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Cultural Similarities in Perfectionism: Perfectionistic Strivings and Concerns Generalize Across Chinese and Canadian Groups

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Abstract

This study supports the generalizability of perfectionistic strivings and concerns across Canadian and Chinese university students (N = 1,006) and demonstrates the importance of establishing measurement invariance prior to hypothesis testing with different groups. No latent mean difference in perfectionistic concerns was observed, but Canadian individuals reported higher perfectionistic strivings.

Keywords

perfectionism, depression, anxiety, stress, cross-cultural

Perfectionism is a topic of importance to counseling psychologists, with many counseling centers describing perfectionism as a common presenting difficulty (Chao, Mallinckrodt, & Wei, 2012; Johnson & Hayes, 2003). There are several current conceptualizations of perfectionism (e.g., Dunkley, Zuroff, & Blankstein, 2003; Frost, Marten, Lahart, & Rosenblate, 1990; Hewitt & Flett, 1991), with research indicating perfectionism is best understood as multidimensional (see Hewitt, Flett, Besser, Sherry, & McGee, 2003). A particularly promising model proposes that perfectionism is composed of two higher order factors (Dunkley et al., 2003; Stoeber & Otto, 2006): perfectionistic strivings (i.e., rigidly and ceaselessly demanding perfection of the self) and perfectionistic concerns (i.e., overly negative reactions to perceived failures, excessive concerns over others' criticisms and expectations, and nagging self-doubts). This two-dimensional model of perfectionism forms the basis of the present study, as it is a widely used, theoretically based, and an empirically supported synthesis of several fundamental models of perfectionism (Dunkley et al., 2003; Frost et al., 1990; Hewitt & Flett, 1991).

Research indicates perfectionistic concerns are robustly related to decreased life satisfaction and increased depression, anxiety, and stress (Hill, Huelsman, & Araujo, 2010; Stoeber & Otto, 2006). In contrast, perfectionistic strivings typically have nonsignificant bivariate associations with both positive and negative psychological outcomes (Stoeber & Otto, 2006). However, after controlling statistically for overlap with perfectionistic concerns,

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perfectionistic strivings are sometimes positively related to positive psychological outcomes and negatively related to negative psychological outcomes (Hill et al., 2010; McGrath et al., 2012; Stoeber & Otto, 2006). This suggests that perfectionistic concerns may mask the relationship between perfectionistic strivings and positive psychological outcomes (Hill et al., 2010; McGrath et al., 2012).

Although the two-factor model of perfectionism is a valuable contribution, evidence in support of the two-factor model stems almost entirely from English-speaking samples completing measures developed by Western researchers (e.g., DiBartolo & Rendón, 2012). Therefore, it is unclear whether the two-factor model captures the same construct of perfectionism in other countries and cultures such as Mandarin-speaking Chinese samples. When tests developed in one culture are used in another, the comparability of measurement across cultures cannot be assumed (Byrne & Campbell, 1999; Hambleton & Lee, 2013). Thus, it is crucial to determine whether the two-factor model of perfectionism can be replicated and measured equivalently across cultures (i.e., measurement invariance) prior to hypothesis testing (Byrne, 2012; Byrne & Campbell, 1999). Without at least partial measurement invariance, reported mean-level differences between culturally different groups may represent differences arising from factor structure, as opposed to meaningful cultural differences (Byrne, 2012). At best, prior research investigating differences in perfectionism across cultures without first establishing measurement invariance has reported cultural differences, albeit with "noise." At worst, past cross-cultural perfectionism research has neglected the importance of measurement invariance and reported cultural differences stemming from measurement artifacts (Byrne & Campbell, 1999).

Research testing differences in perfectionism between Canadian and Chinese cultures often draw conclusions based on comparisons between English-speaking individuals of European and Asian descent living in Canada (e.g., Franche, Gaudreau, & Miranda, 2012). The extent to which such findings are indicative of differences in perfectionism between Canadian and Chinese cultures cannot be assumed. The pan-ethnic term "Asian Canadian" encapsulates major heterogeneity across individuals in terms of nationality (e.g., Chinese, Japanese, or Korean) as well as experiential and social factors (E. C. Chang, 2013; DiBartolo & Rendón, 2012). In addition, using pan-ethnic samples comprised solely individuals of European and Asian descent living in Canada may undermine efforts to test rigorously for meaningful cultural differences in perfectionism.

Whether the two-factor model of perfectionism is culturally robust and invariant (i.e., equivalent) across Canadian and Chinese cultures also has important theoretical implications. Preliminary research suggests perfectionistic strivings and concerns may represent basic tendencies (Mackinnon & Sherry, 2012). As basic tendencies, perfectionistic strivings and concerns are theorized to encompass broad individual differences in thoughts, feelings, and general behavioral consistencies across time (McAdams & Pals, 2006). In support of this contention, perfectionistic strivings and concerns appear temporally stable (Mackinnon & Sherry, 2012) and resistant to treatment (Shafran & Mansell, 2001). However, before perfectionistic strivings and concerns may be considered valid basic tendencies, they must be shown to be invariant across cultures (Byrne & Campbell, 1999).

It is important to note that while perfectionistic strivings and perfectionistic concerns may be basic tendencies applicable across Canadian and Chinese cultures, this possibility does not preclude potential latent mean differences (Byrne & Campbell, 1999). Specifically, research suggests Canadian and Chinese individuals differ significantly in cognitive and emotional styles (R. Chang & Chang, 2009). Moreover, one often reported difference is that Canadians are more individualistic relative to Chinese individuals, whereas Chinese individuals are more collectivistic relative to Canadian individuals (Oyserman, Coon, & Kemmelmeier, 2002). Given strongly held individualistic values in

Canadian culture, Canadians may report higher perfectionistic strivings, as items for perfectionistic strivings tend to be "self-focused" (e.g., "*I* must work to *my* full potential at all times"; italics added). In contrast, given firmly held collectivist values in Chinese culture, Chinese individuals may report higher perfectionistic concerns, as items for perfectionistic concerns tend to be "other-focused" (e.g., "My *family* expects me to be perfect"; italics added).

In the present study, perfectionistic strivings and concerns were conceptualized as basic tendencies, and expected to have equivalent effects on negative emotionality and satisfaction with life across English-speaking Canadian and Mandarin-speaking Chinese groups (i.e., structural invariance). Since perfectionistic strivings and concerns were expected to be invariant across Canadian and Chinese groups, the finding that perfectionistic concerns suppress the relationship between perfectionistic strivings and life satisfaction (Hill et al., 2010), was expected to replicate in the Chinese group. If this suppression effect is replicated, and if structural invariance is established, it would provide support for the validity of the two-factor model of perfectionism across both Canadian and Chinese cultures.

Objectives and Hypotheses

The present study was designed to test (a) the generalizability of the two-factor model of perfectionism across Canadian participants completing English versions of measures and Chinese participants completing Mandarin versions of measures, (b) potential latent mean differences in perfectionistic strivings and concerns, and (c) if perfectionistic concerns suppresses the association between perfectionistic strivings and satisfaction with life in both Canadian and Chinese groups.

Based on past literature (e.g., Franche et al., 2012; Mackinnon & Sherry, 2012; Sherry & Hall, 2009), it was hypothesized that measurement and structural invariance would be established. In addition, the Chinese group was expected to report significantly higher perfectionistic concerns compared with the Canadian group (E. C. Chang, 2013; DiBartolo & Rendón, 2012; Franche et al., 2012), whereas the Canadian group was expected to report significantly higher perfectionistic strivings (E. C. Chang, 2002; R. Chang & Chang, 2009). Finally, perfectionistic concerns were expected to suppress the relationship between perfectionistic strivings and satisfaction with life, as well as suppress the association between perfectionistic strivings and negative emotionality for both Canadian and Chinese groups (Hill et al., 2010; McGrath et al., 2012).

Method

Participants

Participants were 1,006 undergraduates (425 Canadian; 581 Chinese) with a mean age of 19.8 years (SD = 3.0). Canadian participants (M age = 18.8; SD = 4.0; 316 women and 109 men) were recruited from a large university in London, Canada and Chinese participants (M age = 20.6; SD = 1.4; 412 women and 169 men) were recruited from a large university in Beijing, China (see also Smith, Saklofske, Yan, & Sherry, 2015). While data on ethnicity and country of citizenship were not collected for the Canadian sample, all students were registered at a large Canadian university and fluent in English. The proportion of students from all other countries attending the Canadian university is estimated to be 7.4%, as reported by the registrar's office. Our sample only included first year students registered in the introductory psychology course of which even a smaller proportion are not Canadian. All students in Beijing were Chinese.

Measures

Perfectionistic strivings, perfectionistic concerns, negative emotionality, and satisfaction with life were each measured as latent variables. All subscale scores were calculated by averaging items. Scales used in the Chinese sample were all translated into Mandarin following the procedures outlined by Hambleton and Lee (2013). This included having fluently

bilingual measurement experts in China both translate and back translate scales to ensure content validity.

Perfectionistic Strivings. Perfectionistic strivings were assessed with three short form subscales recommended by Cox, Enns, and Clara (2002) and by Sherry and Hall (2009): The short form of Hewitt and Flett's (1991) *Multidimensional Perfectionism Scale Self-Oriented Perfectionism subscale* (HFMPS-SOP), the short form of Frost et al.'s (1990) *Multidimensional Perfectionism Scale Personal Standards subscale* (FMPS-PS), and the modified form of Garner, Olmstead, and Polivy's (1983) *Eating Disorder Inventory Self-Oriented Perfectionism subscale* (EDI-SOP). Participants responded to the HFMPS-SOP on a 7-point scale (1 = *strongly disagree*; 7 = *strongly agree*). Participants responded to the FMPS-PS on a 5-point scale (1 = *strongly disagree*; 5 = *strongly agree*) and to the EDI-SOP on a 6-point scale (1 = *never*; 6 = *always*). The HFMPS-SOP, FMPS-PS, and EDI-SOP were selected based on research indicating they measure core cognitive, interpersonal, and behavioral features of perfectionistic strivings (Mackinnon & Sherry, 2012; McGrath et al., 2012). Research supports the reliability and the validity of these subscales (Mackinnon & Sherry, 2012; Sherry, Hewitt, Sherry, Flett, & Graham, 2010).

Perfectionistic Concerns. Perfectionistic concerns were assessed with three short form subscales recommended by Cox et al. (2002): the short form of Hewitt and Flett's (1991) *Multidimensional Perfectionism Scale Socially Prescribed Perfectionism subscale* (HFMPS-SPP), the short form of Frost et al.'s (1990) M*ultidimensional Perfectionism Scale Concern Over Mistakes subscale* (FMPS-COM), and the short form of Frost et al.'s (1990) *Multidimensional Perfectionism Scale Doubts About Actions subscale* (FMPS-DAA). Participants responded to the HFMPS-SPP on a 7-point scale (1 = *strongly disagree*; 7 = *strongly agree*). Participants responded to the FMPS-COM and the FMPS-DAA on a 5-point scale (1 = *strongly disagree*; 5 = *strongly agree*). Again, the HFMPS-SPP, FMPS-COM, and FMPS-DAA were selected based on research indicating they provide reliable and valid measures of the core cognitive, interpersonal, and behavioral features of perfectionistic concerns (Graham et al., 2010; Mackinnon & Sherry, 2012; Smith, Saklofske, & Nordstokke, 2014).

Negative Emotionality. Negative emotionality was measured using the short form of the *Depression Anxiety Stress Scales* (DASS-21; Lovibond & Lovibond, 1995). The DASS-21 is a 21-item scale containing three 7-item subscales measuring depression, anxiety, and stress. Participants responded to items on a 4-point scale (0 = *did not apply to me at all*; 3 = *applied to me very much*). Research supports the reliability and the validity of the DASS-21 (Lovibond & Lovibond, 1995).

Satisfaction With Life. Satisfaction with life was measured using the 5-item *Satisfaction With Life Scale* (Diener, Emmons, Larsen, & Griffin, 1985). Participants responded to items on a 7-pont scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Research supports the reliability and the validity of the Satisfaction With Life Scale (Diener et al., 1985).

Procedure

The data employed in the present study were drawn from a large cross-cultural research project (see Smith, Saklofske, Yan, & Sherry, 2015). Canadian participants were recruited from the department of psychology's undergraduate participant pool at a large university in central Canada and directed to an online consent form and questionnaires. The Research Ethics Board at the University of Western Ontario approved this study. Following completion of online measures participants were debriefed. As compensation, Canadian participants were awarded one credit to use toward an introductory psychology course. All Canadian participants reported being full-time Canadian university students with English as their primary language.

Chinese participants were recruited from a large university in Beijing according to an established protocol. Participants completed translated measures following the same procedure described for the Canadian sample and following the research procedures established for the university, but without any form of credit as this is not standard procedure in Chinese universities. All Chinese participants reported being full-time Chinese undergraduate university students with Mandarin as their primary language.

Data Analysis

A confirmatory factor analysis framework, analyzed in AMOS 21, tested if factor loadings differed across participants from Canada (completing English versions of measures) and participants from China (completing Mandarin versions of measures). For all models, full information maximum likelihood estimation was used. A root mean square error of approximation in the range of .05 to .08 and a comparative fit index in the range of .95 suggests a well-fitting model (Byrne, 2012). Following Cheung and Rensvold (2002), comparative fit index difference tests (ΔCFI) were used for invariance testing; these authors found a ΔCFI ≤ .01 provided strong support that one model does not differ significantly from another model (Byrne, 2012). ΔCFI was chosen over chi-square difference tests ($\Delta\chi^2$) given research suggesting $\Delta\chi^2$ is sensitive to trivial fluctuations and differences when invariance testing (Cheung & Rensvold, 2002).

Assuming measurement invariance, latent mean differences between the Canadian group and the Chinese group were tested. Finally, assuming measurement invariance, suppression effects were examined by investigating how standardized beta weights changed from a one-predictor regression model to a two-predictor regression model (Watson, Clark, Chmielewski, & Kotov, 2013). The significance of suppression effects was evaluated using the Sobel test (MacKinnon, Krull, & Lockwood, 2000). Details on the moderating effect of perfectionistic strivings on the association between perfectionistic concerns and negative emotionality for this sample of Canadian and Chinese student was reported in Smith et al. (2015).

Results

Descriptive Statistics

Full information maximum likelihood was used for missing data. Less than 5% of data points were missing. Means, standard deviations, alpha reliabilities, and bivariate correlations are in Table 1. Alpha reliabilities for the Canadian sample were excellent (range = .80–.88), whereas alpha reliabilities for the Chinese sample were marginal to excellent (range = .62–.82). Bivariate correlations indicated that, for both Canadian and Chinese groups, perfectionistic strivings were not significantly correlated with negative emotionality and weakly and positively associated with life satisfaction. For both groups, perfectionistic concerns were moderately to strongly and positively correlated with negative emotionality and moderately and negatively associated with life satisfaction.

Baseline Models

Goodness-of-fit related to the hypothesized measurement model was estimated separately for Canadian and Chinese groups. Identification of a well-fitting baseline model for each group is a prerequisite for tests of invariance (Byrne, 2012). Model fit statistics indicated a modestly well-fitting baseline model for both groups (see Model 1 and Model 2 in Table 2).

Configural Invariance

Configural invariance (see Model 3 in Table 2) was tested to determine if the number of factors and the pattern of loadings were invariant across Canadian and Chinese groups. The configural model was well-fitting (see Model 3 in Table 2) in its representation of the multigroup data. The relations between each indicator and its construct had equivalent patterns of fixed and free loadings across groups.

Table 1. Means, Standard Deviations, Coefficient Alphas, and Bivariate Correlations.

Variable	1	2	3	4	5	6	7	8	9	10	α [95% CI]	*M*	*SD*
1. SOP (HFMPS)	—	.68**	.59**	.60**	.42**	.19**	.19**	.23**	.19**	−.08	.86 [.84, .88]	4.4	1.4
2. PS (FMPS)	.53**	—	.63**	.53**	.48**	.26**	.15	.12	.17*	−.04	.84 [.82, .87]	3.2	0.9
3. SOP (EDI)	.59**	.49**	—	.52**	.57**	.36**	.33**	.30**	.34**	−.19**	.82 [.80, .85]	3.6	1.1
4. SPP (HFMPS)	.35**	.27**	.30**	—	.57**	.37**	.26**	.29**	.29**	−.18**	.80 [.77, .83]	4.1	1.3
5. COM (FMPS)	.33**	.36**	.35**	.37**	—	.55**	.46**	.41**	.42**	−.33**	.86 [.84, .88]	2.5	1.0
6. DAA (FMPS)	.26**	.34**	.28**	.30**	.52**	—	.47**	.43**	.47**	−.32**	.85 [.83, .87]	2.9	1.1
7. Depression	.11	.06	.11	.26**	.36**	.30**	—	.70**	.74**	−.58**	.88 [.86, .90]	0.7	0.6
8. Anxiety	.26**	.19**	.23**	.23**	.38**	.37**	.66**	—	.71**	−.43**	.81 [.77, .83]	0.6	0.5
9. Stress	.25**	.25**	.25**	.22**	.36**	.37**	.70**	.74**	—	−.43**	.82 [.79, .84]	0.9	0.6
10. SWL	.01	−.03	−.05	−.12*	−.24**	−.30**	−.41**	−.38**	−.37**	—	.88 [.86, .90]	4.8	1.3
α [95% CI]	.79 [.76, .82]	.64 [.59, .69]	.62 [.56, .67]	.70 [.66, .74]	.74 [.70, .77]	.69 [.64, .73]	.75 [.72, .78]	.77 [.74, .80]	.79 [.76, .82]	.82 [.79, .84]	—		
M	4.0	3.2	3.0	4.2	2.4	2.9	0.5	0.5	0.8	4.1		—	
SD	1.1	0.7	0.8	0.9	0.7	0.8	0.4	0.6	0.6	1.2			—

Note. CI = confidence interval; SOP = self-oriented perfectionism; PS = personal standards; SPP = socially prescribed perfectionism; COM = concerns over mistakes; DAA = doubts about actions; SWL = satisfaction with life; HFMPS = Hewitt and Flett's (1991) Multidimensional Perfectionism Scale; FMPS = Frost et al.'s (1990) Multidimensional Perfectionism Scale; EDI = Garner et al.'s (1983) Eating Disorder Inventory. All scale scores were calculated by averaging items. Statistics for Canadian participants are above the diagonal. Statistics for Chinese participants are below the diagonal.
*$p < .01$. **$p < .001$.

Table 2. Goodness-of-Fit Statistics for Tests of Multigroup Measurement and Structural Invariance.

Model Number	Comparative Model	χ^2	*df*	TLI	CFI	ΔCFI	RMSEA [90% CI]
1. Canadian baseline model	—	278.30	71	.908	.938	—	.083 [.073, .093]
2. Chinese baseline model	—	242.87	71	.917	.944	—	.066 [.057, .076]
3. Configural model	—	521.20	142	.912	.940	—	.052 [.048, .057]
4. Measurement model							
Model A: All factor loadings constrained equal across groups	4A versus 3	603.27	152	.902	.929	.011	.055 [.051, .060]
Model B: Factor loadings for only perfectionistic strivings constrained equal	4B versus 3	534.69	144	.911	.939	.001	.053 [.048, .058]
Model C: Model B with factor loading for perfectionistic concerns constrained equal	4C versus 3	543.54	146	.910	.938	.002	.053 [.048, .058]
Model D: Model C with factor loadings for negative emotionality constrained equal	4D versus 3	595.06	148	.900	.930	.010	.056 [.051, .060]
Model E: Model D with factor loading for Item 2 (on SWL) constrained equal	4E versus 3	595.96	149	.901	.930	.010	.056 [.051, .060]
Model F: Model D with factor loadings for Items 2 and 3 (on SWL) constrained equal	4F versus 3	597.51	150	.902	.930	.010	.055 [.051, .060]
Model G: Model D with factor loadings for Items 2, 3, and 4 (on SWL) constrained equal (selected)	4G versus 3	597.89	151	.903	.930	.010	.055 [.051, .060]
5. Structural invariance model	5 versus 4G	606.59	155	.904	.929	.001	.055 [.050, .059]

Note. *df* = degrees of freedom; CFI = comparative fit index; ΔCFI = differences in CFI values between models; CI = confidence interval; SWL = satisfaction with life; RMSEA = root mean square error of approximation; TLI = Tucker–Lewis index.

Metric Invariance

Metric invariance was examined to test if factor loadings were equivalent across Canadian and Chinese groups. Results indicate that, compared with the configural model, placing invariance restrictions on factor loadings led to a significant decrement in model fit (ΔCFI = .011; see Model 4A in Table 2). Despite this, subsequent tests indicated all factor loadings, with the exception of satisfaction with life, Item 5 ("If I could live my life over, I would change almost nothing"), operated equivalently across groups (see Model 4G in Table 2). All standardized factor loadings were substantial and significant ($p < .001$; see Table 3). For the Canadian sample, factor loadings ranged from .66 to .88; for the Chinese sample, factor loadings ranged from .51 to .84. Overall, confirmatory factor analysis suggests the pattern of metric invariance observed was acceptable.

Latent Mean Differences

Prior to testing for group differences in latent factor means, the observed variable intercepts were constrained equal across the Canadian and Chinese groups (i.e., scalar invariance; Byrne, 2012). Despite equality constraints on intercepts, the structural means model fit the data adequately, $\chi^2(162) = 739.09$, CFI = .909, root mean square error of approximation = .061 with 90% confidence interval [.056, .065]. Given this finding, estimates derived from this solution may be estimated accurately. Participants in the Canadian group, compared with participants in the Chinese group, reported significantly higher perfectionistic strivings, $z = 6.11$, $p < .001$, $d = .40$, negative emotionality, $z = 3.82$, $p < .001$, $d = .25$, and satisfaction with life, $z = 8.58$, $p < .001$, $d = .57$. No significant difference between the groups was observed for perfectionistic concerns, $z = 0.57$, $p = .568$, $d = .04$.

Structural Invariance

Structural invariance (see Model 5 in Table 2) was tested to determine if path coefficients were invariant across Canadian and Chinese groups. Path coefficients were considered invariant if the structural invariance model with path coefficients constrained equal across groups caused no significant decrease in fit relative to the measurement model (see Model 5G in Table 2). Fit indices and ΔCFI values indicate path coefficients were invariant across Canadian and Chinese groups (see Figure 1).

Suppression

Standard multiple regression analyses and Sobel tests were conducted to evaluate potential suppression effects in the Canadian and Chinese groups (see Table 4). The standardized regression weight for perfectionistic strivings as a predictor of negative emotionality was nonsignificant for both the Canadian and Chinese group. In addition, the standardized regression weight for perfectionistic strivings as a predictor of satisfaction with life was small and positive for both the Canadian and Chinese group. However, after variance attributable to perfectionistic concerns was controlled for, the regression weight for perfectionistic strivings as a predictor of negative emotionality was moderate and negative for both groups. Moreover, after controlling for perfectionistic concerns, the regression weight for perfectionistic strivings as a predictor of life satisfaction became moderate and positive in both the Canadian and Chinese groups. Sobel tests confirmed perfectionistic concerns masked the association between perfectionistic strivings and satisfaction with life, as well the association between perfectionistic strivings and negative emotionality in both groups (see Table 4). This finding complements past research (e.g., Hill et al., 2010; McGrath et al., 2012).

Discussion

As counseling psychology works to extend its international influence, adaptation of culturally sensitive models and measures is a major concern. It is vitally important to test if—rather than assume that—models and measures generated in North America generalize

Table 3. Maximum Likelihood Estimates of Factor Loadings and Residuals for Measurement Model.

	Factor Loadings			Measurement Error		
Indicator	Unst.	*SE*	St.	Unst.	*SE*	St.
Perfectionistic strivings						
SOP (HFMPS)	1 (1)	—	.81 (.73)	17.28 (13.22)	1.72 (1.10)	.34 (.47)
PS (FMPS)	0.51 (0.51)	.02 (.02)	.79 (.73)	5.10 (3.37)	0.48 (0.28)	.38 (.47)
SOP (EDI)	0.58 (0.58)	.03 (.03)	.78 (.75)	6.85 (4.02)	0.64 (0.34)	.39 (.44)
Perfectionistic concerns						
SPP (HFMPS)	1 (1)	—	.69 (.55)	20.46 (15.48)	1.66 (1.06)	.52 (.70)
COM (FMPS)	0.96 (0.96)	.05 (.05)	.82 (.74)	8.20 (5.18)	0.90 (0.48)	.33 (.45)
DAA (FMPS)	0.68 (0.68)	.04 (.04)	.66 (.61)	11.01 (5.26)	0.87 (0.38)	.56 (.63)
Negative emotionality						
Stress	1 (1)	—	.88 (.84)	3.76 (4.26)	0.45 (0.38)	.23 (.29)
Anxiety	0.87 (0.87)	.03 (.03)	.82 (.84)	4.72 (3.18)	0.44 (0.28)	.33 (.29)
Depression	0.89 (0.89)	.03 (.03)	.82 (.84)	5.24 (3.26)	0.48 (0.29)	.33 (.29)
Satisfaction with life						
Item 1	1 (1)	—	.84 (.78)	0.65 (0.79)	0.06 (0.06)	.29 (.39)
Item 2	0.89 (0.89)	.04 (.04)	.79 (.69)	0.78 (1.07)	0.07 (0.07)	.38 (.52)
Item 3	1.01 (1.01)	.04 (.04)	.89 (.81)	0.45 (0.65)	0.05 (0.06)	.21 (.34)
Item 4	0.95 (0.95)	.04 (.04)	.76 (.67)	1.08 (1.34)	0.09 (0.09)	.42 (.55)
Item 5	1.00 (0.79)	.07 (.07)	.66 (.51)	2.14 (2.19)	0.16 (0.14)	.56 (.74)

Note. Unst. = unstandardized; St. = standardized; SOP = self-oriented perfectionism; PS = personal standards; SPP = socially prescribed perfectionism; COM = concerns over mistakes; DAA = doubts about actions; HFMPS = Hewitt and Flett's (1991) Multidimensional Perfectionism Scale; EDI = Garner et al.'s (1983) Eating Disorder Inventory; FMPS = Frost et al.'s (1990) Multidimensional Perfectionism Scale. Estimates for Canadian participants are outside parentheses. Estimates for Chinese participants are inside parentheses.

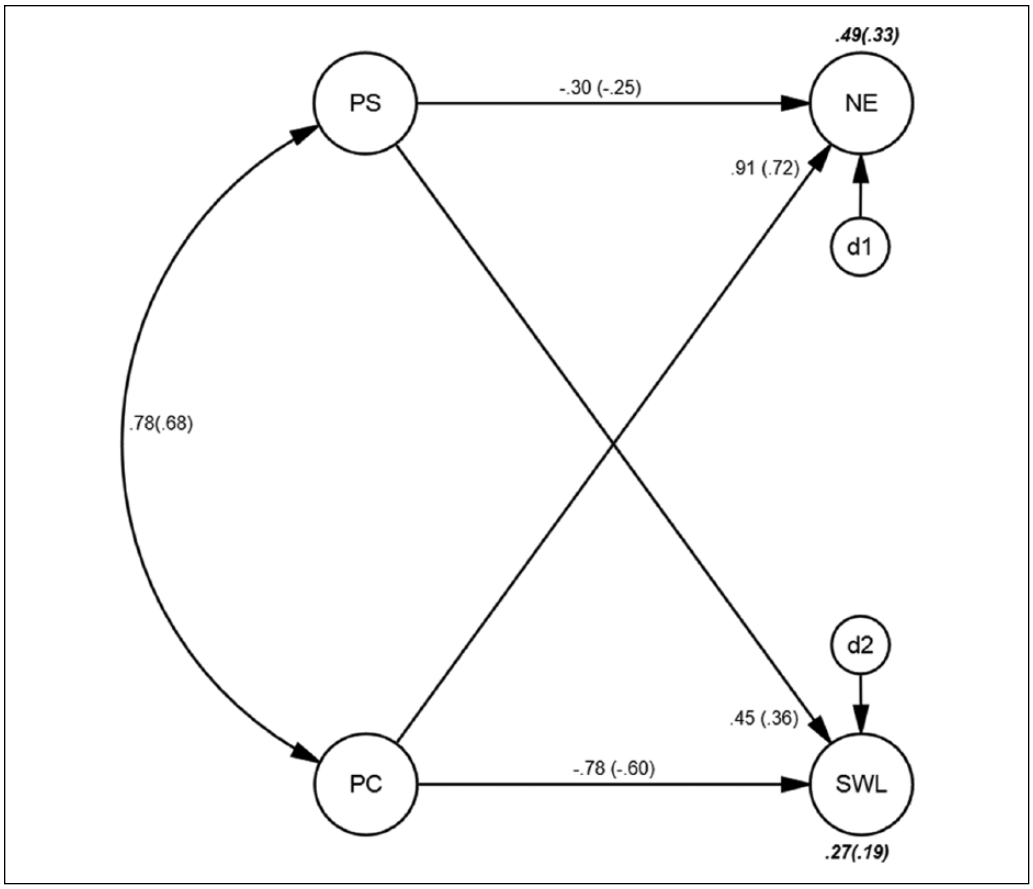

Figure 1. Structural model.
Note. Ovals represent latent variables. Factor loadings for Canadian participants are outside parentheses. Factor loadings for Chinese participants are inside parentheses. All estimates are standardized.

Table 4. Regression Results for Canadian and Chinese Participants Predicting Negative Emotionality, and Satisfaction With Life From Perfectionistic Strivings and Perfectionistic Concerns.

	Canadian Participants		Chinese Participants	
Variable	Negative Emotionality	Satisfaction With Life	Negative Emotionality	Satisfaction With Life
Perfectionistic strivings				
β alone	−.07	.17**	.05	.15**
β joint	−.41**	.46**	−.17**	.37**
Sobel test (z)	8.39**	−7.11**	6.46**	−5.06**
Perfectionistic concerns				
β alone	.68**	−.50**	.58**	−.46**
β joint	.98**	−.76**	.72**	−.64**
Sobel test (z)	−1.57	3.35**	1.03	2.90**

Note. Variables analyzed were factor scores.
*$p < .01$. **$p < .001$.

to other cultural contexts. If a pattern of cross-cultural generalizability is assumed (and not tested) researcher may overlook the uniqueness of a particular cultural context. Indeed, counseling psychologists frequently voice concerns about the incautious exportation of North American-based models and measures to other cultural contexts (Gerstein & Ægisdóttir, 2012). Thus, the primary aim of the present study was to test the generalizability of the two-factor model of perfectionism across Canadian participants completing English versions of measures and Chinese participants completing Mandarin versions of measures. Using multigroup confirmatory factor analysis, results showed that perfectionistic strivings, perfectionistic concerns, negative emotionality, and satisfaction with life had similar sets of factor loadings, with subscales fitting the two-factor model of perfectionism well in both the Canadian and the Chinese groups. As hypothesized, structural invariance was also established (see Figure 1). Perfectionistic strivings and concerns showed equivalent effects on negative emotionality and satisfaction with life across groups. Our findings suggest that, at the construct level, the two-factor model of perfectionism is both robust and essentially the same across Canadian and Chinese groups. This finding provides evidence supporting the generalizability of perfectionistic strivings and concerns across Canadian and Chinese cultures, and by doing so, adds to a growing body of literature suggesting perfectionistic strivings and concerns are basic tendencies (Mackinnon & Sherry, 2012; Shafran & Mansell, 2001).

Consistent with the wider perfectionism literature (Graham et al., 2010; Stoeber & Otto, 2006), perfectionistic concerns were associated with higher negative emotionality and lower life satisfaction for both Canadian and Chinese participants. In addition, for Canadian and Chinese participants, perfectionistic strivings were weakly and positively associated with satisfaction with life and not significantly associated with negative emotionality. As expected, after controlling for perfectionistic concerns, perfectionistic strivings became significantly associated with lower negative emotionality and higher life satisfaction for both Canadian and Chinese individuals.

However, given the strong correlation between perfectionistic strivings and concerns observed in Canadian (r = .78) and Chinese groups (r = .68), the seeming adaptiveness of perfectionistic strivings must be interpreted cautiously. The positive effect of perfectionistic strivings on life satisfaction emerged only after controlling for perfectionistic concerns. Given results suggesting perfectionistic strivings and concerns are highly overlapping, removing variance attributable to perfectionistic concerns may have produced results low in ecological validity. That said, our results do suggest the deleterious effects of perfectionistic concerns appear in Canadian and Chinese cultures.

Contrary to predictions, the Chinese group did not report higher perfectionistic concerns. Results suggest the greater tendency to see others as demanding perfection reported previously in Asian Canadians compared with European Canadians (e.g., Franche et al., 2012) may not be generalizable to comparisons between English-speaking individuals residing in Canada and Mandarin-speaking individuals residing in China. Unique cultural pressures experienced by Asian Canadians may in part account for this discrepancy. Asian Canadians may report higher perfectionistic concerns not due to differences between Canadian and Asian cultures but rather due to pressure stemming from the stereotyped expectations in Canadian culture of Asian Canadians as high-achieving "model minorities" (Wei et al., 2007). Furthermore, the observed equivalence in perfectionistic concerns between the North American and Chinese groups observed in our study may reflect cultural similarities as opposed to differences. For example, research suggests familial and cultural pressures to be perfect are present in both Canadian and Chinese cultures (Hewitt & Flett, 1991; Striegel-Moore & Smolak, 2000).

As predicted, Canadian respondents reported higher perfectionistic strivings compared with Chinese participants. This finding complements past research (e.g., E. C. Chang,

2002; R. Chang & Chang, 2009). Given the strongly defined collectivist values present in Chinese culture, perfectionistic strivings may be less relevant for Chinese compared with Canadian students. Additionally, Chinese students may report lower perfectionistic strivings due to excessive self-enhancement being discouraged in Chinese culture (E. C. Chang, Chang, & Sanna, 2012).

A notable strength of the present research was the establishment of measurement invariance prior to hypothesis testing. The adequate pattern of measurement invariance established prior to hypothesis testing increased confidence that latent mean differences reflected meaningful distinctions, as opposed to differences stemming from measurement artifacts (Byrne & Campbell, 1999).

Present Limitations and Future Directions

The extent to which cultural differences in item response influenced findings is unknown. Future research might address this limitation by using a multimethod design. In addition, the design of our study was cross-sectional, precluding us from addressing questions of causality and directionality that would require a multiwave longitudinal design. Furthermore, ethnicity data were not collected from the Canadian sample, precluding us from investigating similarities and differences between English-speaking Asian Canadians and Mandarin-speaking Chinese individuals. It is also important to note the limitations of studies that start from an etic approach to studying cultural differences whether in perfectionism or other personality variables. Canadian and Chinese cultures may have different levels in which similarities and discrepancies between cultures differ qualitatively and quantitatively. Future research should address this contention by examining the replicability of the present findings using a person-centered (e.g., latent profile analysis), opposed to variable-centered, approach. Finally, research should also investigate whether mean differences in independent and interdependent self-construal mediates potential cultural differences in perfectionistic strivings and perfectionistic concerns.

Overall Conclusions

Despite these limitations, this is the first study to demonstrate the generalizability of the two-factor model of perfectionism across Canadian and Chinese cultures. Regardless of country (i.e., Canada or China) or language (i.e., English or Mandarin), perfectionistic concerns had positive effects on negative emotionality and negative effects on satisfaction with life. Furthermore, perfectionistic concerns suppressed the positive association between perfectionistic strivings and life satisfaction in both groups. Thus, the two-factor model of perfectionism supported by past research appears to capture the same construct of perfectionism in Canadian and Chinese cultures. These data add support to a growing body of research (e.g., Mackinnon & Sherry, 2012) suggesting perfectionistic strivings and concerns are basic tendencies. Perfectionism researchers investigating differences and similarities between Canadian and Chinese cultures are encouraged to move beyond relatively homogenous samples of European Canadians and Asian Canadians and to establish measurement invariance prior to hypothesis testing.

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