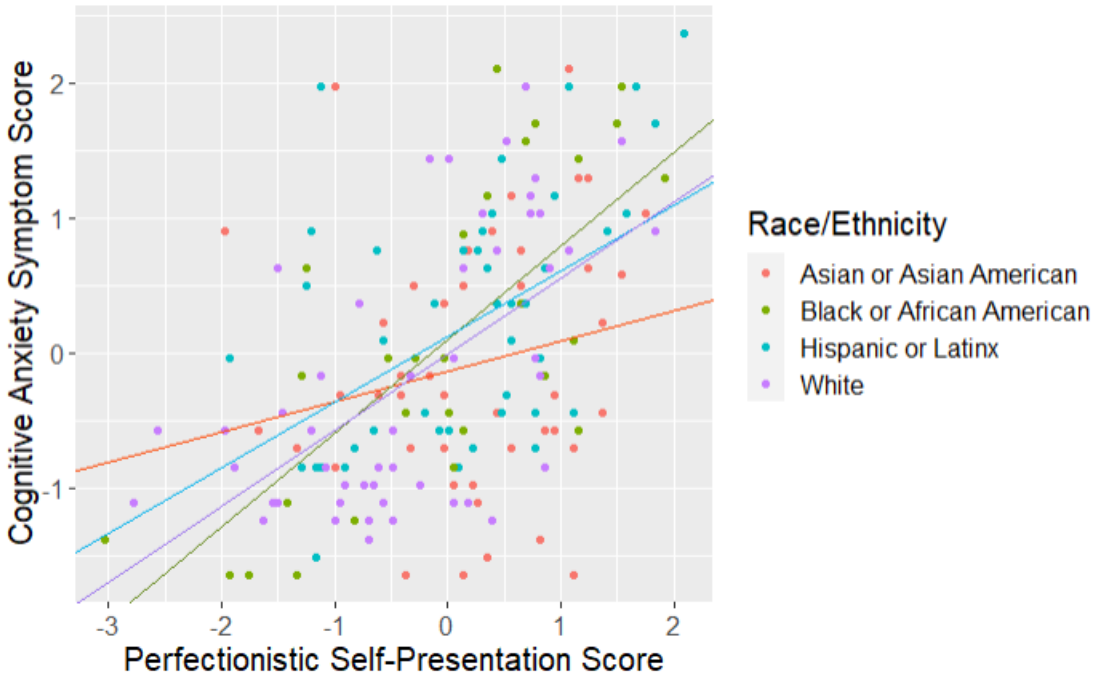
The Interactions between Racial and Ethnic Groups in the Relationship between Trait Perfectionism and Somatic Depression Symptoms



Note. The interaction between White and Latinx students was significant ($p < .05$).

Figure 2

The Interactions between Racial and Ethnic Groups in the Relationship between Perfectionistic Self-Presentation and Cognitive Anxiety Symptoms



Note. The interaction between Black and Asian students was significant ($p < .05$). The interaction between White and Asian students was trending towards significance ($p = .057$).