

Personal and Family Perfectionism in Chinese School Students: Relationships with Learning Stress, Learning Satisfaction and Self-Reported Academic Performance Level

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Abstract The present study investigated the types of personal and family perfectionism, and their associations with learning stress, learning satisfaction, and self-reported academic performance level among 1020 Chinese elementary and high school students. Participants were categorized into three types for both perfectionists and perfectionistic families using cluster analysis. Subtypes were identified for perfectionists with regard to perfectionistic families. Adaptive perfectionists, who perceived their families as adaptive perfectionistic, reported better psychological outcome than other subtypes. Family perfectionism explained an additional 1–14 % of variances in psychological outcome over personal perfectionism. The findings suggest that family perfectionism plays a role in psychological outcome.

Keywords Personal perfectionism · Family perfectionism · Learning stress · Learning satisfaction · Self-reported academic performance level

Introduction

Perfectionism is traditionally regarded as a unidimensional construct that is considered as neurotic, dysfunctional, and indicative of psychopathology. However, researchers today

have accepted that perfectionism is a multidimensional construct with two underlying higher-order factors, which are perfectionistic strivings and perfectionistic concerns (Stoeber & Otto 2006). Perfectionistic strivings capture the exceedingly high performance standards of individuals and their struggle for perfection. Perfectionistic concerns capture the concerns of individuals over their mistakes and their fear of negative evaluations. The former is sometimes associated with positive characteristics, processes, and outcomes, for example, conscientiousness, adaptive coping, and positive affect, whereas the latter is consistently associated with negative characteristics, processes, and outcomes, for example, neuroticism, maladaptive coping, and negative affect (Hill et al. 2010; Stoeber & Otto 2006).

Typically, perfectionistic strivings and concerns can be extrapolated from the most widely used perfectionism measures, for example, the Frost Multidimensional Perfectionism Scale (FMPS; Frost et al. 1990), the Hewitt Multidimensional Perfectionism Scale (HMPS; Hewitt & Flett 1991), and the Almost Perfect Scale-Revised (APS-R; Slaney et al. 2001). Thus, personal standards (PS) of the FMPS, self-oriented perfectionism (SOP) and high standards (HS) of the APS-R are identified as typical indicators of perfectionistic strivings, whereas concern over mistakes (CM) of the FMPS, socially prescribed perfectionism (SPP) of the HMPS, and discrepancy (*D*) of the APS-R are identified as typical indicators of perfectionistic concerns (Sirois & Molnar 2016, for review). Moreover, researchers have determined the interaction between perfectionistic strivings and concerns, suggesting that perfectionistic strivings are adaptive under low perfectionistic concerns, but maladaptive under high perfectionistic concerns (e.g., Yang & Shen 2008; Gaudreau & Thompson 2010).

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Family perfectionism refers to HS, concern over mistakes, and fear of negative evaluations of the family. Frost's perfectionism model includes two dimensions (i.e., parental expectations and criticism) that peripherally refer to family perfectionism (Frost et al. 1990). This concept is emphasized by the socially prescribed dimension in the perfectionism model of Hewitt and Flett (1991), particularly when applied in a family environment. However, parental expectations, criticism, and SPP highlight the negative aspects of family-related perfectionism but ignore its positive aspects.

To understand the positive and negative aspects of family perfectionism and their impact on the development of perfectionism, Wang (2010) modified the APS-R into the Family Almost Perfect Scale (FAPS). The FAPS measures the perceived level of perfectionism from a family. For example, the item "I set very high standards for myself" in APS-R was altered to "My family sets very high standards for me" in FAPS. Therefore, FAPS mirrors APS-R and includes three subscales, namely, family standards, discrepancy, and order. The FAPS demonstrates favorable to excellent internal consistency, as well as a promising validity in diverse cultural groups (Wang 2010; Wang et al. 2012b; Methikalam et al. 2015).

The two typical dimensions of the APS-R (i.e., HS and discrepancy) have been used in most of the studies of perfectionist types. The commonly identified three types of perfectionists are adaptive (HS/low discrepancy), maladaptive (HS/high discrepancy), and non-perfectionists (low standards/low discrepancy) across different populations, such as Asian Indians, Hong Kong adolescents, and Latinos (Wang et al. 2012b; Wang et al. 2009; Suh et al. 2014; Ortega et al. 2014). Maladaptive perfectionists consistently have lower self-esteem, more depressive symptoms, and higher anxiety levels than the other types.

In accordance with this typological approach, Wang (2010) and Methikalam et al. (2015) identified three perfectionistic family types using the FAPS. Participants from maladaptive perfectionistic families reported higher levels of depression and anxiety, as well as lower self-esteem, than those from adaptive perfectionistic families. Participants from perfectionistic families reported higher family recognition through achievement values than those from non-perfectionistic families.

Although previous studies made important contributions to the family perfectionism literature, limitations should be considered. First, they conducted the studies among university students and community adults, which led to the questionable generalizability of their findings to elementary and high school students. Second, they did not analyze the differences among the subtypes of perfectionists concerning perfectionistic families (e.g., how adaptive personal perfectionists from adaptive perfectionistic families differed

from maladaptive perfectionistic families). Third, they did not examine the predictive power of family perfectionism in psychological outcome variables, such as self-reported academic performance level, over personal perfectionism. Therefore, the similarity between family and personal perfectionism remains unclear.

Additionally, given that perfectionism has its origin in early family life and parental expectations and criticism are developmental antecedents of perfectionism, research on family perfectionism among elementary and high school students will further our understanding of the effect of the family on perfectionism (Damian et al. 2013).

Against these backgrounds, the present study aimed to identify types of perfectionists and perfectionistic families, analyze the differences among subtypes of perfectionists, and examine the predictive power of family perfectionism in psychological outcomes over personal perfectionism among Chinese elementary and high school students. Two aspects of personal perfectionism, that is, standards and discrepancy, and family perfectionism, that is, family standards and family discrepancy, were investigated following the work of Wang (2010) by using the short forms of APS and FAPS. Given that perfectionism is associated with stress, academic life satisfaction, and performance, personal and family learning stress, learning satisfaction, and self-reported academic performance level were used as psychological outcome variables in this study (Flett et al. 1995; Gaudreau & Thompson 2010; Rice et al. 2016).

Method

Participants

Participants were 1020 students (539 males and 481 females) from elementary and high schools in mainland China. All of them completed paper-and-pencil versions of all measures in Chinese. Classes represented in this study consisted of 4th grade 81 (7.9 %), 5th grade 94 (9.2 %), 6th grade 100 (9.8 %), 7th grade 139 (13.6 %), 8th grade 108 (10.6 %), 9th grade 117 (11.5 %), 10th grade 124 (12.2 %), 11th grade 131 (12.8 %), and 12th grade 126 (12.4 %) students. Mean age of participants was 13.8 years ($SD = 2.4$; range = 8–19 years).

Procedure

To recruit the participants, we first contacted the principals of 6 schools (i.e., two elementary schools, two junior high schools, and two senior high schools) and got approved for this study (parental permission is not required for this study in China). Then we randomly selected one class for each grade in every school for survey except grade 1–3 in

elementary schools was not included. Finally, the second to seventh authors went to the classes one by one with class tutors, asking students to finish the questionnaire. All students participated in the study without compensations.

Measures

Perfectionism

Personal perfectionism was measured by the Short Almost Perfect Scale (SAPS; Rice et al. 2014). The SAPS was a refined item set from the APS-R to measure two major dimensions of perfectionism: standards (high performance expectations, four items, e.g., “I have high expectations for myself”) and discrepancy (self-critical performance evaluations, four items, e.g., “Doing my best never seems to be enough”) (APS-R; Slaney et al. 2001; Chinese version for elementary and high school students; Chan 2010; Zhang 2008). Respondents are asked to rate the extent of their agreement to these items across a 6-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). Higher scores on the SAPS subscales indicate greater perfectionism on that subscale. In the current study, alphas for the two subscales were 0.68 and 0.61, respectively. Because alpha values above 0.60 indicate satisfactory reliability with scales that have 6 or less items, the alphas for standards and discrepancy were acceptable in this study (Peter 2002).

Family Perfectionism

Family perfectionism was measured by the Short Family Almost Perfect Scale (SFAPS) refined from the FAPS (SFAPS; Wang 2010; Chinese version, Deng et al. 2012). Keeping consistent with the SAPS, the SFAPS includes two dimensions, namely, family standards (family high performance expectations, four items, e.g., “My family have high expectations for me”) and family discrepancy (family self-critical performance evaluations, four items, e.g., “Doing my best never seems to be enough for my family”). Respondents are asked to rate the extent of their agreement to these items across a 6-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). Higher scores on the SAPS subscales indicate greater family perfectionism on that subscale. In the current study, alphas for the two subscales were 0.70 and 0.78, respectively.

Learning Stress

Learning stress was measured by the Perceived Learning Stress Scale (PLSS) modified from the 4-item version of the Perceived Stress Scale (PSS, Cohen et al. 1983) following the adopted protocol by Mitchelson and Burns (1998),

Dunn et al. (2005) and McArdle (2010). We strived to preserve the original phrasing as much as possible (e.g., “How often have you felt that you were unable to control the important things in your life” was changed to “How often have you felt that you were unable to control the important things in your learning?”). Besides, we added an item to evaluate overall learning stress: “How often have you felt strong learning stress?” Thus, the PLSS is a 5-item unidimensional scale in this study. Respondents are asked to rate items across a 5-point Likert-type scale ranging from 1 (never) to 5 (very often). Evidence for the content and construct validity of the Chinese PSS scale has been reported in Yang and Jiang (2008) and Shang and Yang (2014). Higher scores on the PLSS reflect greater learning stress.

To measure family learning stress, we modified the PLSS into a family form measuring perceived level of family learning stress named the Family Perceived Learning Stress Scale (FPLSS). For example, item “How often have you felt that you were unable to control the important things in your learning” was modified to “How often has your family felt that the family was unable to control the important things in your learning?” Higher scores on the FPLSS reflect greater family learning stress. In the current study, alphas for the two scales were 0.75 and 0.77 respectively.

Learning Satisfaction

Learning satisfaction was measured by the Satisfaction with Learning Scale (SWLS-Learning) modified from the Satisfaction with Life Scale (SWLS, Diener et al. 1985) following the similar protocols noted above. We strived to preserve the original phrasing as much as possible (e.g., “In most ways my life is close to my ideal” was changed to “In most ways my learning is close to my ideal?”). The SWLS-Learning is a 5-item unidimensional scale. Respondents are asked to rate items across a 7-point scale ranging from 1 (strong disagree) to 7 (strong agree). Higher scores on the SWLS-Learning reflect greater learning satisfaction. Evidence for the content and construct validity of the Chinese SWLS scale has been reported in Chen and Yang (2003).

To measure family learning satisfaction, we modified the SWLS-Learning into a family form measuring perceived level of family satisfaction about learning named the Family Satisfaction with Learning Scale (FSWLS-Learning). For example, item “In most ways my learning is close to my ideal” was modified to “In most ways my learning is close to my family’s ideal”. Higher scores on the FSWLS-Learning reflect greater family learning satisfaction. In the current study, alphas for the two scales were 0.76 and 0.74, respectively.

Table 1 Bivariate correlations

Variable	1	2	3	4	5	6	7	8	9	10
1. Standards	–	–	–	–	–	–	–	–	–	–
2. Discrepancy	0.12***	–	–	–	–	–	–	–	–	–
3. Learning stress	–0.28***	0.36***	–	–	–	–	–	–	–	–
4. Learning satisfaction	0.35***	–0.23***	–0.61***	–	–	–	–	–	–	–
5. Family standards	0.48***	0.14***	–0.11***	0.17***	–	–	–	–	–	–
6. Family discrepancy	–0.07***	0.47***	0.32***	–0.22***	0.34***	–	–	–	–	–
7. Family learning stress	–0.27***	0.33***	0.64***	–0.48***	0.04	0.52***	–	–	–	–
8. Family learning satisfaction	0.32***	–0.22***	–0.49***	0.69***	0.09**	–0.32***	–0.54***	–	–	–
9. Self-reported academic performance level	0.24***	–0.25***	–0.46***	0.40***	0.08*	–0.33***	–0.44***	0.37***	–	–
10. Grade	0.03	0.09**	0.28***	–0.26***	–0.04	–0.07*	0.09**	–0.13***	–0.08*	–
11. Sex (girl)	0.03	0.00	0.00	0.00	–0.06	–0.10	–0.09	0.03	0.03	0.03
M	5.15	4.05	2.63	4.05	4.99	3.49	2.41	4.12	2.16	NA
SD	1.07	1.13	0.67	1.16	1.16	1.31	0.76	1.13	0.59	NA

Note: $N = 1020$. Sex (girl) was coded 0 = boy, 1 = girl.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Self-Reported Academic Performance Level

Self-reported academic performance level was reported by students themselves. In elementary and high schools in Mainland China, students are informed with their academic performance status in class by tutors after mid-term and final examinations, sometimes after weekly or monthly examinations. They are clearly aware of their academic performance levels comparing with others. A commonly used ranking is to divide students into three groups with equal numbers, that is, 1/3 students are below average, 1/3 students are average and 1/3 students are above average. In the current study, students were asked to simply report their academic performance levels across a 3-point scale, that is, 1 (below average), 2 (average), and 3 (above average).

Data Analyses

We examined the missing data at the item level. If a participant was missing data for less than 10 % of items on any relevant scale, we calculated a mean item score for that participant for that subscale using items with data present, and then substituted that mean item score for the missing item scores for that participant only (Graham et al. 2003).

Results

We examined the bivariate correlations that included our psychological outcome variables. The results are presented in Table 1. As Table 1 shows, PS was negatively correlated

with personal and family learning stress, whereas family standards was negatively correlated with personal learning stress, but not correlated with family learning stress. Personal and family standards were positively correlated with personal and family learning satisfaction and self-reported academic performance level. Personal and family discrepancies were negatively correlated with personal and family learning satisfaction and self-reported academic performance level. Grade was positively correlated with personal discrepancy and personal and family learning stress, but was negatively correlated with personal and family learning satisfaction, family discrepancy, and self-reported academic performance level. Sex had no correlations with any variable.

Next, we conducted a two-step cluster analysis to identify different types of perfectionists. The first step involved a hierarchical cluster analysis using Ward's linkage method with the squared Euclidian distance measure. Standardized SAPS standards and discrepancy scores were used as variables. The first large agglomeration coefficient increase (43 %) occurred when three clusters were combined into two, which indicated a three-cluster solution. We used this solution for the second step, which involved a non-hierarchical k-means cluster analysis. The standardized means of the standards and discrepancy scores for each cluster were used as starting values. The k-means analysis classified the participants into adaptive perfectionists (HS and low discrepancy; $n = 307$), maladaptive perfectionists (HS and high discrepancy; $n = 362$), and non-perfectionists (low standards and low discrepancy; $n = 351$; Fig. 1 for the z scores of each group). No significant sex distribution differences ($\chi^2(2, n = 1020) = 1.88, p = 0.39$) were observed across these groups.

The psychological outcome variables were compared across these groups by using Tukey’s HSD post-hoc comparisons. The results are presented in Table 2. As Table 2 shows, adaptive perfectionists reported lower levels of learning stress, higher levels of learning satisfaction, and

higher levels of self-reported academic performance level as compared with the other groups.

The same cluster analysis procedure was applied to identify different types of perfectionistic families. The first large agglomeration coefficient increase (35 %) occurred when three clusters were combined into two, which indicated a three-cluster solution. The k-means analysis classified the families into adaptive perfectionistic (HS and low discrepancy; $n = 298$), maladaptive perfectionistic (HS and high discrepancy; $n = 362$), and non-perfectionistic (low standards and low discrepancy; $n = 360$; Fig. 1 for the z scores of each group). Significant sex distribution differences ($\chi^2(2, n = 1020) = 7.39, p = 0.03$) were observed across these groups. The families of male students ($n = 212$; 59 %) were more maladaptive than those of female students ($n = 150$; 41 %).

The psychological outcome variables were compared across these groups by using Tukey’s HSD post hoc comparisons. The results are presented in Table 3. As Table 3 shows, adaptive perfectionistic families reported lower levels of family learning stress and higher levels of family learning satisfaction and self-reported academic performance level as compared with the other groups.

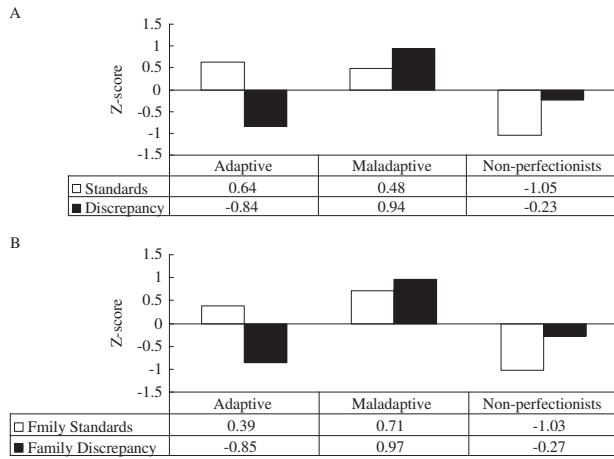


Fig. 1 z scores based on SAPS (a) and FSAPS (b) groups. **a** z scores of SAPS perfectionist types. **b** z scores of FSAPS perfectionistic family types

Table 2 Means and standards by personal perfectionism types

	Adaptive perfectionists ($n = 307$)		Maladaptive perfectionists ($n = 362$)		Non-perfectionists ($n = 351$)		F	η^2
Standards	5.84 ^a	0.64	5.66 ^b	0.69	4.03 ^c	0.73	711.12	0.58
Discrepancy	3.09 ^a	0.73	5.11 ^b	0.65	3.79 ^c	0.90	601.96	0.54
Learning stress	2.22 ^a	0.60	2.80 ^b	0.61	2.82 ^b	0.64	96.18	0.16
Learning satisfaction	4.66 ^a	1.08	3.92 ^b	1.13	3.65 ^b	1.04	74.61	0.13
Family learning stress	1.98 ^a	0.67	2.59 ^b	0.72	2.60 ^b	0.72	80.40	0.14
Family learning satisfaction	4.65 ^a	1.05	3.98 ^b	1.13	3.80 ^b	1.02	56.68	0.10
Self-reported academic performance level	2.42 ^a	0.56	2.08 ^b	0.56	2.02 ^b	0.56	45.85	0.08

Note: $N = 1020$. All multivariate F tests were significant at $p < 0.001$. F tests for the variables were based on $df = 2, 1018$. Values with different superscripts indicate significant within-row differences between the clusters using Tukey post-hoc comparisons, significant at $p < 0.017$ (0.05/3, Bonferroni adjustment)

Table 3 Means and standards by family perfectionism types

	Adaptive perfectionistic family ($n = 298$)		Maladaptive perfectionistic family ($n = 362$)		Non-perfectionistic family ($n = 360$)		F	η^2
Family standards	5.44 ^a	0.68	5.81 ^b	0.76	3.80 ^c	0.73	766.99	0.60
Family discrepancy	2.37 ^a	0.68	4.76 ^b	0.88	3.13 ^c	0.98	670.17	0.57
Learning stress	2.34 ^a	0.63	2.78 ^b	0.68	2.73 ^b	0.63	43.77	0.08
Learning satisfaction	4.49 ^a	1.17	3.93 ^b	1.16	3.81 ^b	1.04	32.84	0.06
Family learning stress	2.06 ^a	0.66	2.70 ^b	0.75	2.41 ^c	0.72	68.61	0.12
Family learning satisfaction	4.56 ^a	1.08	3.86 ^b	1.17	4.01 ^b	1.01	36.97	0.07
Self-reported academic performance level	2.39 ^a	0.57	2.05 ^b	0.54	2.08 ^b	0.60	35.51	0.07

Same as for Table 2

Moreover, we identified three subtypes for each type of perfectionists with regard to perfectionistic families and then compared the psychological outcome variables across these subtypes. The results are presented in Table 4. As Table 4 shows, a total of 591 (57.9 %) participants perceived themselves and their families as same perfectionism types, and 491 (42.1 %) perceived themselves and their families as different perfectionism types. Overall, those adaptive perfectionists who perceived their families as adaptive perfectionistic families reported better psychological outcome than the other subtypes. Those maladaptive perfectionists who perceived their families as maladaptive perfectionistic families reported the same psychological outcome as the other two subtypes, except for higher family learning stress. Those non-perfectionists who perceived their families as non-perfectionistic reported higher learning stress than those who perceived their families as adaptive perfectionistic families, but reported lower family learning

stress and higher learning satisfaction than those who perceived their families as maladaptive perfectionistic families.

Finally, we performed hierarchical multiple regressions to examine whether family perfectionism explained the variance in the psychological outcome variables over personal perfectionism. We entered grade and sex as control variables in Step 1, entered standards and discrepancy as predictors in Step 2, and entered family standards and family discrepancy as predictors in Step 3. The results are presented in Table 5.

As Table 5 shows, personal perfectionism explained 13–23 % of the variance in the psychological outcome variables. Standards showed significant negative regression weights for personal and family learning stress, but showed positive regression weights for personal and family learning satisfaction and self-reported academic performance level. Discrepancy showed significant positive regression weights for personal and family learning stress, but showed negative

Table 4 Psychological outcomes of subtypes for perfectionists

	Adaptive perfectionists (<i>n</i> = 307)						<i>F</i>	η^2
	Adaptive perfectionistic family (<i>n</i> = 181)		Maladaptive perfectionistic family (<i>n</i> = 67)		Non-perfectionistic family (<i>n</i> = 59)			
Learning stress	2.13 ^a	0.58	2.46 ^b	0.63	2.25 ^{a,b}	0.57	7.73	0.05
Learning satisfaction	4.81 ^a	1.10	4.45 ^{a,b}	1.09	4.42 ^b	0.91	4.66	0.03
Family learning stress	1.85 ^a	0.58	2.35 ^b	0.80	1.97 ^a	0.63	14.68	0.09
Family learning satisfaction	4.85 ^a	1.07	4.18 ^b	1.02	4.59 ^{a,b}	0.86	10.68	0.07
Self-reported academic performance level	2.53 ^a	0.55	2.17 ^b	0.57	2.34 ^{a,b}	0.51	11.30	0.07
	Maladaptive perfectionists (<i>n</i> = 362)						<i>F</i>	η^2
	Adaptive perfectionistic family (<i>n</i> = 65)		Maladaptive perfectionistic family (<i>n</i> = 203)		Non-perfectionistic family (<i>n</i> = 94)			
Learning stress	2.73 ^a	0.52	2.79 ^a	0.64	2.87 ^a	0.60	1.13	0.01
Learning satisfaction	4.04 ^a	1.05	3.97 ^a	1.14	3.70 ^a	1.11	2.63	0.01
Family learning stress	2.34 ^a	0.69	2.71 ^b	0.71	2.49 ^a	0.71	7.75	0.04
Family learning satisfaction	4.16 ^a	0.96	3.96 ^a	1.21	3.90 ^a	1.04	1.14	0.01
Self-reported academic performance level	2.15 ^a	0.51	2.04 ^a	0.53	2.13 ^a	0.63	1.46	0.01
	Non-perfectionists (<i>n</i> = 351)						<i>F</i>	η^2
	Adaptive perfectionistic family (<i>n</i> = 52)		Maladaptive perfectionistic family (<i>n</i> = 92)		Non-perfectionistic family (<i>n</i> = 207)			
Learning stress	2.60 ^a	0.60	2.99 ^b	0.72	2.78 ^{a,b}	0.60	6.61	0.04
Learning satisfaction	3.87 ^a	1.15	3.45 ^a	1.07	3.69 ^a	0.99	3.05	0.02
Family learning stress	2.41 ^a	0.62	2.97 ^b	0.69	2.49 ^a	0.70	17.72	0.07
Family learning satisfaction	4.06 ^a	0.94	3.43 ^b	1.04	3.89 ^a	0.99	9.46	0.09
Self-reported academic performance level	2.21 ^a	0.54	1.98 ^b	0.51	1.99 ^b	0.58	3.60	0.05

Note: Values with different superscripts indicate significant within-row differences between the clusters using Tukey post-hoc comparisons, significant at $p < 0.017$ (0.05/3, Bonferroni adjustment)

Table 5 Summary of hierarchical regression analyses predicting psychological outcomes

Variable	Learning stress		Learning satisfaction		Family learning stress		Family learning satisfaction		Self-reported academic performance level	
	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β
Step 1: Control variables	0.08***	–	0.07***	–	0.02***	–	0.02***	–	0.01*	–
Grade	–	0.28***	–	–0.25***	–	–0.09*	–	–0.13***	–	–0.09*
Sex (girl)	–	–0.01	–	0.00	–	0.09*	–	0.04	–	0.03
Step 2: perfectionism	0.23***	–	0.19***	–	0.20***	–	0.17***	–	0.13***	–
Standards	–	–0.34***	–	0.39***	–	–0.31***	–	0.30***	–	0.27***
Discrepancy	–	0.38***	–	–0.25***	–	0.36***	–	–0.13***	–	–0.28***
Step 3:	0.03***	–	0.01***	–	0.14***	–	0.05***	–	0.05***	–
Family standards	–	–0.08*	–	0.07*	–	0.00	–	0.04	–	0.10**
Family discrepancy	–	0.21***	–	–0.15***	–	0.43***	–	–0.26***	–	–0.29***

Note: N = 1020. Sex (girl) was coded 0 = boy, 1 = girl.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

regression weights for personal and family learning satisfaction and self-reported academic performance level.

Family perfectionism explained an additional 1–14 % of the variance. Family standards showed significant negative regression weights for learning stress, but showed positive regression weights for learning satisfaction and self-reported academic performance level. Family discrepancy showed significant positive regression weights for personal and family learning stress, but showed negative regression weights for personal and family learning satisfaction and self-reported academic performance level.

Noteworthy, family perfectionism predicted more variance in the family variables (family learning stress, family learning satisfaction) than when the same variables were not referring to the family (learning stress, learning satisfaction). Furthermore, family discrepancy predicted significantly more variance than family standards, which was not the case for personal discrepancy vs. PS.

Discussion

Our findings supported previous studies that confirm three types of perfectionists. Adaptive perfectionists and perfectionistic families show lower learning stress and higher learning satisfaction and self-reported academic performance level than maladaptive and non-perfectionistic groups. Adaptive perfectionists who perceive their families as adaptive perfectionists yield the best psychological outcome, especially self-reported academic performance level. Family perfectionism explains the variance in psychological outcome variables over personal perfectionism. Although family standards is not a consistent predictor of psychological outcome, family discrepancy, PS, and discrepancy are consistent predictors. These interesting

findings indicate that family standards might be less adaptive compared with PS, and children truly care if they meet the expectations of their parents.

This study contributes to the growing body of evidence for the unstable or controversial nature of HS and the maladaptive nature of discrepancy (Stoeber & Otto 2006). Both adaptive and maladaptive perfectionists set HS for themselves. Adaptive perfectionists consistently feel that they are able to meet such standards. By contrast, maladaptive perfectionists consistently feel unable to do so. Consequently, adaptive perfectionists positively evaluate themselves and produce favorable psychological outcome, whereas maladaptive perfectionists demonstrate otherwise. Therefore, HS is adaptive for those with low scores in discrepancy and maladaptive for those with high scores in discrepancy. By contrast, discrepancy is maladaptive for all individuals by making them feel unable to meet HS. Family standards demonstrate an adaptive nature under low family discrepancy and maladaptive nature under high family discrepancy. Family discrepancy is maladaptive by making family members feel unable to meet HS. Therefore, adaptive perfectionists from adaptive perfectionistic families produce the best psychological outcomes.

In contrast to the findings of Wang (2010), Wang et al. (2012a, 2012b, and Methikalam et al. (2015), more male students than female students perceived their families as maladaptive perfectionistic. This finding may be attributed to the fact that more male than female students in Chinese schools suffer from learning stress from their parents (e.g., Li 2014). One reason might be that Chinese families tend to set higher standards for males than for females. Another reason might be that Chinese parents use a stricter parenting style toward males than females. Furthermore, females mature earlier than males and are more sensitive to the expectations of their parents. Therefore, they understand the

expectations of parents better than males and receive more positive responses from parents.

Multiple regressions suggest that family perfectionism is an important form of perfectionism that is different from personal perfectionism. Family is considered as a maladaptive source of perfectionism in the work of Frost et al. (1990) and Hewitt and Flett (1991). Thus, we found that a family perfectionism measure that captures both perfectionistic strivings and concerns could explain individual differences in psychological outcome (especially in family variables such as family learning stress and satisfaction) beyond the general measures of personal perfectionism. However, personal perfectionism remains important in explaining psychological outcome. Personal perfectionism explains 13–23 % of the variance in psychological outcome. This result is comparable with the findings of other studies that used the same measures (e.g., Chi et al. 2012; Fu et al. 2010; Noble et al. 2012).

Theoretically, the present findings indicate that personal perfectionism is relatively independent of perceived family perfectionism, which interacts between them. Moreover, any type of personal perfectionism is associated with different types of family perfectionism, and vice versa. Thus, simply using either personal perfectionism or family perfectionism, but not both, to differentiate subtypes of perfectionism, may yield biases.

In practice, counselors and school teachers working with perfectionists could use findings from this study as guidelines in assessing subtypes of perfectionism and determining strategies for treatment of clients. First, counselors and schoolteachers should focus on both personal and family perfectionism to help students cope with learning stress, and improve learning satisfaction and academic performance. Personal and family standards are adaptive under low discrepancy. Thus, counselors and school teachers should help students and parents to decrease discrepancy by setting realistic goals and strengthening the belief that they can reach those goals.

Second, counselors and school teachers should consider subtypes of perfectionism when working with students. For example, if a maladaptive personal perfectionist does not perceive his or her family as maladaptive perfectionistic, then counselors and school teachers may not need to work further with the family. Instead, they may only need to help the student to set realistic goals. However, if the student perceives his or her family as maladaptive perfectionistic, then counselors and school teachers need to help the family to set realistic goals for the child and/or help both parents and child to correct the exaggerated discrepancy between family expectation and child performance. Overall, helping students to adapt to personal and family perfectionism is the goal of counseling and school/family education.

Limitations

This study has several limitations. First, family perfectionism is examined according to how the students perceive the standards and discrepancy of their families. Future studies must include a parent form of family perfectionism in examining perfectionistic family types and their relationships with personal perfectionism, and psychological outcome. Second, this study only examined elementary and high school students. Future studies must determine whether our findings could be replicated in university students and if the findings could be generalized to non-student samples (e.g., community and clinical samples). Third, our data are cross-sectional, that is, the cause and effect relationship among personal and family perfectionism and psychological outcome is determined statistically. Future studies must adopt longitudinal research designs to examine if our predictions represent predictive effects over time. Finally, the alphas of the SAPS are low in our study. Future studies may use the APS-R to increase reliability. Additionally, we used self-reported academic performance level, which might reflect social desirability. Future studies may benefit from using average scores.

Compliance with ethical standards

Conflict of interest The authors declare that they have no competing interests.

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