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The Effects of Perfectionism and Negative Repetitive thoughts on School Burnout among Hong Kong College Students

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Abstract:

Perfectionism is known to be predictive of school burnout. However, the adaptive and maladaptive dimensions of perfectionism have yet to be examined with the specific aspects of school burnout. Little is known about the underlying mechanisms in such relationships. The current study aimed to investigate the effects of perfectionism and negative repetitive thoughts (rumination and worry) on school burnout among college students. A total of 318 Hong Kong college students were invited to participate in the study by completing a set of questionnaires. Hierarchical regression analyses revealed that adaptive perfectionism did not predict emotional exhaustion, negatively predicted cynicism but positively predicted academic efficacy. Maladaptive perfectionism positively predicted emotional exhaustion and cynicism, and negatively predicted academic efficacy. Worry but not rumination predicted all aspects of school burnout. The subsequent mediation analyses revealed that worry mediated the effect of maladaptive perfectionism on all aspects of school burnout. The current study contributed to the understanding of perfectionism and the mediating role of negative repetitive thoughts (rumination, worry) and school burnout in the Chinese context. Lastly, implication for practical applications and preventive treatments was discussed.

Keywords: *School burnout, perfectionism, rumination, worry*

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I. INTRODUCTION

Scientists have identified perfectionism as a stable personality trait in explaining individual differences (Flett, Coulter, Hewitt, & Nepon, 2011; Short & Mazmanian, 2013). There has been a growth in research regarding perfectionism because of its associations with psychological adjustment difficulties, role impairment, and psychological distress including depression, anxiety, hopelessness, eating disorder symptoms, and suicidal ideation (Flett et al., 2011; Flett & Hewitt, 2008; Huggins, Davis, Rooney, & Kane, 2008; Hunter & O'Connor, 2003; O'Connor, O'Connor, & Marshall, 2007).

1.1 Perfectionism

Perfectionism is generally considered as both the tendency to set exceedingly high standards and the preoccupation with extreme self-criticism (Frost, Marten, Lahart, & Rosenblate, 1990). Perfectionism was first identified as one-dimensional, and was found to be associated with mental and physical health issues as well as poor daily performance (Burns, 1980). Since the nineties, perfectionism has been conceptualized as a multidimensional construct which is comprised of both the positive and negative aspects, that is, adaptive and maladaptive perfectionism. Frost and colleagues conceptualized perfectionism in six dimensions: (1) *personal standards* involves setting high standards for oneself; (2) *organization* involves placing importance on order and organization; (3) *concerns over mistakes* involves worrying about making mistakes and perceiving mistakes as failures; (4) *doubts about actions* involves doubting one's ability and control over own actions; (5) *parental expectations* involves perceiving parents as holding high standards and expectations for oneself; and (6) *parental criticism* involves perceiving parents as being critical and harsh to oneself (Frost et al., 1990). Empirically, the personal standards and organization dimensions were found to be associated with positive work habits and achievement striving, while other dimensions (concerns over mistakes, doubts about actions, parental expectations and parental criticism) were associated with psychopathological symptoms, depression and compulsivity (Frost et al., 1990).

On the other hand, Hewitt and colleagues (Hewitt and Flett, 1991; Hewitt, Flett, Turnbull-Donovan, and Mikail, 1991) defined perfectionism by three dimensions: (1) self-oriented perfectionism involves setting and seeking unrealistically high standards and demonstrating perfectionistic as well as evaluative motivations towards oneself, (2) *other-oriented perfectionism* involves exerting high expectations and standards for others' performance, and (3) *socially-prescribed perfectionism* involves perceiving significant others or the society as holding high expectations and standards towards oneself. Later research found that self-oriented and other-oriented perfectionism in employees were associated with less burnout and more positive outcomes such as higher engagement in workplace (Childs and Stoeber, 2010). In another study by Hill, Hall and Appleton (2010), self-oriented perfectionism was associated with less burnout, whereas socially-prescribed perfectionism was associated with more burnout among athletes.

Frost, Heimberg, Holt, Mattia and Neubauer (1993) compared the two multidimensional perfectionism scales developed by Frost et al. (1990) and Hewitt et al. (1991). The nine dimensions from the two instruments could be reduced

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into two main factors, namely, *maladaptive evaluative concerns,* and positive striving. Maladaptive evaluative concerns involves concerns over socially-prescribed perfectionism such as mistakes, doubts about actions, parental expectations, and parental criticism; whereas *positive striving* involves self-oriented and other-oriented goals such as personal standards and social or organization goals. While the Maladaptive Evaluative Concerns dimension (referred to as maladaptive perfectionism in the following) is associated with negative affect and consequences such as depression, anxiety and neuroticism, the Positive Striving dimension (referred to as adaptive perfectionism in the following) is related to positive affect and outcomes such as active coping, higher self-esteem, better academic achievements and higher life satisfaction (Bieling, Israeli, Smith, & Antony, 2003; Chang, Watkins, & Banks, 2004). According to Frost et al. (1993), positive striving represents the "adaptive aspect of personal motivation" (p. 125). This fosters achievements and goal accomplishments. On the contrary, maladaptive perfectionism functions as a negative reinforcement, which is to avoid mistakes, failures and negative evaluations of being imperfect (Bieling, Israeli, & Antony, 2004). This results in self-defeating behaviors. It further confirms the multidimensional (positive and negative) nature of perfectionism.

To conclude, both Frost's six dimensional model and Hewitt and Flett's three dimensional model have been found to embrace the positive (adaptive) perfectionism and negative (maladaptive) perfectionism. Since adaptive perfectionism is associated with positive outcomes and maladaptive perfectionism is associated with negative outcomes, it was expected that the two dimensions of perfectionism would have different effects on school burnout.

1.2 School Burnout

Burnout is a stress-related process caused by the imbalance between emotional and situational demands, as well as resources to cope (Maslach, 1982; Maslach, Jackson, & Leiter, 1981; Maslach, Schaufeli, & Leiter, 2001). According to the most widely adopted model of burnout by Maslach and Jackson (1981), burnout has three symptoms: (1) *emotional exhaustion* (depletion of emotional resources due to overwhelming demands placed on oneself); (2) *cynicism* (indifference and detachment from others); and (3) *reduced personal efficacy* (negative evaluation of self-competence or self-efficacy). This model was first examined in the workplace setting. Over the years, the research on burnout has been extended to other settings. In specific, burnout experienced by students in an educational setting is termed school or academic burnout.

School or academic burnout refers to the response to chronic school-related stress that is caused by "a discrepancy between students' resources and their own or others' expectations of their success in school" (Luo, Wang, Zhang, Chen, & Quan, 2016, p. 202). It reflects the difficulty in coping with school stress. Similar to general burnout, school burnout consists of three dimensions: (1) emotional exhaustion at school; (2) cynicism and detached attitude towards the meaning of school; and (3) reduced academic efficacy (Kiuru, Aunola, Nurmi, Leskinen, & Salmela-Aro, 2008; Luo et at., 2016; Seibert, May, Fitzgerald, & Fincham, 2016; Zhang, Gan, & Cham, 2007). A higher level of school burnout is characterized by higher emotional exhaustion and cynicism, as well as lower academic efficacy (i.e. positively associated with emotional exhaustion and cynicism, and negatively associated with academic efficacy).

1.3 Perfectionism and School Burnout

Perfectionism and school burnout are both highly prevalent among college students (Seibert et al., 2016; Zhang et al., 2007). Academic performance is undoubtedly essential to students' personal development. The effect of perfectionism on school burnout is especially strong among perfectionistic adolescents and young adults due to the stress from achieving high standards and expectations at school. This effect is even stronger when perfectionism contributes to the sense of self and development of personal identity (Pleva & Wade, 2007). As a result, students who are more perfectionistic are more prone to school burnout, in which all aspects of school burnout can be explained by perfectionism (Childs & Stoeber, 2010). This association is supported by previous studies showing that students with maladaptive perfectionism demonstrate higher levels of school burnout (i.e. higher emotional exhaustion, cynicism and reduced academic efficacy) (Ulu, Tezer, & Slaney, 2012; Zhang et al., 2007). On the other hand, based on the above discussion about the unique and positive nature of adaptive perfectionism, it was anticipated in the current study that adaptive perfectionism would facilitate academic efficacy instead of reducing it, i.e. positively predict academic efficacy.

1.4 Repetitive Negative Thoughts as Underlying Mechanisms

Although the relationship between perfectionism and burnout has been supported by previous studies, little is known about the mechanisms underlying the association. Identifying such underlying factors and mechanisms has been suggested to be a useful research direction that may give insights in treating perfectionism and buffering the negative effects of it (Flett & Hewitt, 2008; Zuroff et al., 2000).

Perfectionists tend to frequently demonstrate perseverative cognition, including rumination and worry (Flaxman, Ménard, Bond, & Kinman, 2012). According to Brosschot, Gerin and Thayer (2006), perseverative cognition is a response to stress and refers to the "repeated or chronic activation of the cognitive representation of one or more psychological stressors" (p. 114). The most common manifestations of perseverative cognition are rumination and worry. Rumination is the repetitive, intrusive and negative thoughts that lead to the comparison of one's current situation with unachieved standards; and worry is "a chain of thoughts and images, negatively affect-laden, and relatively uncontrollable" (Brosschot et al., 2006, p. 113). A person may worry about future stressors and ruminate after he or she handles them. Among perfectionists, they tend to be preoccupied with past mistakes and negative affect, and eventually reach to a conclusion that they are imperfect.

Perseverative cognition impairs psychological and physical health because it prolongs the activation of psychological and

physiological systems towards stress (Flaxman et at., 2012). Studies have also shown that there is a higher frequency of burnout in individuals demonstrating negative cognitive styles (Bianchi & Schonfeld, 2016). As suggested, perfectionists are more prone to perseverative cognition that predicts psychological distress such as depression, and rumination and worry mediate the relationship between perfectionism and psychological distress (Flett, Coulter, Hewitt, & Nepon, 2011; Short & Mazmanian, 2013). However, little is known about the mediating roles of rumination and worry on the relationship between perfectionism and school burnout. Given the overlap between depression and burnout (Bianchi & Schonfeld, 2016), and the positive association between psychological distress and burnout (Flaxman et at., 2012; Košir, Tement, Licardo, & Habe, 2015; Luo et at., 2016), it was proposed in this study that rumination and worry would intensify the effect of maladaptive perfectionism (but not adaptive perfectionism) on school burnout, i.e. negative repetitive thoughts should mediate the relationship between maladaptive perfectionism and school burnout.

1.5 The Present Study

The aim of the study was to examine the mediating roles of rumination and worry underlying the relationship between perfectionism and school burnout, and the possible role of self-compassion as a protective factor. Understanding the specific aspects of perfectionism provided implications for treatment and prevention. Since there is a great pressure and high expectation on achievements among Chinese (Chan, 2007; Fong & Yuen, 2014), the current study shed lights on the understanding of perfectionism and its impacts in the Chinese context. In this study, the relationships of perfectionism (adaptive and maladaptive) and negative repetitive thoughts (rumination and worry) with school burnout (emotional exhaustion, cynicism and reduced academic efficacy) were first examined, then the mediating role of rumination and worry was investigated.

Based on the above discussion, the relationships among perfectionism, rumination, worry, school burnout and self-compassion were hypothesized as follows:

Hypothesis 1: Perfectionism will have an effect on school burnout, in which adaptive perfectionism will positively predict academic efficacy; and maladaptive perfectionism will positively predict emotional exhaustion and cynicism, and negatively predict academic efficacy.

Hypothesis 2: Negative repetitive thoughts (rumination and worry) will have an effect on school burnout, in which rumination and worry will positively predict emotional exhaustion and cynicism, and negatively predict academic efficacy.

Hypothesis 3: Negative repetitive thoughts (rumination and worry) will mediate the effect of maladaptive perfectionism on school burnout.

II. METHOD

2.1 Participants

The study consisted of 318 Hong Kong students currently studying in local universities. There were 21 cases found to contain missing data (such as incomplete demographic information) and were excluded, resulting in a final sample of 297. Students from different faculties including Arts, Business, Creative Media, Engineering, Law, Media and Communication, Science, and Social Sciences were recruited. In this remaining sample, there were 184 female (62%) and 113 male (38%). Participants aged from 17 to 29, with an average age of 21.42 (SD = 1.93). Most of the participants (88%) were currently in bachelor's degree, 11% were in postgraduate degree, and less than 1% were in associate and research degrees. The sample was 13% in year one, 20% in year two, 24% in year three, 41% in year 4, and the rest 3% in year five and others. Majority of the sample were studying full-time (96%).

2.2 Measures

Frost Multidimensional Perfectionism Scale (MPS-F; Frost et al., 1990). The MPS-F is a 35-item measure of perfectionism. It is a 5-point Likert-type rating scale (from 1 = "*strongly disagree*" to 5 = "*strongly agree*"). There are six subscales: Personal Standards, Organization, Concerns over Mistakes, Doubts about Actions, Parental Expectations and Parental Criticism. The Personal Standards subscale (7 items) measures one's achievement striving with items such as *"I am very good at focusing my efforts on attaining a goal"*. The Organization subscale (6 items) measures the importance of orderliness with items such as *"Organization is very important to me"*. The Concerns over Mistakes subscale (9 items) measures the concerns about failures and negative evaluations from others with items such as *"People will probably think less of me if I make a mistake"*. The Doubts about Actions subscale (4 items) measures one's doubts about their abilities with items such as *"I usually have doubts about the simple everyday things that I do"*. The Parental Expectations subscale (5 items) measures the belief that one's parents set high goals with items such as *"My parents set very high standards for me"*. The last subscale Parental Criticism (4 items) measures the belief that one's parents are overly critical with items such as *"As a child, I was punished for doing things less than perfect"*. While personal standards and organization are more adaptive, concerns over mistakes, doubts about actions, parental expectations and parental criticism are more maladaptive. Higher scores indicate higher levels of perfectionism. Mean scores for overall, adaptive and maladaptive perfectionism were calculated for analyses. This scale revealed good internal consistency with Cronbach's alphas of .90 for the overall scale, .82 and .89 for the adaptive and maladaptive perfectionism subscales respectively.

Ruminative Responses Scale – Brooding (RRS-B; Treynor, Gonzalez, & Nolen-Hoeksema, 2003). The RRS-B is a 5-item brooding subscale of the Ruminative Responses Scale measuring the passive contemplation when experiencing negative emotions, and criticism of others or fate. It is a 4-point Likert-type rating scale (from 1 = *"almost never"* to 4 = *"almost always"*) with items such as *"Think about a recent situation, wishing it had gone better"*. A higher score indicates a stronger tendency for maladaptive rumination. A mean score was calculated for further analyses. Cronbach's alpha for this subscale was .80.

Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990). The PSWQ is a 16-item measure of the frequency and intensity of worry. It is a 5-point Likert-type rating scale (from 1 = *"not at all typical of me" to 5 = "very typical of me"*) with items such as "Many situations make me worry". A higher score indicates a stronger tendency to experience worry. A mean score was calculated for analyses. Cronbach's alpha was .91.

The Maslach Burnout Inventory – Student Survey (MBI-SS; Hu & Schaufeli, 2009). The MBI-SS is a 15-item measure for school burnout. It is a 7-point Likert-type rating scale (from 0 = *"never"* to 6 = *"always"*). There are three subscales: Emotional Exhaustion, Cynicism and Academic Efficacy. The Emotional Exhaustion subscale (5 items) measures the exhaustion from study demands with items such as *"I feel emotionally drained by my studies"*. The Cynicism subscale (4 items) measures the detachment from school with items such as *"I have become less interested in my studies since my enrollment at the school"*. Lastly, the Academic Efficacy subscale (6 items) measures the perceived personal competence and achievements as a student with items such as *"I can effectively solve the problems that arise in my studies"*. Higher scores in emotional exhaustion and cynicism, and a lower score in academic efficacy indicate greater school burnout. Mean scores for the three subscales were calculated separately as advised so none of the items was reverse coded. Cronbach's alphas were .76 for emotional exhaustion, .78 for cynicism and .77 for academic efficacy subscales.

2.3 Procedure

Participants were recruited through convenient sampling. Both online and paper questionnaires were administered. Among the 297 participants, 53 completed the study through a URL link while the rest 244 completed in a paper-and-pencil format. The questionnaire package was given upon receiving informed consent. The data collection period lasted for 6 weeks.

2.4 Statistical Analyses

SPSS 22.0 was used for data analyses. Descriptive statistics and correlations among variables were first examined. To test for hypotheses 1 and 2, multiple regression analyses using hierarchical linear regression were conducted to examine the predictive effects of independent variables (adaptive perfectionism, maladaptive perfectionism, rumination and worry) on school burnout (emotional exhaustion, cynicism and reduced academic efficacy) being dependent variables, while controlling for demographics including gender, age, study level, year of study, study mode and CGPA.

To test for hypothesis 3, simple mediation analyses using multiple regression and Sobel tests were conducted to investigate the mediating roles of negative repetitive thoughts (rumination and worry) in the relationship between maladaptive perfectionism and school burnout.

III. RESULTS

Descriptive statistics, reliability coefficients and correlations among perfectionism, rumination, worry, school burnout and self-compassion are presented in Table 1.

3.1 Descriptive Analyses

In this sample, male respondents in general had more worry ($t = 2.17, p < .05$), lower academic efficacy ($t = -2.04, p < .05$), and higher CGPA ($t = 2.89, p < .01$) than female respondents. This suggested certain gender differences in such aspects. No gender difference was found in terms of perfectionism and school burnout.

Pearson's correlation analyses revealed that the overall perfectionism score was positively and significantly correlated with all aspects of school burnout including emotional exhaustion ($r = 0.38, p < .01$), cynicism ($r = 0.24, p < .01$) and academic efficacy ($r = 0.14, p < .05$). In terms of sub-dimensions, adaptive perfectionism was positively and significantly correlated with emotional exhaustion ($r = 0.14, p < .05$) and academic efficacy ($r = 0.38, p < .01$); there was no significant association with cynicism ($r = -0.06, p > .05$). On the other hand, maladaptive perfectionism was positively and significantly correlated with emotional exhaustion ($r = 0.42, p < .01$) and cynicism ($r = 0.34, p < .01$); there was no significant association with academic efficacy ($r = -0.01, p > .05$).

Secondly, in terms of the association between perfectionism and negative repetitive thoughts, the overall perfectionism score was positively and significantly correlated with rumination ($r = 0.54, p < .01$) and worry ($r = 0.49, p < .01$). Positive and significant relationships with rumination and worry respectively were also found in adaptive perfectionism ($r = 0.32, p < .01$; $r = 0.38, p < .01$) and maladaptive perfectionism ($r = 0.54, p < .01$; $r = 0.44, p < .01$).

As for the relationship between negative repetitive thoughts and school burnout, rumination was positively and significantly correlated with emotional exhaustion ($r = 0.34, p < .01$) and cynicism ($r = 0.22, p < .01$); there was no significant relationship with academic efficacy ($r = -0.01, p > .05$). Worry was also positively and significantly correlated with emotional exhaustion ($r = 0.45, p < .01$) and cynicism ($r = 0.23, p < .01$); there was no significant relationship with academic efficacy ($r = -0.04, p > .05$).

Table 1: Means, Standard Deviations, Reliabilities, and Correlations among Study Variables.

	M	SD	No. of items	1	2	3	4	5	6	7
1. Perfectionism (adaptive)	3.39	0.49	13	(0.82)	0.40**	0.32**	0.38**	0.14*	-0.06	0.38**
2. Perfectionism (maladaptive)	2.80	0.55	22		(0.89)	0.54**	0.44**	0.42**	0.34**	-0.01
3. Rumination	2.63	0.62	5			(0.80)	0.55**	0.34**	0.22**	-0.01
4. Worry	3.28	0.69	16				(0.91)	0.45**	0.23**	-0.04
5. Emotional exhaustion	3.25	0.96	5					(0.76)	0.53**	-0.02
6. Cynicism	3.03	1.06	4						(0.78)	-.23**
7. Academic efficacy	3.57	0.82	6							(0.77)

Note. N = 297. Cronbach's alphas in parentheses.

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

3.2 Multiple Regression Analyses

Hierarchical linear regression analyses were carried out to investigate how perfectionism and negative repetitive thoughts were related to school burnout (i.e. emotional exhaustion, cynicism and reduced academic efficacy) with gender, age, study level, year of study, study mode and CGPA being controlled. Results are summarized in Table 2. First, demographic variables were entered in the first step to serve as control variables. The second step included both adaptive and maladaptive perfectionism. Rumination and worry were entered in the third step to identify unique explained variance of predictors on outcome variables. Independent analyses were repeated using emotional exhaustion, cynicism and academic efficacy as dependent variables respectively. There was no multicollinearity problem since all VIFs were less than 4.

Adaptive perfectionism significantly predicted cynicism negatively (β = -0.23, p < .001), and significantly predicted academic efficacy positively (β = 0.44, p < .001). It did not predict emotional exhaustion (β = -0.09, p > .05). On the other hand, maladaptive perfectionism positively and significantly predicted emotional exhaustion (β = 0.28, p < .001) and cynicism (β = 0.38, p < .001), and also negatively predicted academic efficacy (β = -0.14, p < .05). This supported the first hypothesis.

For negative repetitive thoughts, rumination did not predict any aspect of school burnout with emotional exhaustion (β = 0.03, p > .05), cynicism (β = 0.01, p > .05) and academic efficacy (β = 0.03, p > .05). This was inconsistent with previous findings. As for worry, it positively and significantly predicted emotional exhaustion (β = 0.37, p < .001) and cynicism (β = 0.17, p < .05), and also negatively and significantly predicted academic efficacy (β = -0.19, p < .01). As a result, the second hypothesis was partially supported with only worry as a predictor of school burnout.

Table 2: Hierarchical Multiple Regression with Demographics, Perfectionism (Adaptive and Maladaptive), Rumination and Worry Predicting School Burnout (Emotional Exhaustion, Cynicism and Academic Efficacy).

	Dependent Variables (β)								
Predictors	Emotional Exhaustion			Cynicism			Academic Efficacy		
	M1	M2	M3	M1	M2	M3	M1	M2	M3
Gender	-0.06	-0.05	-0.01	-0.09	-0.07	-0.05	0.15*	0.13*	0.11*
Age	0.10	0.08	0.11	0.03	0.01	0.02	0.06	0.06	0.05
Study level	-0.12	-0.03	-0.04	0.03	0.09	0.08	-0.11	-0.08	-0.07
Year of study	-0.15	-0.07	-0.07	0.04	0.12	0.12	-0.07	-0.10	-0.10
Study mode	-0.07	-0.07	-0.04	-0.08	-0.06	-0.05	0.01	-0.01	-0.02
CGPA	-0.04	-0.07	-0.11*	-0.18**	-0.16**	-0.18**	0.30***	0.20***	0.22***
Perfectionism (Adaptive)		-0.00	-0.09		-0.19**	-0.23***		0.40***	0.44***
Perfectionism (Maladaptive)		0.42***	0.28***		0.44***	0.38***		-0.19**	-0.14*
Rumination			0.03			0.01			0.03
Worry			0.37***			0.17*			-0.19**
R	0.13	0.43	0.54	0.19	0.44	0.47	0.32	0.48	0.50
R^2 change	0.02	0.17***	0.11***	0.04	0.16***	0.02*	0.10***	0.13***	0.02*

Note. N = 297. β: Beta standardized coefficient.

M1: Gender, age, study level, year of study, study mode and CGPA.

M2: Above plus adaptive and maladaptive perfectionism.

M3: Above plus rumination and worry.

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

From the above multiple regression analyses, maladaptive perfectionism and worry showed significant predictive effects on all dimensions of school burnout, especially on emotional exhaustion. In addition, after adding worry as one of the predictors in the third model, the predictive power of maladaptive perfectionism dropped in all aspects of school burnout. Together with the findings from previous studies, worry was suggested to be a mediator between maladaptive perfectionism and school burnout in the current study.

3.3 Mediation Analyses

In order to investigate the potential mediating effect of worry in the relationship between maladaptive perfectionism and school burnout, simple mediation analyses were conducted with maladaptive perfectionism as predictor, worry as mediator, and school burnout (emotional exhaustion, cynicism and reduced academic efficacy) as outcomes. Regression analyses were used while controlling for demographic variables and adaptive perfectionism. Results are presented in Table 3.

As shown, higher maladaptive perfectionism was significantly associated with higher emotional exhaustion (β = 0.42, p < .001), and more worry was also significantly associated with higher emotional exhaustion (β = 0.37, p < .001). When worry was controlled, the effect of maladaptive perfectionism on emotional exhaustion significantly dropped (β = 0.28, p < .001) (Sobel z = 4.19, p < .001). The indirect effect contributed 33.33% of the total effect of maladaptive perfectionism on emotional exhaustion (Figure 1).

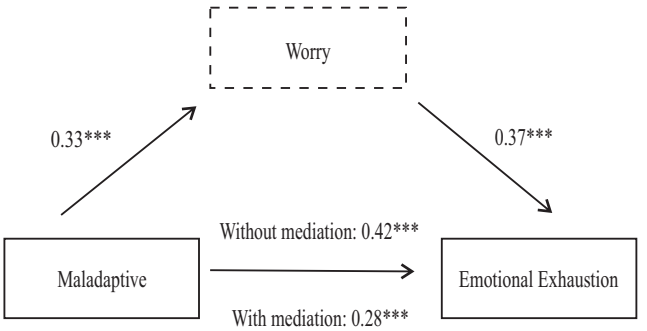

Figure 1. Mediation analysis for the relationship between maladaptive perfectionism, worry and emotional exhaustion

In terms of cynicism, higher maladaptive perfectionism was significantly associated with more cynicism (β = 0.44, p < .001), and more worry was also associated with more cynicism (β = 0.17, p < .05). After controlling for worry, the effect of maladaptive perfectionism on cynicism significantly dropped (β = 0.38, p < .001) (Sobel z = 2.35, p < .05). The indirect effect contributed 13.63% of the total effect of maladaptive perfectionism on cynicism (Figure 2).

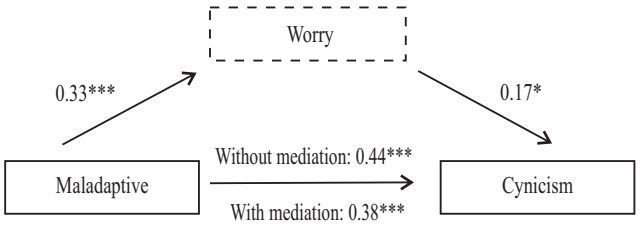

Figure 2. Mediation analysis for the relationship between maladaptive perfectionism, worry and cynicism

Lastly for academic efficacy, higher maladaptive perfectionism was significantly associated with less academic efficacy (β = -0.19, p < .01), and more worry was also significantly associated with less academic efficacy (β = -0.19, p < .01). After controlling for worry, the effect of maladaptive perfectionism on academic efficacy significantly dropped (β = -0.14, p < .05) (Sobel z = -2.62, p < .01). The indirect effect contributed 26.32% of the total effect of maladaptive perfectionism on academic efficacy (Figure 3).

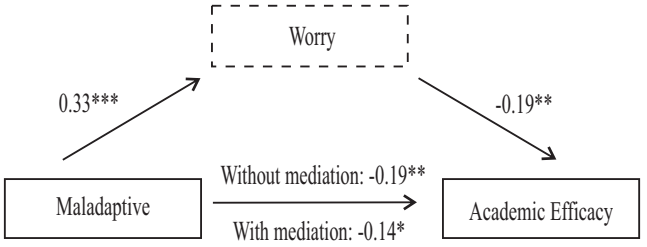

Figure 3. Mediation analysis for the relationship between maladaptive perfectionism, worry and academic efficacy

From the above results, it was found that worry partially mediated the relationships between maladaptive perfectionism and all aspects of school burnout. The mediating effect of worry was the most salient on emotional exhaustion among all dimensions of school burnout.

Table 3: Mediation Analyses of Worry on the Relationships between Perfectionism (Maladaptive) and School Burnout (Emotional Exhaustion, Cynicism and Academic Efficacy).

	Dependent Variables					
Independent | Mediating Variables	Emotional Exhaustion		Cynicism		Academic Efficacy	
	SE	β	SE	β	SE	β
Perfectionism (Maladaptive)	0.10	0.42***	0.11	0.44***	0.09	-0.19**
Worry	0.09	0.37***	0.10	0.17*	0.08	-0.19**
Perfectionism (Maladaptive) | Worry (Mediator)	0.11	0.28***	0.13	0.38***	0.10	-0.14*
Sobel test (z)	4.19*** (p < .001)		2.35* (p = .019)		-2.62** (p = .009)	

Note. N = 297. SE: Standard error; β: Beta standardized coefficient.

Regression equations were controlled for demographics (gender, age, study level, year of study, study mode and CGPA) and perfectionism (adaptive).

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

IV. DISCUSSION AND CONCLUSION

4.1 General Discussion

The aim of the current study was to investigate the effect of perfectionism on school burnout, and to delineate the role of negative repetitive thoughts (rumination and worry) in the process. The predictive effects of adaptive perfectionism, maladaptive perfectionism, rumination and worry on school burnout (emotional exhaustion, cynicism and reduced academic efficacy) were examined. In line with the first hypothesis, perfectionism had a strong effect on school burnout. Adaptive perfectionism did not predict emotional exhaustion, but negatively predicted cynicism and positively predicted academic efficacy. Maladaptive perfectionism on the other hand predicted all aspects of school burnout. This confirmed the underlying differences between adaptive and maladaptive perfectionism, suggesting that perfectionism is not necessarily an unhealthy trait.

The direct positive effect of adaptive perfectionism on academic efficacy can be understood through the mechanisms of goal-setting and self-evaluation. Academic efficacy involves the subjective evaluation and belief for successfully carrying out specific academic tasks and achieving desired outcomes (Schunk, 1991). In general, pursuing challenging goals fosters the development of self-efficacy and improves performance (Locke & Latham, 2002). Among perfectionists, higher academic efficacy is also achieved by regularly assessing and monitoring own performance and progress, as well as developing relevant skills to achieve difficult goals (Schunk, 1996). This at the same time facilitates the development of a sense of mastery, which is a core component in the notion of self-efficacy (Bandura, 1977). The positive association between adaptive perfectionism and academic efficacy can also be explained by academic engagement. Adaptive perfectionism involves setting up high standards for oneself, and placing importance in order and organization. Firstly, striving for excellence can be adaptive and motivational as long as goals are reachable and realistic unlike those set up by maladaptive perfectionists. As a result, positive striving results in achievements instead of overly draining one's energy. Reaching for high standards at school can also be possible without burnout as long as a student is flexible in coping with stress. This adaptive regulation helps students adjust according to their own abilities and resources. Secondly, organization and order facilitate a sense of clarity and efficiency. With less distraction in the physical environment, students are able to concentrate better. It is suggested that these two factors in adaptive perfectionism are related to better academic engagement (Zhang et al., 2007). With better academic engagement, students demonstrate higher levels of vigor, dedication and absorption in studies. It provides students with the resilience, sense of significance and concentration in handling schoolwork. As a result, students demonstrating adaptive perfectionism tend to exhibit higher academic efficacy and less school burnout (Maslach et al., 2001; Sulea, Van Beek, Sarbescu, Virga, & Schaufeli, 2015). The positive outcomes of adaptive perfectionism in the current study were further demonstrated by the non-significant prediction on emotional exhaustion, and the significant negative prediction on cynicism.

On the contrary, not only did maladaptive perfectionism predict higher emotional exhaustion and cynicism, it predicted reduced academic efficacy. The predictive effect of maladaptive perfectionism on school burnout can be supported by the Self-Determination Theory (Deci & Ryan, 2002). According to this theory, motivations can be autonomous (acting based on interest or value), or controlled (acting based on reward or punishment). Adaptive perfectionists are more intrinsically motivated, in which they engage in an activity for enjoyment and excitement. This is congruent with the notion of positive striving by setting up high standards (Bong, Hwang, Noh, & Kim, 2014). Maladaptive perfectionists, however, exhibit higher tendencies in being extrinsically motivated, in which the engagement in an activity is contingent upon external factors such as rewards or threats of punishment. They are motivated to avoid making mistakes and failures as an escape from negative self-evaluation and social evaluation (Hill & Curran, 2016). This is consistent with the notion of *introjected regulation* in the Self-Determination Theory that individuals are "motivated to avoid self-conscious emotions such as shame, guilt and self-critical feelings, and to obtain positive self-related affects and appraisals" (Nie, Chua, Yeung, Ryan, & Chan, 2015, p. 2). This particular type of motivation is associated with negative wellness outcomes, academic disengagement, low self-efficacy and procrastination (Deci & Ryan, 2002; McGeown et al., 2014; Taylor et al., 2014). This accounts for the higher levels of school burnout among students with higher levels of maladaptive perfectionism.

Regarding negative repetitive thoughts, the current study confirmed the significance of cognitive factors in perfectionism and school burnout. However, only worry was found to be predictive of all aspects of school burnout. Rumination did not predict any of the school burnout dimensions as hypothesized. Although rumination and worry are both repetitive and unproductive in nature, the two share some distinctive features (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). Rumination focuses on the causes and consequences of distress so as to avoid adversities without active coping, while worry focuses on anticipating and preparing for threats so as to avoid negative affect in future (Dar & Iqbal, 2015). In other words, rumination is more past-oriented and adversity-avoidant in nature, whereas worry is more future-oriented and negative-affect-avoidant in nature. The current study confirmed such differences between the two since only worry was conducive to school burnout. The strong predictive effect of worry on school burnout suggested that burnout may therefore be more related to future concerns, and may reflect one's emotionality. Although rumination and worry have been studied extensively in relation to depression, anxiety and other psychological disorders, rumination does not seem to be related to burnout. It implies that given there is an overlap between burnout and other psychological distress as suggested by previous studies, there is still a distinctive difference between rumination and worry.

A central purpose of this study was to investigate the mediating effects of negative repetitive thoughts on perfectionism and school burnout. Given the fact that adaptive perfectionism and rumination did not predict school burnout, only maladaptive perfectionism and worry were further examined in the subsequent mediation analyses. The absence of mediation by worry in adaptive perfectionism showed that adaptive perfectionism has strong direct effects on reduced school burnout (decreased cynicism and increased academic efficacy), and worry does not weaken such positive outcomes. On the other hand, worry mediated the effect of maladaptive perfectionism on all aspects of school burnout (emotional exhaustion, cynicism and reduced efficacy) as hypothesized in the current study. Contrary to the observation in adaptive perfectionism, it intensified the effect of maladaptive perfectionism on school burnout. More worry was found in students with higher levels of maladaptive perfectionism, resulting in higher levels of school burnout. It suggested an important and a significant role of worry in explaining the relationship between maladaptive perfectionism and school burnout. Compared to other dimensions of school burnout, the mediating effect of worry was the strongest in emotional exhaustion. This further confirmed the above discussion about the affective nature of worry. As a result, it predicted the depletion of emotional resources the most. In addition, it is suggested that burnout progresses with time (Hill & Curran, 2016). When there is an increasing demand and a lack of resources to cope, exhaustion develops first, and a sense of detachment then follows as a strategy to cope with the exhaustion. When these two symptoms start affecting one's effectiveness and perception of resources, a reduced sense of efficacy develops, resulting in a reduced academic efficacy among students. This may explain why the effects observed in emotional exhaustion were the most salient.

4.2 Implications for Treatment and Preventive Interventions

Collectively, the findings suggest a need of attention for college students who have high levels of maladaptive perfectionism as they may be suffering from more school burnout and worry. The aim of interventions should be on reducing the levels of maladaptive perfectionism and to help them transform their maladaptive perfectionistic cognitions to adaptive ones. One of the ways to address maladaptive perfectionism is by raising one's self-acceptance (Lundh, 2004). With higher levels of self-acceptance and mindfulness, there is a lower tendency to overreact and over-identify failures or mistakes. It has been found that compassionate imagery (Gilbert & Irons, 2004), compassionate writing (Breines & Chen, 2012) and psycho-education (Adams & Leary, 2007) are effective in targeting self-criticism and other negative affect stemming from the sense of guilt. Schools can consider adopting such interventions to promote self-understanding and self-acceptance among students. The same approach can also be applied to reduce worry and are found to be effective. In a meta-analysis by Querstret and Cropley (2013), mindfulness-based interventions such as mindfulness-based stress reduction and cognitive therapy (MBCT) were found to be effective in reducing worry in both clinical and non-clinical samples. These interventions help change negative cognition, and disengage from negative emotional response.

As mentioned at the beginning, perfectionism is a stable personality trait. This may be one of the difficulties in

reducing the levels of maladaptive perfectionism among college students. It is found that simply making perfectionistic students be aware of their tendency towards perfectionism is good enough to generate a positive impact. By providing feedback about behaviors and their consequences, students with high levels of maladaptive perfectionism show a reduction in global distress and emotional reactivity (Aldea, Rice, Gormley, & Rojas, 2010). Feedback intervention helps diminish one's irrational core beliefs towards self and self-imposed stress. As a result, maladaptive perfectionism can be turned into an adaptive one by setting high but achievable goals, increasing positive motivation, and evaluating oneself in terms of effort and not success. Schools are therefore encouraged to promote a message of healthy striving, and its difference with pursuing unreachable standards in order to reach the demands of being perfect.

4.3 Limitations and Further Suggestions

Firstly, due to practical constraints, the current study took a cross-sectional instead of longitudinal approach. A longitudinal approach may provide stronger evidence in understanding the effects of perfectionism and negative repetitive thoughts on school burnout over time. As mentioned, burnout progresses with time. Taking a longitudinal approach can take into account factors such as the workload differences between the beginning, middle and the end of a semester. This may better reflect the real life experiences of students. Secondly, the current study did not control for other personality variables, such as neuroticism. Studies have shown that neuroticism is positively associated with socially-prescribed perfectionism, which is a kind of maladaptive perfectionism (Smith et al., 2016; Sulea et al., 2015). Neurotic individuals also tend to worry more (Servaas, Riese, Ormel, & Aleman, 2014). In general, neuroticism results in more stress and anxiety, which in turn leads to more burnout. Lastly, the current study was conducted on college students only. Future research may investigate how the mechanism of perfectionism, negative repetitive thoughts and school burnout of high school students, as senior secondary students should face even higher levels of academic stress and anxiety when facing competitive examinations.

4.4 Conclusion

To summarize, the current study contributed to the understanding of perfectionism in the Chinese context. The results of the current study demonstrate that perfectionism is multidimensional and consisted of both adaptive and maladaptive nature, suggesting that perfectionism is not necessarily unhealthy but can have positive outcomes if used in an adaptive way. On the negative side, maladaptive perfectionism and worry are associated with more school burnout (higher emotional exhaustion, cynicism and lower academic efficacy). While worry was identified as an important mediator in the relationship between maladaptive perfectionism and school burnout, rumination was not.

V. REFERENCES

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