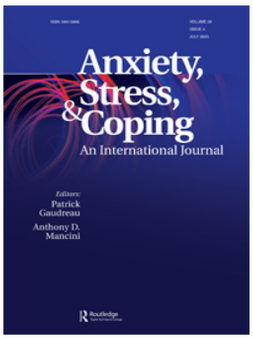

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Perfectionism, wellbeing, and coping among Filipino university students: a multi-study test of the 2 × 2 model of perfectionism

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ABSTRACT

Background: Perfectionism is an important characteristic among university students given its associations with their wellbeing and coping. One approach to studying student perfectionism is the 2 × 2 model of perfectionism, which examines the interaction between self-oriented perfectionism and socially prescribed perfectionism (SPP). The model is useful for studying student perfectionism, but tests in different cultural contexts remain limited, with some suggesting its hypotheses need modification.

Objectives: This article builds on existing research by presenting two novel studies that provide the model's first tests in predicting university student wellbeing and coping in a Filipino context, as well as tests of alternate *cultural makeup* and *aggravating factor hypotheses* for SPP's role.

Methods: Following preregistered protocols, two independent samples of Filipino university students completed questionnaires measuring variables of interest – one cross-sectionally ($N = 294$) and one longitudinally ($N = 324$) with a 3-month follow-up.

Results and Conclusion: Moderated regression analyses showed support for the model's hypotheses across both samples depending on the variable. Findings provided clearer support that students with high SPP or a strong belief that others expect perfection are more vulnerable to poorer wellbeing and unhealthy coping, making SPP an *aggravating factor* in the Filipino context.

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stress; life satisfaction; affect; cultural makeup hypothesis; aggravating factor hypothesis

Introduction

Mental health difficulties among university students are on the rise. This is evident globally in national data from multiple North American and European countries (World Health Organization, 2022) and in other countries like the Philippines where there has been an especially alarming increase in severe mental health issues among young people (University of the Philippines Population Institute, 2022). To better understand the risk factors for poorer student mental health, in the current study we focused on perfectionism – a characteristic that is increasing among university students (Curran & Hill, 2019) – and how perfectionism subtypes might capture differently the well-being and coping problems reported by students. However, unlike previous research, we examined

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these relationships from a Filipino perspective and tested alternate culturally derived explanations for the influence of perfectionism. In doing so, we emphasize the importance of the cultural context when studying perfectionism and the role it may play in influencing student mental health and wellbeing.

Student wellbeing and coping

Student wellbeing is complex and multidimensional. Wellbeing can be understood as the result of multiple factors, including life circumstances, cognitive processes, temperament, and personality characteristics (Hossain et al., 2023). The presence of wellbeing also extends beyond the absence of mental ill-health, capturing not only students' positive feelings (hedonic wellbeing) but also skills and qualities that support their positive functioning (eudemonic wellbeing; Hossain et al., 2023). In studying student wellbeing, researchers examine different indicators, which are needed to provide a more holistic picture of their experiences. Common indicators include *perceived stress* (degree to which students evaluate their life's situations as stressful; Cohen & Williamson, 1988), *life satisfaction* (degree to which students judge their life as satisfactory; Diener et al., 1985), and *positive and negative affect* (pleasurable and painful feelings students experience; Diener et al., 2010). Using these indicators, student wellbeing is signaled by lower stress and negative affect, and higher life satisfaction and positive affect.

Beyond these common indicators, researchers have also studied coping strategies as means of understanding student wellbeing because coping is key to both short-term and long-term mental health (Carver, 1997). Coping strategies include a wide array of discreet behaviors (e.g., denial, humor, and venting) that can be categorized according to their functions and purposes. Common broad coping categories include problem-focused coping (efforts to resolve the stressor directly), emotion-focused coping (efforts to reduce or prevent the stressor's emotional components), and avoidance coping (efforts to avoid the stressor; Lazarus & Folkman, 1984). However, researchers generally acknowledge the difficulties in providing clear categorizations for individual coping strategies, which can often have multiple functions and purposes. One example includes the use of religion which, perhaps unsurprisingly, can be classified in all three broad coping categories depending on the intended use (Pargament, 1997).

It is also notable that no coping strategies are adaptive or maladaptive all the time. The efficacy of a coping strategy depends on personal and contextual factors (Lazarus & Folkman, 1984). This makes studying coping difficult. However, again, research has found that when studied as general tendencies, some coping strategies tend to lead to more positive outcomes than others. In this regard, the tendency to use problem-focused coping has been generally found to relate to positive student wellbeing. By contrast, the tendency to use emotion-focused coping and particularly avoidance coping have been found to relate to negative student wellbeing (Agbaria & Mokh, 2022; Gustems-Carnicer et al., 2019). As such, the study of broad coping categories along with their related individual coping strategies, as generally used, provides at least some handle on how well-equipped students are to cope with stress.

The 2 × 2 model of perfectionism

One variable that has shown to relate to student wellbeing is perfectionism. Perfectionism is a multidimensional trait characterized by striving for excessively high standards of performance and being preoccupied with harsh critical evaluations (Frost et al., 1990). Hewitt and Flett (1991) conceptualized perfectionism using three different dimensions: *self-oriented perfectionism*, *socially prescribed perfectionism*, and *other-oriented perfectionism*. SOP is the tendency to set exacting standards for oneself and to evaluate and criticize one's behavior stringently. SPP is the perception that others are imposing unrealistic standards and are harsh and critical if these standards are not met. Finally, OOP is the tendency to set challenging standards to others and to criticize others' behavior stringently. Using

this approach, perfectionism can be studied intra-personally and interpersonally with both aspects important for understanding the effects of perfectionism (Hewitt & Flett, 1991).

SOP and SPP are the most important dimensions of the three for personal outcomes such as student wellbeing. With its focus on external, uncontrollable, and overwhelming expectations, SPP has been shown by research to be consistently associated with higher stress and negative affect, and lower life satisfaction and positive affect (e.g., Smith et al., 2017). With its focus on internal, controllable, but also unrealistic expectations, SOP is more complex and is typically considered a vulnerability factor for these negative outcomes that are most observable in the presence of life and academic difficulties (Flett et al., 1995). Research is similar in regards to coping. SPP is consistently associated with coping aligned with negative wellbeing (e.g., avoidance coping). By contrast, SOP is more mixed and is associated with coping aligned with positive (e.g., problem-focused coping) and negative wellbeing (e.g., de Jonge-Heesen et al., 2021). These differences provide an empirical basis for understanding the different roles the two dimensions may play in shaping student wellbeing and coping.

A fuller understanding is further provided by the notion that the two dimensions coexist to varying degrees within students (e.g., Stoeber & Otto, 2006). Taking this into account, the 2×2 model of perfectionism (Gaudreau & Thompson, 2010) has been used to distinguish between four perfectionism subtypes based on different combinations of SOP and SPP: *non-perfectionism* (low SOP/low SPP), *pure self-oriented perfectionism* (high SOP/low SPP), *mixed perfectionism* (high SOP/high SPP), and *pure socially prescribed perfectionism* (low SOP/high SPP). Based on the properties of the two dimensions, the model offers four hypotheses on the comparative effects of the subtypes for psychological adjustment. The first hypothesis presents three competing versions that suggest pure self-oriented perfectionism is associated with better (Hypothesis 1a), worse (Hypothesis 1b), or similar (Hypothesis 1c) psychological adjustment compared to non-perfectionism. The second hypothesis states that pure socially prescribed perfectionism is associated with worse psychological adjustment than non-perfectionism (Hypothesis 2). The third hypothesis specifies that mixed perfectionism is associated with better psychological adjustment than pure socially prescribed perfectionism (Hypothesis 3). The fourth hypothesis highlights that mixed perfectionism is associated with worse psychological adjustment than pure self-oriented perfectionism (Hypothesis 4).

Several studies have tested the 2×2 model's hypotheses in predicting university student wellbeing. To date, four have done so using cross-sectional designs (Franche et al., 2012; Franche & Gaudreau, 2016; Gaudreau et al., 2016; Gaudreau & Thompson, 2010) and one using a longitudinal design (Short, 2015). In the four cross-sectional studies, the findings were generally consistent when examining student wellbeing with notable support for pure socially prescribed perfectionism being associated with worse outcomes than non-perfectionism (Hypothesis 2) and pure self-oriented perfectionism being associated with better outcomes than mixed perfectionism (Hypothesis 4) across studies. In the one longitudinal study, the same hypotheses were also supported for life satisfaction, positive affect, and stress. Overall, the model successfully differentiates between university students in wellbeing with pure self-oriented perfectionism and pure socially prescribed perfectionism typically associated with better and worse comparative wellbeing, respectively.

Research using the 2×2 model to examine coping is limited to two studies (Crocker et al., 2014; Franche, 2017[1]). However, findings are similar to those in studies on wellbeing. Across a cross-sectional test of the model in university students and a longitudinal test of the model in university student-athletes, pure self-oriented perfectionism and mixed perfectionism (subtypes with high SOP) were associated with greater use of coping aligned with positive wellbeing (e.g., problem-focused coping) than non-perfectionism (Hypothesis 1a) and pure socially prescribed perfectionism (Hypothesis 3), respectively, and pure socially prescribed perfectionism and mixed perfectionism (subtypes with high SPP) were associated with greater use of coping aligned with negative wellbeing (e.g., avoidance coping) than non-perfectionism (Hypothesis 2) and pure self-oriented perfectionism (Hypothesis 4), respectively. The model, therefore, not only successfully differentiates between university students for wellbeing, it also does so for coping tendencies of university students. These

findings further reiterate the importance of understanding the interaction between SOP and SPP and how their combinations may shape the experiences of university students.

Perfectionism among Filipinos

The present article builds on existing research by providing the first test of the 2 × 2 model in predicting student wellbeing and coping in a Filipino context. Culture is important when examining perfectionism and student wellbeing. Several studies have reported cultural differences in perfectionism such as Asian American students having higher perfectionism levels than European American students (Chang, 2013). A possible reason for these types of differences relates to how members of different cultures construe themselves: individuals from individualistic cultures tend to adopt an independent self-construal, defining themselves based on their own internal attributes, while individuals from collectivistic cultures tend to adopt an interdependent self-construal, defining themselves based on interpersonal relationships and associated responsibilities (Markus & Kitayama, 1991). Notable in this regard are Yoon and Lau's (2008) proposed cultural models that raise the possibility of alternate effects of perfectionism on student wellbeing in collectivistic cultures (e.g., Asian cultures). Their *cultural sensitization model* posits that students who adopt an interdependent self-construal experience greater vulnerability to perfectionism-related distress because of their increased fear of disappointing others brought by pressure to meet cultural obligations. By contrast, their *cultural congruence model* posits that students who adopt an interdependent self-construal experience lower vulnerability to perfectionism-related distress as their perfectionism is an adaptation consistent with culturally embedded themes of fulfilling others' obligations and prioritizing group over personal goals. In providing an initial test of these two possibilities, in their own work, Yoon and Lau (2008) found support for the cultural sensitization model in Asian American students.

In regards to the 2 × 2 model and possible cultural differences, Franche et al. (2012) built on Yoon and Lau (2008) and proposed two alternative hypotheses related to SPP and psychological adjustment in Asian Canadians. One hypothesis is the *socially prescribed perfectionism as an aggravating factor hypothesis*, where the presence of high SPP corresponds with mixed perfectionism being associated with similar outcomes to pure socially prescribed perfectionism (rather than being less problematic). This contradicts one of the model's original hypotheses (i.e., mixed perfectionism is associated with better psychological adjustment than pure socially prescribed perfectionism [Hypothesis 3]) and is based on the view that respecting cultural values and attending to the needs of social institutions are part of their psyche. The other hypothesis is the *socially prescribed perfectionism as a cultural makeup hypothesis*, where the presence of high SPP corresponds with mixed perfectionism being associated with better or similar outcomes as pure self-oriented perfectionism (rather than being more problematic). This contradicts another of the model's original hypotheses (i.e., mixed perfectionism is associated with worse psychological adjustment than pure self-oriented perfectionism [Hypothesis 4]) and is based on presumed benefits from having a perfectionism subtype "in which the values promoted by social agencies are closely aligned, coherent, and in harmony with those endorsed by [Asian Canadians]" (p. 569). In testing these hypotheses, Franche et al. (2012) provided preliminary support for the cultural makeup hypothesis with mixed perfectionism being associated with similar (not worse) grade point average and school satisfaction to pure self-oriented perfectionism in Asian Canadians.

Both cultural hypotheses may be applicable in a Filipino context for the same reasons as described earlier. The Filipino culture emphasizes interdependence and strong parental and familial relations. For many Filipino students, attaining success in school through high grades and awards serves as an instrument to achieve familial goals such as helping the family become prosperous and enhancing family accomplishment and reputation. Doing well in school can thus be considered an act of *utang na loob* or a showcase of the students' gratitude to their family's support and their repayment for the sacrifices their parents have made for them (Bernardo, 2008). Having *utang na*

loob for their families can be a double-edged sword (Tan, 2022). Some students may have difficulties prioritizing their own goals and aspirations because of their need to do well in school so not to disappoint their parents (aggravating factor hypothesis), whereas other students may find harmony between fulfilling personal goals and meeting parental expectations as they are able to see the value of their parents' guidance (cultural makeup hypothesis).

Researchers have recently begun to examine perfectionism in Filipino university students. Some of this work alludes to the influence of the cultural context. In a recent qualitative study, for example, Tan (2022) found that some Filipino university students equate being "perfect" with compliance to parental expectations and were fearful about the consequences of not fulfilling their perceived family responsibilities. In another revealing study, Simon (2021) found that anxiety among Filipino university students was highest when a dimension similar to SOP was high and when parental autonomy support was low but lowest when both were high. This provides at least some support for the notion that the effects of perfectionism in this context depend on perceptions of parents and their behavior. However, as of yet, there has been no formal test of the 2×2 model's hypotheses or the two alternate cultural hypotheses in Filipino university students.

The present article

The aim of the present article was to examine the interaction between SOP and SPP in predicting wellbeing and coping in Filipino university students. We did so in two separate studies with independent samples: one cross-sectional (Study 1) and one longitudinal (Study 2). In each case, we tested the 2×2 model's hypotheses along with two alternate cultural hypotheses: the aggravating factor hypothesis, whereby mixed perfectionism was expected to be associated with similar wellbeing and similar use of coping aligned with positive wellbeing than pure socially prescribed perfectionism, and the cultural makeup hypothesis, whereby mixed perfectionism was expected to be associated with similar or better wellbeing and similar or greater use of coping aligned with positive wellbeing than pure self-oriented perfectionism.

Study 1

Methods

Participants and recruitment

The cross-sectional sample consisted of 294 Filipino university students (male = 76, female = 212, nonbinary/genderqueer = 3, female-to-male = 1, lesbian = 1, bisexual = 1, $M_{age} = 20.73$, $SD_{age} = 1.63$, range = 18–33), who were recruited via online advertisement and word of mouth (e.g., student organizations, university staff) to answer an online survey (see supplementary material for more information about participant characteristics).

Instruments

Multidimensional perfectionism. The brief version of the Multidimensional Perfectionism Scale (MPS; Hewitt & Flett, 1991), developed by Cox et al. (2002), was used to measure trait perfectionism. It contains 10 items, five items for the SOP subscale (e.g., "I strive to be as perfect as I can be") and five items for the SPP subscale (e.g., "I feel that people are too demanding of me"), with responses measured on a 7-point Likert scale from 1 (*not at all agree*) to 7 (*totally agree*). Cox et al. (2002) reported excellent psychometric properties (e.g., internal reliabilities, construct validity) for the subscales' brief versions, compared to their original versions, among university students.

Perceived stress. The Perceived Stress Scale (PSS-10; Cohen & Williamson, 1988) measures perceived stress. It contains 10 items (e.g., "In the last month, how often have you been upset because of something that happened unexpectedly?") with responses measured on a 5-point Likert scale from 0

(*never*) to 4 (*very often*). Lee (2012) conducted a review of all studies that reported the PSS's psychometric properties and found the PSS-10's psychometric properties to be superior to other versions. In the review, the PSS-10 had good internal reliabilities (Cronbach's α = .84 and .89) in studies that sampled university students and acceptable test-retest reliabilities (r = .72 to .88) over a range of 1 to 4 weeks in studies that sampled various groups (e.g., full-time teachers, mix of medical students and patients).

Positive and negative affect. The Scale of Positive and Negative Experience (Diener et al., 2010) measures positive and negative affect. It contains 12 items, six items for the positive feelings subscale (e.g., "Pleasant") and six items for the negative feelings scale (e.g., "Unpleasant"), with responses measured on a 5-point Likert scale from 1 (*very rarely or never*) to 5 (*very often or always*). The authors confirmed the subscales' strong factor structures and reported good internal reliabilities and acceptable 1-month test-retest reliabilities among university students. They further established the scale's validity given the subscales' strong intercorrelations with other well-being measures.

Life satisfaction. The Satisfaction with Life Scale (Diener et al., 1985) assesses life satisfaction. It contains 5 items (e.g., "In most ways my life is close to my ideal") with responses measured on a 7-point Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*). The authors provided evidence of a single factor structure, which demonstrated good internal reliability and two-month test-retest reliability among university students and established validity with its moderate to strong intercorrelations with other wellbeing measures.

Coping. The Brief COPE (Carver, 1997) measures 14 coping strategies (e.g., planning, venting, religion). It contains 28 items, two items for each subscale/coping strategy with responses measured on a 4-point Likert scale from 1 (*I haven't been doing this at all*) to 4 (*I've been doing this a lot*). Despite finding support for the instrument's multidimensionality and psychometric properties, the author recommended to use the instrument on a sample-dependent manner. As such, the subscales were categorized based on the performed exploratory factor analyses (EFA). The data analysis section includes details of the approach, and results of the analysis are described in the preliminary analysis section.

Procedures

Ethics approval was provided by York St John University (Ethics reference #STHEC0063) and the University of the Philippines Diliman (Ethics reference #CSSPERB-2022-004). Participants completed an online survey, which includes demographic and academic-related questions and the aforementioned scales, at one time point unsupervised (taking approximately 20 minutes). Participants who completed the survey were randomly selected to receive a monetary reward (equivalent to 5 US dollars).

Transparency and openness statement

The study, including its hypotheses, method, and analysis plan, was preregistered at https://doi.org/10.23668/psycharchives.8309. Four deviations from the preregistration protocol were made. First, we did not prespecify the aggravating factor hypothesis but chose to test it after further consideration. Second, we prespecified the hypotheses based on three coping dimensions (i.e., problem-focused, emotion-focused, and avoidance coping). But since the three-factor solution did not adequately fit the data based on model fit indices, we analyzed scores for coping factors identified in the EFA instead. Third, we did not prespecify the use of model fit indices in the EFA but chose to use them in determining the number of factors based on recommendations from past studies (see supplementary material). Lastly, in screening for outliers, we used a

Mahalanobis distance that corresponded with the new number of factors (following the additional coping factors).

Data analysis

Preliminary analyses. Prior to exploratory and main analyses, preliminary analyses, including inspection for missing values and outliers, were conducted following recommendations by Tabachnick and Fidell (2007).

Exploratory analyses. We explored the factor structure of the 14 coping strategies using the 28 items from the Brief COPE based on common recommendations for EFA (e.g., Tabachnick & Fidell, 2007). This was done using a combination of principal component analysis and principal axis factoring with four common strategies used to determine the factor structure: eigenvalues, scree plot, parallel analysis, and Velicer's (1976) minimum average partial (MAP) test.

Descriptive statistics. Following preliminary and exploratory analyses, descriptive statistics, bivariate correlations, and internal reliabilities (e.g., McDonald's ω) were calculated.

Main analyses. Procedures by Gaudreau (2012) were used to test the 2×2 model. Each regression analysis consisted of two steps. In Step 1, mean-centered SOP and SPP were entered as predictors and, in Step 2, the interaction term (SOP*SPP) was added. If there was a significant interaction, four simple slope analyses were performed to calculate the predicted values of each perfectionism subtype and compare them with each other. The Johnson-Neyman (J-N) technique was also used based on procedures by Hill (2021) to identify perfectionistic tipping points (the specific level of SPP at which the effect of SOP changes). If there was no significant interaction, a new regression model was conducted without the interaction term and with uncentered SOP and SPP. These main effects models were then used to calculate the predicted values of each subtype. Effect sizes were interpreted using variance accounted for (.02 for small, .13 for medium, and .26 for large; Cohen, 1988) and Cohen's *d* as a marker of the standardized mean difference between perfectionism subtypes (0.20 for small, 0.50 for medium, and 0.80 for large; Cohen, 1988). Alpha level for the main analyses was set at $p < .05$. Analyses were completed using SPSS Statistics Version 28 and PROCESS Version 4.2 (Hayes, 2017).

Results

Preliminary analyses

No missing data were found in individual responses. Using scores of all variables of interest and scores of all 28 items in the Brief COPE, seven univariate outliers that exceeded $z = \pm 3.29$ ($p < .001$) were identified and removed. Three multivariate outliers were then identified and removed as their Mahalanobis distances were larger than $\chi^2(34) = 65.25$ ($p < .001$). Thus, data from 284 participants were included in the exploratory analyses.

Exploratory analyses

Initial principal component analysis indicated nine eigenvalues; the scree plot suggested a two-component solution; parallel analysis supported the retention of five components; and the MAP test supported a seven-component solution. As such, possible factor solutions ranged from two to nine. Principal axis factoring with oblique rotation (Promax) identified nine coping outcomes, labeled as the following: (1) social support, which involves going to someone to get help, advice, or emotional comfort from them, (2) active coping, which involves behavioral efforts or attempts to solve the problem or to work with the stressor directly, (3) substance use, which involves the use of alcohol or other drugs to feel better or to temporarily detach oneself from the problem/stressor, (4) avoidance coping, which involves efforts or attempts to

avoid the problem/stressor, (5) religion, which involves doing religious behaviors such as praying, leaving everything to God, and believing on the divine power of God, (6) humor, which involves making jokes or making fun about the problem/stressor, (7) denial, which involves refusing to believe that something has happened, (8) positive cognitive restructuring, which involves efforts to change the view of a stressful situation into something positive or constructive, and (9) venting, which involves expressing negative/unpleasant feelings such as anger or saying things to remove negative/unpleasant feelings. All nine factors displayed acceptable internal reliabilities, except for venting ($\alpha = .62$). Guided by Montoya and Edwards (2021), we chose the nine-factor solution as it had the best model fit indices and is aligned with our understanding of Filipino coping in terms of both the number of factors and their descriptions (see Rilveria, 2018). Full details and results of the exploratory analyses are provided in the supplementary material.

Additional preliminary analyses

Prior to performing the main analyses, outliers were rechecked using scores for all variables of interest and the means of the coping outcomes extracted from the EFA. Four univariate outliers that exceeded $z = \pm 3.29$ ($p < .001$) were identified and removed. One multivariate outlier was then identified and removed as its Mahalanobis distance was larger than $\chi^2(15) = 37.70$ ($p < .001$). Thus, data from 279 participants were included in the main analyses.

Descriptive statistics, bivariate correlations, and reliabilities

Descriptive statistics, bivariate correlations, and internal reliabilities are found in Table 1. Cross-sectional correlations revealed that SOP had significant positive correlations with SPP, perceived stress, negative affect, active coping, avoidance coping, and denial, and a significant negative correlation with positive affect. SPP had significant positive correlations with perceived stress, negative affect, substance use, avoidance coping, and denial, and significant negative correlations with positive affect, life satisfaction, and religion. All internal variabilities were acceptable, except for denial and venting.

Main analyses

Findings for each DV are outlined below, with Table 2 providing a summary of the moderated regressions. The interaction effects for all DVs were not significant, except for denial and venting.

Wellbeing outcomes. SPP was a significant positive predictor of perceived stress, positive affect, negative affect, and life satisfaction, whereas SOP was not. This pattern of effects provided support for pure socially prescribed perfectionism being associated with worse wellbeing than non-perfectionism (Hypothesis 2), and pure self-oriented perfectionism being associated with better wellbeing than mixed perfectionism (Hypothesis 4) but with similar wellbeing as non-perfectionism (Hypothesis 1c).

Coping outcomes. SOP was a significant positive predictor of social support and active coping only, whereas SPP was a significant positive predictor of substance use and avoidance coping only. Neither SOP nor SPP was a significant predictor of religion, humor, and positive cognitive restructuring. This pattern of effects provided support for the following: (1) pure self-oriented perfectionism and mixed perfectionism were associated with more social support and active coping than non-perfectionism (Hypothesis 1a) and pure socially prescribed perfectionism (Hypothesis 3), respectively, (2) pure socially prescribed perfectionism and mixed perfectionism were associated with more substance use and avoidance coping than non-perfectionism (Hypothesis 2) and pure self-oriented perfectionism (Hypothesis 4), respectively, and (3) pure self-oriented perfectionism was associated with similar substance use, avoidance coping, religion, humor, and positive cognitive restructuring as non-perfectionism (Hypothesis 1c).

Table 1. Descriptive statistics, bivariate correlations, and internal reliabilities for Study 1 (cross-sectional sample).

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. SOP	–														
2. SPP	.53***	–													
3. Perceived stress	.25***	.40***	–												
4. Positive affect	−.14*	−.23***	−.62***	–											
5. Negative affect	.28***	.37***	.71***	−.56***	–										
6. Life satisfaction	−.05	−.22***	−.47***	.59***	−.47***	–									
7. Social support	.10	−.04	−.19**	.35***	−.11	.27***	–								
8. Active coping	.14*	.06	−.28***	.34***	−.26***	.30***	.34***	–							
9. Substance use	.07	.15*	.11	−.16**	.19**	−.07	.08	−.09	–						
10. Avoidance coping	.20***	.32***	.66***	−.47***	.57***	−.42***	−.11	−.22***	.25***	–					
11. Religion	−.05	−.12*	−.24***	.32***	−.23***	.32***	.22***	.32***	−.13*	−.18**	–				
12. Humor	.10	.06	.02	.09	.12*	.08	.17**	.04	.16**	.12*	−.03	–			
13. Denial	.19**	.21***	.25***	−.20***	.21***	−.08	−.03	−.02	.21***	.36***	.01	.12*	–		
14. PCR	−.07	−.05	−.33***	.49***	−.33***	.37***	.38***	.49***	−.03	−.27***	.35***	.21***	−.12*	–	
15. Venting	.06	.04	.15*	.01	.20***	−.01	.34***	.17**	.13*	.11	−.09	.18**	.04	.18**	–
Mean	4.78	3.98	2.56	3.29	3.32	3.49	2.54	2.97	1.26	2.49	2.01	2.59	1.51	2.84	2.59
SD	1.30	1.38	0.51	0.68	0.71	1.29	0.86	0.62	0.56	0.67	1.00	1.01	0.69	0.63	0.78
McDonald's ω[a]	.88	.84	.80	.87	.80	.86	.90	.78	–	.72	–	–	–	.71	–
Cronbach's α	.88	.84	.80	.87	.80	.86	.90	.78	.96	.73	.88	.87	.66	.75	.62

Note: $N = 279$. SOP = self-oriented perfectionism. SPP = socially prescribed perfectionism. PCR = positive cognitive restructuring.
[a]Values of McDonald's ω for substance use, religion, humor, denial, and venting cannot be estimated as the number of items for these coping dimensions is less than three.
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 2. Summary of moderated regression analyses for Study 1 (cross-sectional sample).

	Dependent variable													
	Perceived stress		Positive affect		Negative affect		Life satisfaction		Social support		Active coping		Substance use	
Predictor	ΔR^2	B	ΔR^2	B	ΔR^2	B	ΔR^2	B	ΔR^2	B	ΔR^2	B	ΔR^2	B
Step 1	.16***		.05***		.14***		.05***		.02*		.02		.02*	
SOP		0.02		−0.01		0.06		0.09		0.11*		0.07*		−0.01
SPP		0.14***		−0.11**		0.16***		−0.25***		−0.08		−0.01		0.06*
Step 2	.00		.00		.00		.00		.00		.01		.01	
SOP		0.02		−0.01		0.06		0.10		0.12*		0.09*		0.01
SPP		0.14***		−0.11**		0.16***		−0.25***		−0.08		−0.01		0.06*
SOP × SPP		−0.00		0.01		−0.01		0.02		0.01		0.04		0.02

	Avoidance coping		Religion		Humor		Denial		Positive cognitive restructuring		Venting	
	ΔR^2	B	ΔR^2	B	ΔR^2	B	ΔR^2	B	ΔR^2	B	ΔR^2	B
Step 1	.10***		.01		.01		.05***		.01		.00	
SOP		0.02		0.01		0.07		0.06		−0.03		0.03
SPP		0.15***		−0.09		0.01		0.07*		−0.01		0.01
Step 2	.00		.01		.00		.02*		.00		.02*	
SOP		0.02		−0.01		0.08		0.08*		−0.03		0.05
SPP		0.15***		−0.09		0.00		0.07*		−0.01		0.00
SOP × SPP		0.00		−0.05		0.02		0.05*		0.01		0.05*

Note: $N = 279$. SOP = self-oriented perfectionism. SPP = socially prescribed perfectionism.
*$p < .05$. **$p < .01$. ***$p < .001$.

When predicting denial, there was a significant interaction effect. Simple slopes analysis demonstrated that the first simple slope of SOP at low SPP (−1 SD) was not significant, $t = 0.30$, $p = .76$. The second simple slope of SOP at high SPP (−1 SD) was significant, $t = 2.75$, $p = .01$. The third simple slope of SPP at low SOP (−1 SD) was not significant, $t = 0.19$, $p = .85$. The fourth simple slope of SPP at high SOP (−1 SD) was significant, $t = 3.10$, $p = .00$. Overall, pure self-oriented perfectionism was associated with similar denial as non-perfectionism (Hypothesis 1c), and mixed perfectionism was associated with more denial than pure self-oriented perfectionism (Hypothesis 4) and pure socially prescribed perfectionism (opposite of Hypothesis 3). The J-N technique indicated that the conditional effect of SOP on denial was significant at the point at students reported SPP $\geq$ 3.85 on the original scale. SOP was related to more denial at that point. In terms of coverage across the scores, 47.67% of scores were below this point and 52.33% of scores were above.

Lastly, when predicting venting, there was also a significant interaction effect. Simple slopes analysis demonstrated that the first simple slope of SOP at low SPP was not significant, $t = -0.43$, $p = .67$. The second simple slope of SOP at high SPP was significant, $t = 2.06$, $p = .04$. The third simple slope of SPP at low SOP was not significant, $t = -1.25$, $p = .21$. The fourth simple slope of SPP at high SOP was not significant, $t = 1.46$, $p = .14$. Overall, pure self-oriented perfectionism was associated with similar venting as non-perfectionism (Hypothesis 1c), and mixed perfectionism was associated with more venting than pure socially prescribed perfectionism (opposite of Hypothesis 3). The J-N technique indicated that the conditional effect of SOP on venting was significant at the point at students reported SPP $\geq$ 5.08 on the original scale. SOP was related to more venting at that point. In terms of coverage across the scores, 77.06% of scores were below this point and 22.94% of scores were above.

Study 2

Methods

Participants and recruitment

The longitudinal sample consisted of 381 Filipino university students, who were recruited via online advertisement and word of mouth to answer the Time 1 survey. Of the 381 students, 324 of them (male = 93, female = 219, nonbinary/genderqueer = 10, asexual = 1, queer = 1, $M_{age} = 21.01$, $SD_{age} = 1.62$, range = 18–30) also answered the Time 2 survey (see supplementary material for more information about participant characteristics).

Instruments

The instruments used in Study 1, together with the factor structure identified in the EFA, were all used in both Time 1 and Time 2 surveys of this study.

Procedures

Ethics approval was provided by York St John University (Ethics reference #ETH2223-0041) and the University of the Philippines Diliman (Ethics reference #CSSPERB-2023-02). Participants were given 3 weeks to complete the Time 1 survey (given in April 2023). After 3 months, participants were then given 4 weeks[2] to complete the Time 2 survey. Participants then received email notifications a week prior to, and during, the Time 2 data collection to remind them to complete the Time 2 survey. Participants also completed the Time 1 and Time 2 surveys unsupervised (taking approximately 20 minutes). Participants who completed the survey/s were randomly selected to receive a monetary reward (equivalent to 5–10 US dollars). The study was preregistered at https://doi.org/10.23668/psycharchives.12585.

Data analysis

The analysis plan used in Study 1 was also used in this study with the addition of calculating test-retest reliabilities (i.e., intraclass correlation coefficient [ICC]). Each regression analysis, with the

wellbeing/coping outcome at Time 2 being the DV, consisted of three steps. In Step 1, the wellbeing/coping outcome at Time 1 was entered to control for its baseline effects. In Step 2, both perfectionism dimensions at Time 1 were entered as predictors. In Step 3, the interaction term (SOP*SPP) at Time 1 was added.

Results

Preliminary analyses

No missing data were found in individual responses. Eleven univariate outliers that exceeded $z = \pm 3.29$ ($p < .001$) were identified and removed. Five multivariate outliers were then identified and removed as their Mahalanobis distances were larger than $\chi^2(30) = 59.70$ ($p < .001$). Thus, data from 308 participants[3] were included in the main analyses.

Descriptive statistics, bivariate correlations, and reliabilities

Descriptive statistics, bivariate correlations, and internal reliabilities are found in Tables 3 and 4. Longitudinal correlations revealed that SOP had significant positive correlations with Time 2 SPP, perceived stress, negative affect, active coping, avoidance coping, religion, and venting. SPP had significant positive correlations with Time 2 perceived stress, negative affect, substance use, avoidance coping, humor, denial, and venting, and significant negative correlations with Time 2 positive affect

Table 3. Descriptive statistics and internal reliabilities for Study 2 (longitudinal sample).

Variable	Mean	*SD*	McDonald's ω[a]	Cronbach's α
Time 1				
Self-oriented perfectionism	4.79	1.26	.87	.87
Socially prescribed perfectionism	3.93	1.37	.84	.84
Perceived stress	2.43	0.58	.85	.85
Positive affect	3.36	0.67	.86	.86
Negative affect	3.26	0.72	.80	.80
Life satisfaction	3.49	1.31	.86	.86
Social support	2.56	0.85	.89	.89
Active coping	2.96	0.59	.76	.77
Substance use	1.19	0.47	–	.93
Avoidance coping	2.48	0.68	.71	.74
Religion	1.97	1.00	–	.89
Humor	2.62	0.98	–	.86
Denial	1.57	0.75	–	.71
Positive cognitive restructuring	2.91	0.58	.64	.67
Venting	2.54	0.77	–	.55
Time 2				
Self-oriented perfectionism	4.55	1.30	.88	.88
Socially prescribed perfectionism	3.89	1.32	.84	.84
Perceived stress	2.38	0.64	.87	.87
Positive affect	3.32	0.65	.85	.85
Negative affect	3.26	0.76	.83	.83
Life satisfaction	3.57	1.33	.87	.87
Social support	2.57	0.81	.88	.88
Active coping	2.94	0.64	.81	.81
Substance use	1.19	0.46	–	.93
Avoidance coping	2.35	0.70	.75	.77
Religion	1.94	0.98	–	.84
Humor	2.67	0.99	–	.89
Denial	1.61	0.78	–	.77
Positive cognitive restructuring	2.86	0.55	.52	.61
Venting	2.64	0.77	–	.63

Note: $N = 308$. Time 2 = three months after Time 1.
[a]Values of McDonald's ω for substance use, religion, humor, denial, and venting cannot be estimated as the number of items for these coping dimensions is less than three.

Table 4. Bivariate correlations for Study 2 (longitudinal sample).

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. SOP	**.76*** **	.55***	.27***	−.08	.29***	−.11*	.03	.22***	.11	.25***	.11	.00	.17**	−.03	.14*
2. SPP	.48***	**.73*** **	.47***	−.26***	.45***	−.33***	−.10	.05	.22***	.45***	−.09	.16**	.29***	−.05	.12*
3. Perceived stress	.15**	.36***	**.67*** **	−.56***	.75***	−.53***	−.02	−.25***	.21***	.67***	−.15**	.19***	.34***	−.21***	.26***
4. Positive affect	−.03	−.24***	−.57***	**.62*** **	−.43***	.55***	.32***	.34***	−.12*	−.41***	.19***	−.08	−.18**	.32***	.04
5. Negative affect	.21***	.28***	.75***	−.51***	**.63*** **	−.47***	.00	−.21***	.18**	.62***	−.20***	.20***	.31***	−.24***	.26***
6. Life satisfaction	−.05	−.21***	−.55***	.61***	−.53***	**.78*** **	.29***	.30***	−.17**	−.44***	.32***	−.08	−.22***	.26***	−.05
7. Social support	.10	−.01	−.01	.24***	.01	.30***	**.57*** **	.27***	.01	.00	.14*	.11*	.00	.27***	.36***
8. Active coping	.21***	.06	−.11*	.28***	−.02	.20***	.38***	**.53*** **	−.16**	−.20***	.27***	.02	−.04	.53***	.17**
9. Substance use	.02	.13*	.14*	−.10	.10	−.10	−.11*	−.15**	**.48*** **	.19***	−.16**	.25***	.15**	−.07	−.01
10. Avoidance coping	.23***	.36***	.67***	−.42***	.59***	−.41***	−.06	−.12*	.14*	**.67*** **	−.15**	.19***	.42***	−.13*	.20***
11. Religion	.19**	−.02	−.15*	.21***	−.16**	.29***	.21***	.28***	−.07	−.12*	**.82*** **	−.14*	−.08	.28***	−.02
12. Humor	.04	.16**	.16**	−.09	.16**	−.08	.11	.07	.16**	.16**	−.10	**.71*** **	.07	.22***	.25***
13. Denial	.03	.18**	.32***	−.15**	.29***	−.14*	−.01	−.05	.24***	.35***	.01	.10	**.46*** **	−.01	.12*
14. PCR	.10	−.06	−.18**	.40***	−.19***	.31***	.37***	.49***	−.18**	−.14*	.33***	.12*	−.05	**.48*** **	.19***
15. Venting	.14*	.15**	.32***	−.08	.28***	.00	.45***	.23***	.06	.22***	.05	.24***	.10	.28***	**.56*** **

Note: $N = 308$. SOP = self-oriented perfectionism. SPP = socially prescribed perfectionism. PCR = positive cognitive restructuring. Correlations between Time 1 and Time 2 variables are bolded and underlined. Correlations between Time 1 perfectionism dimensions and other Time 1 variables are above the diagonal and are shaded in grey, while the remaining correlations above the diagonal are correlations between Time 1 variables. Correlations between Time 1 perfectionism dimensions and Time 2 variables are below the diagonal and are shaded in grey, while the remaining correlations below the diagonal are correlations between Time 2 variables.

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

and life satisfaction. All internal variabilities were acceptable, except for Time 1 and Time 2 positive cognitive restructuring and venting. All variables had acceptable test-retest reliabilities (absolute agreement) with ICCs ranging from .63 to .90.

Main analyses

Findings for each DV are outlined below, with Table 5 providing a summary of the moderated regressions. The interaction effects for all DVs were not significant, except for Time 2 venting.

Wellbeing outcomes. SPP was a significant negative predictor of residual changes in only one of the wellbeing outcomes – positive affect. SOP was not a significant predictor of residual changes in all wellbeing outcomes. This pattern of effects provided support for pure socially prescribed perfectionism and mixed perfectionism being associated with lower residual changes in positive affect than non-perfectionism (Hypothesis 2) and pure self-oriented perfectionism (Hypothesis 4), respectively, and pure self-oriented perfectionism being associated with similar residual changes in all wellbeing outcomes as non-perfectionism (Hypothesis 1c).

Coping outcomes. SOP was a significant positive predictor of residual changes in three coping dimensions: active coping, religion, and positive cognitive restructuring. SPP was a significant negative predictor of residual changes in positive cognitive restructuring only. Neither SOP nor SPP was a significant predictor of residual changes in social support, substance use, avoidance coping, humor, and denial. This pattern of effects provided support for the following: (1) pure self-oriented perfectionism and mixed perfectionism were associated with higher residual changes in active coping, religion, and positive cognitive restructuring than non-perfectionism (Hypothesis 1a) and pure socially prescribed perfectionism (Hypothesis 3), respectively, (2) non-perfectionism and pure self-oriented perfectionism were associated with higher residual changes in positive cognitive restructuring than pure socially prescribed perfectionism (Hypothesis 2) and mixed perfectionism (Hypothesis 4), respectively, and (3) pure self-oriented perfectionism was associated with similar residual changes in social support, substance use, avoidance coping, humor, and denial as non-perfectionism (Hypothesis 1c).

When predicting changes in venting, there was a significant interaction effect. Simple slopes analysis demonstrated that the first simple slope of SOP at low SPP was not significant, $t = -0.48$, $p = .63$. The second simple slope of SOP at high SPP was not significant, $t = 1.79$, $p = .07$. The third simple slope of SPP at low SOP was not significant, $t = -0.44$, $p = .66$. The fourth simple slope of SPP at high SOP was significant, $t = 2.16$, $p = .03$. Overall, pure self-oriented perfectionism was associated with lower residual changes in venting than mixed perfectionism (Hypothesis 4) but similar residual changes in venting as non-perfectionism (Hypothesis 1c). The J-N technique indicated that the conditional effect of SOP on changes in venting was significant at the point at students reported SPP ≥ 6.46 on the original scale. The change to a significant conditional effect corresponded to SOP being related to larger changes in venting. In terms of coverage across the scores, 97.73% of scores were below this point and 2.27% of scores were above.

Table 6 provides a summary of the supported, unsupported, and contradicted hypotheses, predicted values, and effect sizes for both studies, and Figure 1 displays the interaction plots for the J-N technique. Other results (e.g., other interaction plots) are found in the supplementary material. At the reviewer's request, we conducted additional analyses using a three-factor solution (problem-focused coping, social support, and avoidance coping). Results, which are also available in the supplementary material, aligned with those in the nine-factor solution with additional hypotheses supported for positive affect using the longitudinal sample: pure self-oriented perfectionism and mixed perfectionism were associated with higher residual changes in positive affect than non-perfectionism (Hypothesis 1a) and pure socially prescribed perfectionism (Hypothesis 3), respectively.

Table 5. Summary of moderated regression analyses for Study 2 (longitudinal sample).

	Dependent variable (DV) at Time 2													
	Perceived stress		Positive affect		Negative affect		Life satisfaction		Social support		Active coping		Substance use	
Predictor at Time 1	ΔR^2	B	ΔR^2	B	ΔR^2	B	ΔR^2	B	ΔR^2	B	ΔR^2	B	ΔR^2	B
Step 1	.46***		.39***		.39***		.60***		.32***		.28***		.23***	
DV		0.74***		0.61***		0.67***		0.79***		0.54***		0.57***		0.46***
Step 2	.01		.01		.00		.00		.01		.01		.00	
DV		0.71***		0.58***		0.66***		0.80***		0.54***		0.54***		0.46***
SOP		−0.04		0.05		0.02		0.02		0.06		0.06*		−0.02
SPP		0.04		−0.07*		−0.01		0.05		0.00		−0.02		0.02
Step 3	.00		.00		.00		.00		.00		.00		.00	
DV		0.71***		0.58***		0.66***		0.80***		0.54***		0.54***		0.46***
SOP		−0.03		0.05		0.03		0.01		0.07		0.06		−0.02
SPP		0.04		−0.06*		−0.01		0.05		0.00		−0.02		0.02
SOP × SPP		0.01		−0.01		0.01		0.00		0.02		−0.01		0.00

	Avoidance coping		Religion		Humor		Denial		Positive cognitive restructuring		Venting	
	ΔR^2	B	ΔR^2	B	ΔR^2	B	ΔR^2	B	ΔR^2	B	ΔR^2	B
Step 1	.45***		.68***		.50***		.21***		.23***		.32***	
DV		0.70***		0.81***		0.71***		0.48***		0.46***		0.56***
Step 2	.01		.01		.00		.01		.03		.01	
DV		0.66***		0.80***		0.70***		0.46***		0.45***		0.55***
SOP		0.02		0.09**		0.02		−0.06		0.08**		0.02
SPP		0.03		−0.01		0.02		0.06		−0.06*		0.04
Step 3	.00		.00		.00		.00		.00		.01	
DV		0.66***		0.80***		0.70***		0.46***		0.46***		0.54***
SOP		0.02		0.07*		0.04		−0.07		0.07*		0.04
SPP		0.03		−0.01		0.02		0.06		−0.05*		0.03
SOP × SPP		−0.01		−0.03		0.04		−0.02		−0.02		0.04*

Note: $N = 308$. SOP = self-oriented perfectionism. SPP = socially prescribed perfectionism. Time 2 = three months after Time 1.
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 6. Summary of supported, unsupported, and contradicted hypotheses of the 2 × 2 model of perfectionism, predicted values, and effect sizes.

	Study 1: Cross-sectional sample ($N = 279$)								Study 2: Longitudinal sample ($N = 308$)							
	Predicted value				Effect size (d)				Predicted value[b]				Effect size (d)			
Outcome	Non-perfectionism	Pure SOP	Pure SPP	Mixed perfectionism	Hypothesis 1: Pure SOP vs. Non	Hypothesis 2: Pure SPP vs. Non	Hypothesis 3: Mixed vs. Pure SPP	Hypothesis 4: Mixed vs. Pure SOP	Non-perfectionism	Pure SOP	Pure SPP	Mixed perfectionism	Hypothesis 1: Pure SOP vs. Non	Hypothesis 2: Pure SPP vs. Non	Hypothesis 3: Mixed vs. Pure SPP	Hypothesis 4: Mixed vs. Pure SOP
Perceived stress	2.35	2.40	2.73	2.78	0.11	−0.74***	0.11	−0.74***	−0.01	−0.10	0.10	0.01	−0.17	−0.19	−0.17	−0.19
Positive affect	3.45	3.43	3.15	3.13	−0.03	0.45**	−0.03	0.45**	0.02	0.15	−0.15	−0.02	0.19	0.26*	0.19	0.26*
Negative affect	3.02	3.18	3.46	3.62	0.23	−0.62***	0.23	−0.62***	−0.01	0.05	−0.05	0.01	0.09	0.05	0.09	0.05
Life satisfaction	3.72	3.95	3.04	3.27	0.18	0.53***	0.18	0.53***	−0.08	−0.03	0.03	0.08	0.03	−0.08	0.03	−0.08
Social support	2.51	2.80	2.28	2.58	0.34*[a]	0.26	0.34*	0.26	−0.07	0.07	−0.07	0.07	0.17	0.00	0.17	0.00
Active coping	2.89	3.08	2.86	3.05	0.30*[a]	0.04	0.30*	0.04	−0.05	0.09	−0.09	0.05	0.25*[a]	0.07	0.25*	0.07
Substance use	1.18	1.17	1.36	1.34	−0.02	−0.32*	−0.02	−0.32*	0.00	−0.06	0.06	0.00	−0.13	−0.12	−0.13	−0.12
Avoidance coping	2.26	2.31	2.66	2.72	0.08	−0.60***	0.08	−0.60***	−0.05	0.00	0.00	0.05	0.08	−0.08	0.08	−0.08
Religion	2.13	2.16	1.87	1.90	0.03	0.26	0.03	0.26	−0.09	0.12	−0.12	0.09	0.21**[a]	0.03	0.21**	0.03
Humor	2.49	2.68	2.50	2.70	0.19	−0.02	0.19	−0.02	−0.05	0.00	0.00	0.05	0.05	−0.06	0.05	−0.06
Denial	1.35	1.39	1.38	1.75	0.05	−0.03	0.55**†	−0.53**	0.00	−0.16	0.16	0.00	−0.21	−0.21	−0.21	−0.21
PCR	2.89	2.81	2.87	2.79	−0.13	0.02	−0.13	0.02	−0.03	0.18	−0.18	0.03	0.36**[a]	0.26*	0.36**	0.26*
Venting	2.56	2.50	2.38	2.71	−0.07	0.23	0.42*†	−0.26	−0.06	−0.10	−0.11	0.12	−0.06	0.07	0.30	−0.29*

Note: Pure SOP = pure self-oriented perfectionism; Pure SPP = pure socially prescribed perfectionism. Non = Non-perfectionism. Mixed = Mixed perfectionism. d = Cohen's d, which is calculated by dividing the difference between the predicted values of the perfectionism subtypes by the standard deviation of the dependent variable (Gaudreau, 2012). PCR = positive cognitive restructuring.

[a]denotes pure self-oriented perfectionism was associated with better psychological adjustment than non-perfectionism (Hypothesis 1a).

[b]Predicted values are unstandardized residuals.

†denotes mixed perfectionism was associated with worse psychological adjustment than pure socially prescribed perfectionism (opposite of Hypothesis 3).

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

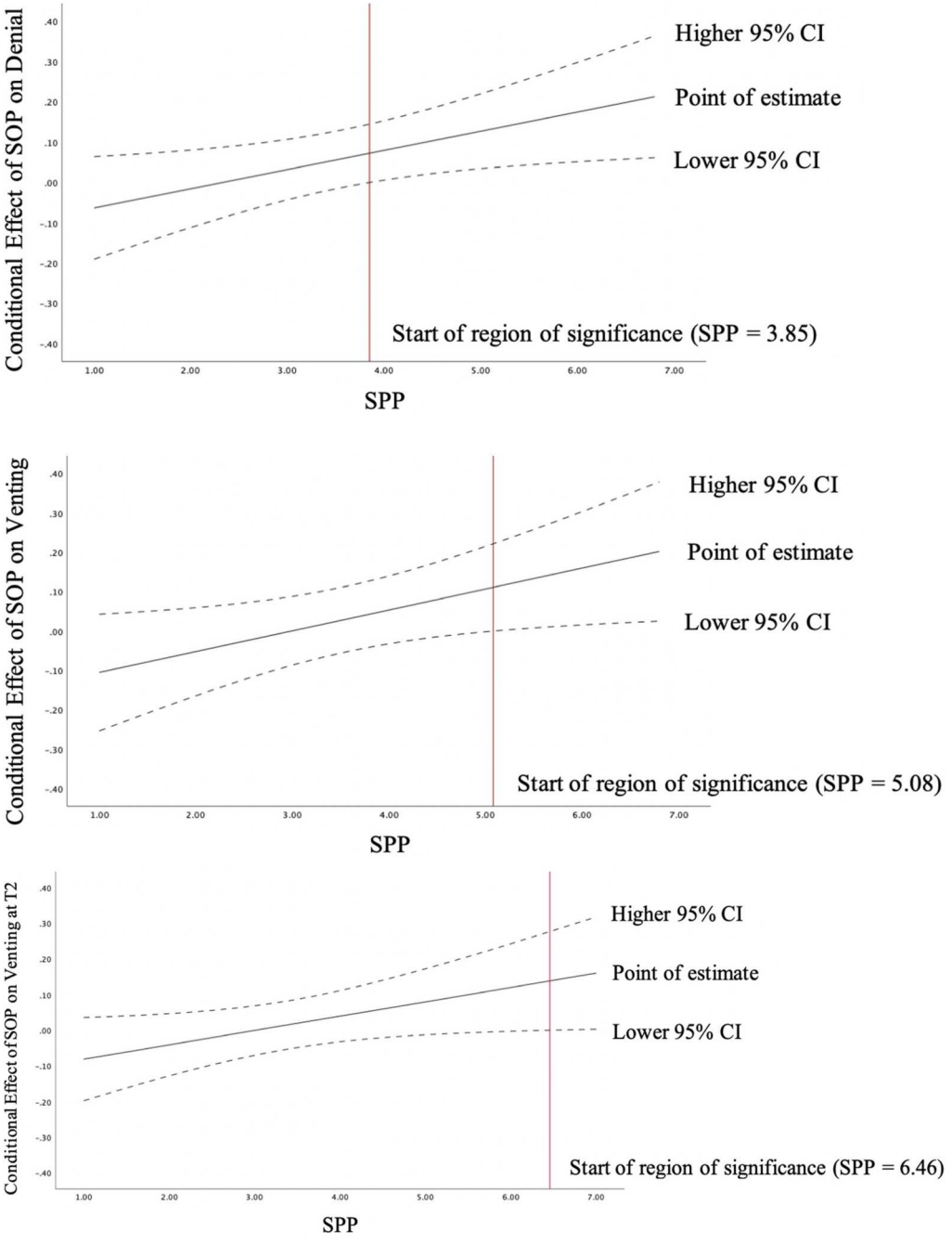

Figure 1. Conditional effects of self-oriented perfectionism on denial, venting, and venting at time 2 as socially prescribed perfectionism increases (Johnson-Neyman technique).

Note: $N = 279$ for first two plots and $N = 308$ for last plot. SOP = self-oriented perfectionism. SPP = socially prescribed perfectionism. CI = confidence interval. T2 = Time 2 (3 months after Time 1).

Discussion

The present article examined the 2×2 model of perfectionism in regards to student wellbeing and coping in a Filipino context using both cross-sectional and longitudinal samples. In doing so, we

tested the model's hypotheses and compared them with the aggravating factor hypothesis and the cultural makeup hypothesis.

Findings of Study 1

In testing the 2 × 2 model cross-sectionally, pure socially prescribed perfectionism was associated with worse wellbeing than non-perfectionism (Hypothesis 2), and pure self-oriented perfectionism was associated with better wellbeing than mixed perfectionism (Hypothesis 4). These findings replicate previous studies on the model in the university context by showing the comparative benefits and drawbacks of the two subtypes in which SOP and SPP have dominance (e.g., Franche & Gaudreau, 2016). Additionally, these findings signal the importance of SPP's role in student wellbeing, with the presence of high SPP in both cases corresponding with worse wellbeing for students. Counter to the model and our expectations, though, pure self-oriented perfectionism was associated with similar wellbeing as non-perfectionism (Hypothesis 1c), and mixed perfectionism was associated with similar wellbeing as pure socially prescribed perfectionism (no support for Hypothesis 3). These findings reflect correlational patterns for SOP which showed significant positive correlations with stress and negative affect, and a significant negative correlation with positive affect (see Table 1). Whereas the relations for SOP are often mixed, these findings conform to the notion that SOP can be problematic and is a vulnerability factor for wellbeing (Hewitt & Flett, 1991). In regards to the subtypes, rather than buffer the negative effects of high SPP, as is assumed in the model, in these cases high SOP conferred limited benefit for Filipino students' wellbeing.

When examining coping strategies, all of the model's hypotheses were supported depending on the coping strategy: (1) pure self-oriented perfectionism and mixed perfectionism were associated with more social support and active coping than non-perfectionism (Hypothesis 1a) and pure socially prescribed perfectionism (Hypothesis 3), respectively, (2) pure socially prescribed perfectionism was associated with more substance use and avoidance coping than non-perfectionism (Hypothesis 2), and (3) mixed perfectionism was associated with more substance use, avoidance coping, and denial than pure self-oriented perfectionism (Hypothesis 4). Similar to the results found by Franche (2017), these findings indicate that students displaying subtypes with high SOP (i.e., mixed perfectionism and pure self-oriented perfectionism) typically used more problem-focused coping strategies than the other subtypes, whereas students displaying subtypes with high SPP (i.e., mixed perfectionism and pure socially prescribed perfectionism) typically used more avoidance coping strategies than the other subtypes. Given past studies that found problem-focused coping to be generally related to better student wellbeing than avoidance coping (Gustems-Carnicer et al., 2019), these findings could explain why subtypes with high SOP are associated with better wellbeing than the other subtypes, and why subtypes with high SPP are associated with worse wellbeing than the other subtypes among students (e.g., Franche & Gaudreau, 2016).

Findings of Study 2

In testing the 2 × 2 model longitudinally, we make four key observations. First, the findings, in general, offer more limited support for the model with a longitudinal sample. This is to be expected. The longitudinal tests are more stringent and examine change by controlling for previous levels of the outcome variables. The more limited support is an important reminder that caution is required when weighing existing research on the model, most of which is cross-sectional. More longitudinal tests of the model are required to better evaluate its tenets and its utility. This includes revisiting studies that used cross-sectional designs and confirming these results via longitudinal designs. This work will be valuable in identifying which effects are most and least robust in terms of the influence of perfectionism subtypes.

Second, for positive affect and active coping, the same set of hypotheses were supported for both cross-sectional and longitudinal samples: non-perfectionism and pure self-oriented perfectionism were associated with more positive affect than pure socially prescribed perfectionism (Hypothesis 2) and mixed perfectionism (Hypothesis 4), respectively, and pure self-oriented perfectionism and mixed perfectionism were associated with more active coping than non-perfectionism (Hypothesis 1a) and pure socially prescribed perfectionism (Hypothesis 3), respectively. These effects, therefore, should be considered the most robust findings in the current article. Notably, relative to other subtypes, pure socially prescribed perfectionism appears to deny students the positive affective experiences and some of the coping tools needed to maintain wellbeing as they encounter the stress of academic life (Gaudreau et al., 2016). It is interesting that these findings indicate a comparative deficit in positive experiences rather than the presence of more prominent negative experiences. Based on existing findings, there has been suggestions that the model may be more adept at explaining differences between subtypes in positive outcomes, rather than negative outcomes (Damian et al., 2014). The current findings suggest that this notion may be supported.

Third, there were two outcomes in which the hypotheses were not supported using the cross-sectional sample but were supported using the longitudinal sample. For the use of religion, pure self-oriented perfectionism and mixed perfectionism were associated with higher residual changes than non-perfectionism (Hypothesis 1a) and pure socially prescribed perfectionism (Hypothesis 3), respectively. For positive cognitive restructuring, pure self-oriented perfectionism was associated with higher residual changes than non-perfectionism (Hypothesis 1a) and mixed perfectionism (Hypothesis 4), and pure socially prescribed perfectionism was associated with lower residual changes than non-perfectionism (Hypothesis 2) and mixed perfectionism (Hypothesis 3). Along with the supported hypotheses for active coping in Study 2, these results indicate that students displaying subtypes that include high SOP are typically more proactive in their use of these strategies over time. At least comparatively speaking, these subtypes therefore appear better placed than others to guard against wellbeing issues. The use of religion, in particular, may be noteworthy in the current cultural context in regards to wellbeing. Many religious Filipinos, who are predominantly Catholics, believe that practicing religious activities such as attending masses and praying can provide them with strength in managing their life's challenges (Matienzo, 2016). As such, it is of no surprise that previous studies have found religious coping to be significantly beneficial to Filipinos' wellbeing (e.g., Bulisig & Aruta, 2023).

Lastly, both studies found that mixed perfectionism was associated with higher use of venting than pure self-oriented perfectionism and pure socially prescribed perfectionism, respectively. When examining the interaction effect using the J-N technique, it is evident that the relationship between SOP and venting becomes significant when SPP reaches a level beyond its midpoint. This is an interesting counter to the findings that the use of more desirable coping corresponds to the presence of high SOP. When assessing risk among students, we are reminded that while high SOP may be related to desirable coping, in the presence of sufficient SPP, it will contribute to less desirable coping. The presence of perceived external perfectionistic pressures, then, appears especially important for Filipino students' wellbeing and coping. Future research is required to better understand if the findings relating to venting is something specific to the Filipino educational context or other contexts more generally.

Alternate cultural hypotheses

Based on growing acknowledgement of the importance of cultural context for perfectionism and within the 2×2 model, we compared the model's hypotheses with the aggravating factor hypothesis and the cultural make-up hypothesis (Franche et al., 2012). Considering the results of both studies, wherein mixed perfectionism was associated with similar or even worse psychological adjustment than pure socially prescribed perfectionism (no support for or opposite of Hypothesis 3) for many wellbeing outcomes and coping strategies, support for the aggravating factor

hypothesis is clearer than the cultural make-up hypothesis; *socially prescribed perfectionism was largely an aggravating factor in the Filipino context.* Outside of the current study, recent qualitative accounts of Filipino students suggest the same. Notably, Tan (2022) highlighted that some of the personal distress and difficulties with parental relationships during college years among Filipino students was because of their fear of being reprimanded or punished by their parents. Students' *utang na loob* (Bernando, 2008) for their families reflects their adoption of an interdependent self-construal, where they prioritized meeting parental expectations and achieving familial goals to maintain harmony. However, when parental criticisms become overbearing, students may experience heightened distress due to pressure to meet cultural obligations, which aligns with Yoon and Lau's (2008) cultural sensitization model.

While this may be the case, we caution against abandoning the cultural make-up hypothesis entirely. Results also indicated that, on some occasions, mixed perfectionism was associated with similar use of coping strategies to pure self-oriented perfectionism in both cross-sectional (i.e., social support and active coping) and longitudinal tests (i.e., active coping and religion). Also, mixed perfectionism was associated with higher life satisfaction and social support than pure self-oriented perfectionism or pure socially prescribed perfectionism in the longitudinal test (potential support for Hypotheses 3 and 4). Again, the qualitative accounts of Filipino students reported by Tan (2022) are important with Filipino students who are most at ease with parental pressures also able to find balance between fulfilling personal goals and meeting parental standards. Issues of goal acceptance or goal alignment, therefore, appear important in reconciling different perspectives. So, too, does the possibility of other contextual moderators. For instance, Yoon and Lau (2008) found that parental support reduced the relationship between *parent-driven perfectionism* (parental criticism and expectations) and distress in Asian American students. Consideration of parental support may also be important when testing the 2×2 model and particularly in regards to Filipino university students and the cultural make-up hypothesis.

Limitations and recommendations

Several limitations are noted in both studies. First, the measures used were all self-reported and are prone to well-known issues associated with this type of measurement (e.g., response biases). Future studies could utilize more objective measurement (e.g., informant ratings; Flett et al., 2005) to help verify the self-reported measurements. Second, some caution is required for generalizability as the samples from both studies were non-random, mostly female, and mostly came from a single university campus. Future studies should recruit larger samples from multiple sites and with a more balanced gender distribution to increase confidence in the generalizability. Third, the reliabilities of some variables in both studies were lower than desirable. It is noteworthy that the number of items on these scales are smaller, and thus this is expected. Nonetheless, caution is required in interpreting effects that involve these scales. Fourth, while Gaudreau (2013) emphasized the importance of meeting the conditions to support the 2×2 model's hypotheses rather than prescribing specific statistical methods to test the model, we recommend replicating the findings using alternative approaches such as structural equation modeling to enhance the model's validity. Lastly, we operationalized student wellbeing in a particular way, and other ways of doing so are available and will have their own benefits such as eudemonic wellbeing variables that include school engagement and academic efficacy (Hossain et al., 2023). These indicators may offer additional insights into differences in university experiences between perfectionistic Filipino students and other means of testing alternate cultural hypotheses.

Conclusion

We examined the 2×2 model of perfectionism in predicting wellbeing and coping in Filipino university students by testing the model's hypotheses, as well as alternate cultural hypotheses, at both

cross-sectional and longitudinal levels. Different hypotheses were supported for each variable for both studies, but overall findings supported the aggravating factor hypothesis over the cultural make-up hypothesis and highlight that Filipino students with a strong belief that others expect perfection from them (i.e., high SPP), including those with mixed perfectionism, are more vulnerable, rather than less vulnerable, to poorer wellbeing and unhealthy coping.

Author contributions statement

All authors contributed to the study conception and design. Material preparation, data collection, and data analysis were performed by Jeryl Shawn T. Tan. Data and analysis codes were prepared by Jeryl Shawn T. Tan and checked by Daniel J. Madigan. The initial draft of the manuscript was written and revised by Jeryl Shawn T. Tan and Andrew P. Hill, and all authors commented on subsequent versions of the manuscript. All authors read and approved the final manuscript.

Notes

1. Franche (2017) tested the 2×2 model at the between-person and within-person levels. The results provided in the present article are at the between-person level as we tested the said model at the between-person level only.
2. Because of the lack of participants who completed the Time 2 survey, the original 3-week data collection at Time 2 was extended by another week.
3. The final sample size for the longitudinal study ($N = 308$) is one participant less than the minimum sample size that was preregistered ($N = 309$). Despite this, no differences were found when comparing the findings for both sample sizes.

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Data availability statement

Data and analysis codes that support the findings of both cross-sectional and longitudinal studies are openly available at the Research at York St John University Repository (RaYDaR) via https://doi.org/10.25421/yorksj.23805099.v1 (cross-sectional) and https://doi.org/10.25421/yorksj.25656417 (longitudinal).

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