

Psychological Stress Model Assumes Self-Oriented Perfectionism as Antecedent Factor and Self-Efficacy's Moderation Effect

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Introduction

“Perfectionism is the striving for flawlessness, and extreme perfectionists are people who want to be perfect in all aspects of their lives” (Flett & Hewitt, 2002, p.5). Perfectionism is related to many psychological and physiological issues such as apathy, neurosis, alcoholism and anorexia nervosa (Pacht, 1984). Many researchers have studied the relationship between perfectionism and maladaptation.

Dimensions of Perfectionism

Hewitt and Flett (1990) identified three dimensions of perfectionism: that which directed toward the self (i.e., self-oriented perfectionism), that which directed toward others (i.e., other-oriented perfectionism) and that which involved the generalized belief or perception that others are imposing unrealistic demands on the self (i.e., socially prescribed perfectionism). Hewitt and Flett (1991) then developed the Multidimensional Perfectionism Scale (MPS) and found that depression was positively correlated with self-oriented perfectionism and socially prescribed perfectionism.

Dimensions of Self-Oriented Perfectionism

Ohtani and Sakurai (1995) developed a Japanese version of the MPS and conducted a study in the same way as Hewitt and Flett (1990). The result was almost identical to the former studies on socially prescribed perfectionism the difference being that they had a different result that self-oriented perfectionism was negatively correlated with depression. From these results, Sakurai and Ohtani (1997) supposed that the relation between some dimensions of self-oriented perfectionism and mental health was positive, negative, or neutral. They

developed the Multidimensional Self-oriented Perfectionism Scale (MSPS) with reference to the Frost Multidimensional Perfectionism Scale (F-MPS; Frost, Marten, Lahart, & Rosenblate, 1990). The MSPS has four dimensions, including Desire for Perfection (DP, the tendency for the self to want to be perfect), Personal Standards (PS, the tendency to set very high standards), Concern over Mistakes (CM, excessive negative reactions to mistakes), and Doubting of Actions (D, the tendency to feel that projects have not been completed to satisfaction). The researchers examined correlations of these subscales with depression and hopelessness. Consequently, it was shown that DP was not correlated with maladaptation (depression and hopelessness); PS was negatively correlated, while CM and D were positively correlated with maladaptation (Sakurai & Ohtani, 1997). The researchers concluded that self-oriented perfectionism had some different dimensions for mental health.

Process of Effect from Self-Oriented Perfectionism to Depression

In recent studies, it has been popular to study the process of effects from self-oriented perfectionism to depression. For example, Ito (2004) suggested that a psychological factor such as perfectionism did not hold over and confound depression without being mediated by negative rumination. Ogai (2004) focused on the self-oriented perfectionist's coping styles of uncontrollable events and found that CM was related, via self-blame, to a negative evaluation of the self. Saito, Sawazaki, and Konno (2008) dealt with negative attributional styles as self-oriented perfectionists' character in a cognitive aspect and suggested that those high in CM and D fall into depression because they attribute mistakes in interpersonal domains to themselves in a stable way.

Although self-oriented perfectionism positively relates to maladaptation, it doesn't necessarily do so due to the

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multiple dimensions of perfectionism. It would appear that each dimension of self-oriented perfectionism may have effects on mental health in different ways. Therefore, revealing the ways in which each dimension of self-oriented perfectionism affects mental health will bring us a better understanding of self-oriented perfectionism.

Psychological Stress Model

Self-oriented perfectionism has been understood to be cognitive style (Flett, Hewitt, Blankstein, & Gray, 1998; Ishida, 2005; Kobori & Tanno, 2004; Shafran, Cooper, & Fairburn, 2002). For example, it has been revealed that self-oriented perfectionists experience particular cognitions such as a bias of selective attention to mistakes (Shafran et al., 2002) and ruminative automatic thoughts (Flett et al., 1998). In terms of the processing of effects from self-oriented perfectionism to depression, self-oriented perfectionists' mental health may depend on particular cognitions and behaviors associated with such cognitions. To consider such a possibility, we adopted a psychological stress model (Lazarus & Folkman, 1984) which was one of core concepts of stress. Recent studies have identified this as a process of effect from self-oriented perfectionism to depression. The following causal chain was proposed: When a person encounters the event, he or she conducts cognitive appraisals as to whether or not the event relates to mental health (primary appraisal, impact). If the event is stressful, the individual conducts cognitive appraisals determining how coping strategies are selectable (secondary appraisal, control). Coping was conducted based on this cognitive appraisal. Consequently, the influence over the individual's mental health by the event is determined. Both cognitive appraisal and coping style are mediating processes from the event to mental health and are regulated by antecedent conditions (Kato, 2001).

Adopting a psychological stress model will reveal the process of effect from self-oriented perfectionism to depression in terms of cognition and behavior according to particular cognition to self-oriented perfectionists. Moreover, many researchers have adopted certain personality traits (e.g., optimism, locus of control, belief, self-esteem, and hardiness) as antecedent conditions of a psychological stress model (Kato, 2001). This adoption may enable us to compare self-oriented perfectionism to other personality traits, given that many studies have discussed the psychological stress model. Adopting self-

oriented perfectionism as an antecedent condition of a psychological stress model will reveal the process of effect from each dimension of self-oriented perfectionism to depression in different ways.

The Moderation Effect of Self-Efficacy

On the other hand, those who have similar personality traits (i.e., self-oriented perfectionism) will not necessarily reach similar adaptation states. What factors involve adaptation process and heighten or lower the maladaptability of self-oriented perfectionism? This question concerns the moderation effect on self-oriented perfectionism. Revealing this will enable us to more precisely understand how individuals adapt to stressors. Incidentally, there have been no studies to date revealing this issue.

What factors affect the process of effect from self-oriented perfectionism to depression? We give attention to self-efficacy as a factor which has this moderation effect. Self-efficacy is a key concept in social cognitive theory (social learning theory; Bandura, 1977). Self-efficacy refers to confidence in achieving a task. When perfectionists try to achieve a goal based on high standards, whether or not they have confidence in their ability to achieve it is considered important because their feeling confident about accomplishing a task can determine the adaptability of self-oriented perfectionism. However, there are two possibilities regarding how self-efficacy moderates the effect of self-oriented perfectionism on mental health. That is, the moderation effect of self-efficacy is either positive or negative.

Positive moderation effect of self-efficacy. One possibility is that self-oriented perfectionism with high self-efficacy influences mental health positively. That is, self-oriented perfectionists with high self-efficacy may consider that they can achieve high standards. Their high PS would enable them to appraise a controllable stressor and cope with it. As a result, self-oriented perfectionism has a beneficial influence on mental health. On the other hand, self-oriented perfectionists with low self-efficacy may be concerned about mistakes and may have little confidence in their own behavior. High CM and D may make them appraise a stressor as shocking, disabling them from coping with it well. As a result, self-oriented perfectionism may have a negative influence on mental health.

Negative moderation effect of self-efficacy. The oth-

er possibility is that self-efficacy moderates the effect of self-oriented perfectionism, having a negative effect on mental health. That is, it can be undesirable for self-oriented perfectionists to persist in achieving standards because they will set standards that are too high to achieve. Self-efficacy is based on efficacy expectations. The efficacy expectation is individual belief how effectively one may take necessary action to produce the result. Self-efficacy can not only influence the choice of activities and settings, but can also affect coping efforts once they are initiated. That is, efficacy expectations determine how much effort people will expend and how long they will persist in the face of obstacles and aversive experiences (Bandura, 1977). People with high self-efficacy can keep up efforts even if they face some obstacles, whereas people with low self-efficacy cannot. High self-efficacy looks desirable, but it may be undesirable for self-oriented perfectionists. That is, self-oriented perfectionists with high self-efficacy set unattainable standards and cannot achieve such standards so easily, but don't lower their standards appropriately and persist in initial goals (Shaf-ran et al., 2002). As a result, persisting in high standards which cannot be achieved will have an undesirable influence on mental health. Therefore, it may be desirable for self-oriented perfectionists to be able to give up, lower their standards appropriately, and reconcile conflict between high standards and non-fulfillment rather than persist in achieving unattainable standards. In this case, high self-efficacy means persisting in unattainable standards for self-oriented perfectionists and moderating the effect of self-oriented perfectionism on mental health. Therefore, PS, CM, and D may affect depression more undesirably than those who have high self-efficacy than that of those who have low self-efficacy.

As discussed above, self-efficacy can moderate the effect of self-oriented perfectionism on mental health in either a positive or negative way. We should consider which possibility is more adequate. There are a few studies discussing the relationship between self-efficacy and self-oriented perfectionism. Brett, Frank, Paul, and Jeffrey (1998) used MPS (Hewitt & Frett, 1990) and indicated that self-oriented perfectionism correlated negatively with self-efficacy. Zhang & Cai (2012) used the Almost Perfect Scale-Revised (APS-R) (Slaney, Rice, Mobley, Trippi, & Ashby, 2001) and suggested an interaction between maladaptive perfectionism and self-efficacy which

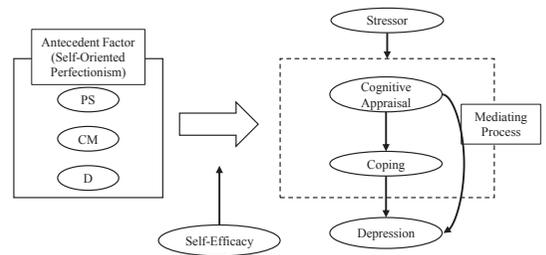


Figure 1. Psychological stress model assumed self-oriented perfectionism as antecedent factor and a moderation effect of self-efficacy. PS = Personal Standards; CM = Concern over Mistakes; D = Doubting of Actions.

significantly predicted depressive symptoms. However, these studies didn't consider the four dimensions proposed by Sakurai and Ohtani (1997). It is not clear how self-efficacy works as a factor of moderation effect on self-oriented perfectionism from previous studies. By assuming the moderation effect of self-efficacy, we can address this issue.

Purpose of This Study

In this study, we considered the ways in which self-oriented perfectionism functions as an antecedent factor of a psychological stress model and how self-efficacy worked as a moderation effect on the model (Figure 1).

To consider these issues we first assessed four dimensions of self-oriented perfectionism, self-efficacy, cognitive appraisal, coping, and depression, using a self-report questionnaire. Second, data was divided into two groups a self-efficacy score. Third, utilizing multiple-group analysis, we constructed psychological stress models for high self-efficacy group and for low self-efficacy group, assuming self-oriented perfectionism as an antecedent factor. We then considered how self-oriented perfectionism works in a psychological stress model and how self-efficacy works as a moderation effect on this model through model comparison.

Method

Participants and Procedure

Participants included 307 Japanese university students (female, 159 [52%], male, 148 [48%]). The mean and standard deviations of ages were 19.7 years and 1.2 years. They were asked to complete a self-report questionnaire tapping self-oriented perfectionism, self-efficacy, cogni-

tive appraisal, coping, and depression in the lecture room after a 90-min lecture.

Scales

Self-oriented perfectionism. Self-oriented perfectionism was assessed using the 20-item "Multidimensional Self-oriented Perfectionism Scale" (MSPS; Sakurai & Ohtani, 1997). Each item was evaluated with a 6-point scale.

Self-efficacy. Self-efficacy was assessed the Japanese version of the 23-item "Generalized Self-Efficacy Scale" (SE scale; Narita et al., 1995) originally developed by Sherer et al. (1982). Each item was evaluated using a 5-point scale.

Cognitive appraisal. Cognitive appraisal was assessed using the 20-item "Cognitive appraisal scale" developed by Okayasu (1992). This scale was a short version of a questionnaire about cognitive appraisal (Niina, Yatomi, & Sakata, 1988). Each item was evaluated with a 5-point scale. In this study, participants were asked to simulate the stress condition of social evaluation picked up from three stress conditions assumed by Okayasu (1992). Incidentally, two assumed factors were *Impact* and *Control* with reference to Tomono and Hashimoto (2002).

Coping. Coping was assessed using the 20-item "Coping scale" developed by Okayasu (1992). This scale was a short version of a questionnaire about coping (Niina, Yatomi, & Sakata, 1988). Each item was evaluated with a 5-point scale. Participants were asked to answer items in the case of the stress condition of social evaluation indicated in the cognitive appraisal scale. Two factors, *Active* and *Passive* were assumed with reference to Tomono and Hashimoto (2002).

Depression. Depression was assessed using the Japanese version of the 20-item "Self-rating Depression Scale" (SDS; Fukuda & Kobayashi, 1973) originally developed by Zung (1965). Each item was evaluated with a 4-point scale.

Results

Descriptive Statistics (Whole)

Mean scores were calculated for each scale. Table 1 shows the mean, standard deviation and Cronbach's α of scale scores and subscale scores. Where values of Cronbach's α were greater than or equal to .71, reliability of the measurement was considered sufficient. Pearson's

product-moment correlation coefficients among all scales are shown in Table 2. Self-efficacy was significantly correlated with DP (.12), PS (.37), CM (-.44), D (-.24), *impact* (-.30), and *control* (.51) of cognitive appraisal, *active coping* (.31) and depression (-.42).

SE (Self-Efficacy) Groups

To examine a psychological stress model assuming a self-oriented perfectionism as antecedent factor and a moderation effect on the model by self-efficacy, data was divided into two groups using the self-efficacy score. The cut-off point was set to the mean score of self-efficacy (2.83). The high SE group total was 139 and the low SE group total was 168.

Descriptive Statistics (SE Groups)

Table 3 contains the mean, standard deviation, and Cronbach's α of each scale in each group. Where the values of Cronbach's α were greater than or equal to .70, reliability of the measurement was considered sufficient. In the high SE group, the minimum value of *control* of cognitive appraisal most highly correlated with self-efficacy (.51) was 1.2 and the maximum value was 4.0. On the other hand, in the low SE group, the minimum value of *control* of cognitive appraisal was 1.0 and the maximum value was 4.0. This suggested that there was not a serious disconnection of distribution by dividing data through the self-efficacy score. Pearson's product-moment correlation coefficients among scales expecting SE scale are shown in Table 4.

Multiple-group Analysis

A fit model was explored by means of multi-group analysis. DP was removed from multi-group analysis because DP has been considered as neutral to depression in previous studies (e.g., Sakurai & Ohtani, 1997; Saito et al., 2008). A path diagram of the best fit model (shown in Figure 2) was adopted. The fit indices were $df = 29$, $\chi^2 = 35.61$ ($p = .19$), $GFI = .972$, $AGFI = .939$, $RMSEA = .039$, and $CFI = .985$. The proposal model was considered to fit the data.

In the model of the high SE group, PS showed no path leading to depression. The CM had a negative path to cognitive appraisals of *control* (-.32), which had a negative path toward depression (-.37). The CM also had a positive direct path toward depression (.24). The D had a positive path toward the cognitive appraisal of *impact* (.37), which had a positive path toward depression (.27). Correlations between PS and D and CM and D were assumed.

Table 1
Fundamental statistics and Cronbach's α coefficients (whole)

		<i>M</i>	<i>SD</i>	α
MSPS	DP	3.71	0.86	.81
	PS	3.87	0.84	.78
	CM	3.34	0.91	.76
	D	4.17	0.79	.71
SE scale	Self-Efficacy	2.83	0.53	.87
Cognitive Appraisal	Impact	2.87	0.55	.90
	Control	2.54	0.67	.83
Coping	Active	2.69	0.43	.81
	Passive	2.62	0.50	.84
SDS	Depression	2.38	0.45	.81

Note. MSPS = Multidimensional Self-oriented Perfectionism Scale; DP = Desire for Perfection; PS = Personal Standards; CM = Concern over Mistakes; D = Doubting of Actions; SE scale = Generalized Self-Efficacy Scale; SDS = Self-rating Depression Scale.

Table 2
Correlations matrix (whole)

	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
MSPS									
(1) DP	.57*	.50*	.51*	.12*	.18	.00	-.24	-.15	.10
(2) PS		.10	.27*	.37*	.07	.18*	.37*	-.12*	-.11
(3) CM			.56*	-.44*	.29*	-.32*	-.08	-.11*	.41*
(4) D				-.24*	.35*	-.23*	-.16*	-.17*	.31*
SE Scale									
(5) Self-Efficacy					-.30*	.51*	.31*	-.01	-.42*
Cognitive Appraisal									
(6) Impact						-.22*	.09	-.08	.36*
(7) Control							.37*	.19*	-.52*
Coping									
(8) Active								-.12	.29*
(9) Passive									-.05
SDS									
(10) Depression									

Note. MSPS = Multidimensional Self-oriented Perfectionism Scale; DP = Desire for Perfection; PS = Personal Standards; CM = Concern over Mistakes; D = Doubting of Actions; SE scale = Generalized Self-Efficacy Scale; SDS = Self-rating Depression Scale.

* $p < .05$.

Table 3
Fundamental statistics and Cronbach's α coefficients (divided by the mean score of self-efficacy)

		High Self-efficacy			Low Self-efficacy		
		<i>M</i>	<i>SD</i>	α	<i>M</i>	<i>SD</i>	α
MSPS	DP	3.77	0.86	.81	3.66	0.86	.81
	PS	4.14	0.78	.78	3.66	0.83	.78
	CM	3.01	0.85	.76	3.62	0.86	.76
	D	4.02	0.78	.71	4.29	0.78	.71
Cognitive Appraisal	Impact	2.70	0.57	.90	3.00	0.49	.90
	Control	2.83	0.64	.83	2.30	0.60	.83
Coping	Active	2.98	0.44	.81	2.67	0.54	.81
	Passive	2.54	0.56	.84	2.63	0.61	.84
SDS	Depression	2.21	0.45	.81	2.53	0.40	.81

Note. MSPS = Multidimensional Self-oriented Perfectionism Scale; DP = Desire for Perfection; PS = Personal Standards; CM = Concern over Mistakes; D = Doubting of Actions; SE scale = Self-Efficacy scale; SDS = Self-rating Depression Scale.

Table 4
Correlations matrix (divided by the mean score of self-efficacy)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
MSPS									
(1) DP		-	.61*	.53*	.50*	.20*	-.15	.14	-.17*
(2) PS			.56*	-	.15	.38*	.13	-.03	.26*
(3) CM				-.58*	.27*	-	.55*	.17*	-.32*
(4) D					.56*	.31*	.54*	-	.38*
Cognitive Appraisal									
(5) Impact						.20*	.20*	.26*	.27*
(6) Control							-.18*	.17*	-.09
Coping									
(7) Active								.17*	-.09
(8) Passive									.37*
SDS									
(9) Depression									

Note. MSPS = Multidimensional Self-oriented Perfectionism Scale; DP = Desire for Perfection; PS = Personal Standards; CM = Concern over Mistakes; D = Doubting of Actions; SDS = Self-rating Depression Scale.

Top right: high self-efficacy group. Bottom left: low self-efficacy group.

* $p < .05$.

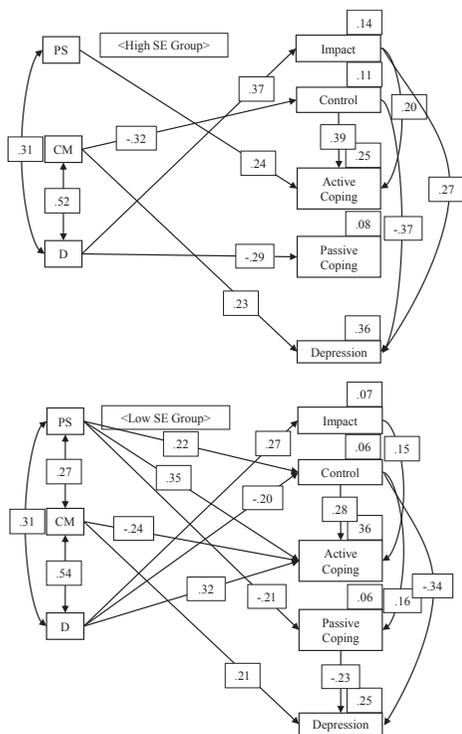


Figure 2. A psychological stress model assumed a self-oriented perfectionism as antecedent factor. PS = Personal Standards; CM = Concern over Mistakes; D = Doubting of Actions. $df = 29, \chi^2 = 35.61 (p = .19), GFI = .972, AGFI = .940, RMSEA = .039, CFI = .985$. The path coefficients were standardized and significant ($p < .05$). The values in the upper right of endogenous variables are coefficient of determination. The error term was omitted.

In the low SE group model, the PS showed a positive path toward cognitive appraisal of *control* (.22), which had a negative path toward depression (-.34). The cognitive appraisal of *control* heightened by PS had a positive path toward passive coping (.16), which had a negative path toward depression (-.23). In addition, the PS had a negative path toward passive coping (-.21), which had a negative path toward depression (-.23). The CM had a positive direct path toward depression (.21). The D had a negative path toward cognitive appraisals of *control* (-.20), which had a negative path toward depression (-.34). Cognitive appraisals of *control* heightened by D had a positive path toward passive coping (.16), which had a negative path toward depression (-.23). Correlations between PS and CM, PS and D and CM and D were assumed.

Model Exchanging

To examine whether different models were adopted in each high-low SE group, the models adopted in Figure 2 were exchanged with each other. That is, the adopted model in the high SE group was applied to the low group and the adopted model in the low group was applied to the high group. This method employed cross validation (Shiba, Watanabe, & Ishizuka, 1992). The fit indices computed as a result were $df = 29, \chi^2 = 106.59 (p = .00), GFI = .924, AGFI = .831, RMSEA = .132, \text{ and } CFI = .821$. The exchanged model was not considered to fit the data.

Discussion

The intent of this study was to construct a psychological stress model assuming self-oriented perfectionism as an antecedent factor and to examine the moderation effect of self-efficacy on the model. To construct the psychological stress model, a model for the high SE group and another for the low SE group were adopted, assuming self-oriented perfectionism as an antecedent factor. Moreover, when the models for the high or low SE groups were exchanged, the models were not considered to fit the data. This result suggested that it would be useful to adopt different models for each of the high SE group or the low SE group. It was found that self-efficacy has a moderation effect on a psychological stress model, assuming self-oriented perfectionism as an antecedent factor. Each model is discussed separately, with a consideration of the relationships between models through model comparison.

Psychological Stress Model (High Self-Efficacy)

PS (high self-efficacy) did not have any path. This result indicated that the PS levels did not influence depression in the high SE group at least within the framework of the psychological stress model.

CM (high self-efficacy) had a negative path to cognitive appraisals of *control* (-.32), which had a negative path toward depression (-.37). That is, CM had a positive path to depression that was indirect. This result might show that when those with high CM and self-efficacy encountered a stressor, it was difficult for them to make cognitive appraisals of *control* due to a need to achieve excessively high standards relating to a fear of failing. As a result, a low cognitive appraisal of *control* itself heightens depression regardless of coping. In addition, CM also had a

positive direct path toward depression (.24).

D (high self-efficacy) had a positive path toward cognitive appraisals of *impact* (.37), which had a positive path toward depression (.27). That is, D had a positive indirect path toward depression. It could be said that those with high D and high self-efficacy would be dubious and vague in their behaviors, appraising stressor shock and heightening depression by the cognitive appraisal itself, regardless of coping.

Psychological Stress Model (Low Self-Efficacy)

PS (low self-efficacy) had a positive path toward cognitive appraisal of *control* (.22) which had a negative path toward depression (-.34). That is, PS had a negative indirect path toward depression. This result suggested that when they set high standards albeit low self-efficacy, it was easy for those with low self-efficacy to appraise stressors as controllable. The cognitive appraisal of *control* heightened by PS had a positive path toward passive coping (.16) which had a negative path toward depression (-.23). Therefore, PS also had a negative indirect path, via cognitive appraisal of *control* and passive coping, toward depression. This could be interpreted as indicating that those with low self-efficacy could choose passive coping and that passive coping could enable them to change their subjective reality and reduce depression because they could appraise passive coping (e.g., thinking avoidance, giving up, and turning defiant) as a sufficient strategy. On the other hand, PS had a negative path toward passive coping (-.21) which in turn had a negative path toward depression. In other words, PS had a positive indirect path toward depression. This result might show that participants ceased to choose passive coping which lowered depression, in case of those with low self-efficacy setting high standards. As a result, depression was heightened.

CM (low self-efficacy) had a positive direct path toward depression (.21). CM had no indirect effect because CM didn't have any path toward *control* of cognitive appraisal and *passive coping*. This result may suggest that those with low self-efficacy don't persist in seeking standards that are too high to achieve and reconcile conflict between high standards and non-fulfillment. Therefore, individuals don't distort their cognition and coping, even if they have high CM.

D (low self-efficacy) had a negative path toward cognitive appraisals of *control* (-.20) which had a negative path

toward depression (-.34). This is to say that D had a positive path toward depression in an indirect way. This result suggests that those with low self-efficacy couldn't appraise stressors as controllable due to uncertainty about their actions. Cognitive appraisals of *control* heightened by D had a positive path toward passive coping (.16), which had a negative path toward depression (-.23). In other words, D also had a positive path, via cognitive appraisals of *control* and passive coping, to depression, in an indirect way.

Model Comparison

As discussed above, there were some differences between models distinguished by levels of self-efficacy. This result could be interpreted as meaning that the model ignoring the moderation effect of self-efficacy might refer to "an average person" who is non-existent anywhere. We intended to compare the model in the high SE group with the model in the low SE group. Through this comparison, we will discuss how self-efficacy works on the process of effects from self-oriented perfectionism to mental health.

Cognitive appraisal and coping. In terms of cognitive appraisal and coping, cognitive appraisal of *control* heightened passive coping in the low SE group, while we had a different result, such that cognitive appraisal of *control* didn't elicit passive coping in the high SE group. This result did not necessarily coincide with previous studies which suggested that high self-efficacy heightened the controllability of stressors and encouraged persons to adopt active coping (e.g., Shimada, Miura, Sakano, & Agari, 1996). However, those previous studies did not deal in self-oriented perfectionism. Therefore, it could be said that those with low self-efficacy might consider passive coping which cannot change objective reality as helpful. Passive coping played only a depression lowering role in the low SE group. This result could be a new finding. Moreover, cognitive appraisal of *impact* only heightened depression in the high SE group. This result might show that appraising stressor shocks was more serious for those with high self-efficacy than those with low self-efficacy because doing so was relatively common for those with low self-efficacy. On the other hand, cognitive appraisals of *control* lowered depression directly in both the high SE group and the low SE group.

PS (comparison). In the low SE group, PS had a positive path toward cognitive appraisals of *control*. On the other hand, in the high SE group, PS didn't have such

paths. In the high SE group, even if high standards were set, it has no influence on cognitive appraisal of *control*. This is because such individuals persist in achieving initial unattainable standards and don't lower their standards. In the high SE group, PS did not have any path and had no influence on depression. On the other hand, in the low SE group, PS had a few negative paths to depression indirectly, via cognitive appraisals of *control* and passive coping. These might show that setting high standards functioned more adaptively in the low SE group than in the high SE group. In other words, it was desirable for mental health that they set high standards, albeit with a sense of low self-efficacy. In previous studies, PS had a positive influence on mental health in general (e.g., Sakurai & Ohtani, 1997). In this study, however, it was revealed that in some cases, PS might not function adaptively.

To the contrary, PS had a positive path toward depression indirectly, only via passive coping in the low SE group. This result was caused due to the nature of PS, which made people choose active coping. In the low SE group, although passive coping worked to lower depression effectively, the nature of PS didn't permit choosing passive coping. PS worked maladaptively through this path in the framework of the psychological stress model. On the other hand, those who had high PS and self-efficacy did not choose passive coping regardless of the level of PS, because such coping was not effective for the high SE group.

CM (comparison). In the high SE group, CM had a negative path toward the cognitive appraisal of *control*, which had a negative path toward depression. On the other hand, in the low SE group, there was no such path. These results could be interpreted to mean that even if those who have high CM and low self-efficacy are concerned over mistakes, they did not appraise stressors as uncontrollable. This is because they didn't persist in initially attempting to reach unattainable standards, trying to cope flawlessly with stressors. In both groups, CM had a positive direct path toward depression. These results suggest that, because CM only lowered cognitive appraisals of *control* in the high SE group, CM functioned more maladaptively in the high SE group than in the low SE group.

D (comparison). D had a positive path toward cognitive appraisals of *impact* in both high SE group and low

SE group. However, D had a positive path toward depression, via cognitive appraisals of *impact*, but only in the high SE group. These results might show that appraising stressors as shocking was more serious for those with high self-efficacy than for those who had low self-efficacy. On the other hand, D had a negative path toward cognitive appraisals of *control*, but only in the low SE group. As a result, D had a positive indirect path toward depression, via cognitive appraisals of *control* and passive coping. It could be said that the effects of D on mental health were dependent on the undesirable effect of low self-efficacy, rather than on the issue of whether to persist in seeking unattainable standards. Hence, D had a positive path toward depression, via cognitive appraisals of *control* and passive coping in low self-efficacy. D functioned maladaptively in both groups, although D utilized a different positive path toward depression. These results coincide with previous studies suggesting that D had undesirable influences on mental health (e.g., Sakurai & Ohtani, 1997; Sawazaki & Konno, 2008).

Conclusion

In this study, we considered the ways in which self-oriented perfectionism functions as an antecedent factor of psychological stress model function and how self-efficacy functions if it has a moderation effect.

PS did not have an influence on depression in the high SE group, while CM had an undesirable influence on mental health in the high SE group. Moreover, D had a comparable undesirable influence on mental health in both groups.

An undesirable moderation effect of self-efficacy. As discussed above these results might suggest that self-oriented perfectionism has some undesirable influences on mental health in the high SE group and that self-oriented perfectionism had a comparatively preferable influence on mental health in the low SE group in the framework of the psychological stress model. Hence, it is desirable for self-oriented perfectionists to be able to give up, lower standards, and reconcile conflict between high standards and non-fulfillment rather than attempt desperately to achieve unattainable high standards with confidence. These results are concurring with clinical observations by Shafran et al. (2002). Moreover, high self-efficacy can keep self-oriented perfectionists from doing so in some cases. Whereas high self-efficacy always looks desirable, it sometimes functions negatively.

We describe below how self-oriented perfectionists with either high self-efficacy or low self-efficacy behave, mainly in terms of their ability to give up excessively high standards.

Self-oriented perfectionists with high self-efficacy.

This study suggests that self-oriented perfectionists who had high self-efficacy tended to persist in achieving unattainable standards, based on high self-efficacy. When they encountered stressors, they tried to cope with stressors themselves at any costs, due to persisting in attainment based on high self-efficacy. However, high standards were not achieved and stressors were not reduced. Nevertheless, they continued to persist in achieving initially set high standards. Moreover, because they persisted in achieving perfect standards and were concerned about mistakes as compared with such high standards, they might appraise stressors as uncontrollable regardless of high self-efficacy. They might also focus on mistakes even if they were able to cope with stressors slightly. This reflects the self-oriented perfectionists' selective attention to mistakes (Shafran et al., 2002). Furthermore, compulsive doubting of actions heightened the subjective impact of stressors and the impact of stressors was extremely shocking for those who had high self-efficacy. As the result, the impact of stressors had extremely undesirable influences on mental health. These discussions suggest that persisting in achieving unattainable high standards based on high self-efficacy distorted cognition itself, rather than self-oriented perfectionists with high self-efficacy coping with stressors undesirably after cognition. Therefore, it was considered that self-oriented perfectionism's undesirable dimensions had a stronger influence on mental health.

Self-oriented perfectionists with low self-efficacy.

On the other hand, self-oriented perfectionists with low self-efficacy were able to give up initial unattainable standards adequately and reconcile conflict between high standards and non-fulfillment. Passive coping functioned to lower depression effectively. Moreover, setting high standards enabled self-oriented perfectionists to appraise stressors as controllable. Furthermore, as could be seen from the result that cognitive appraisals of *control* heightened passive coping, it was interpreted that they considered passive coping which cannot change objective reality as being helpful. As discussed above, it was important for self-oriented perfectionists who had high

self-efficacy how they coped with stressors after cognitive appraisal, particularly passive coping.

Limitations and Future Directions

In this study, indirect effects from self-oriented perfectionism to depression via cognitive appraisal and coping were not so large. For example, in the high SE group, the coefficient of direct effect from CM to depression was .23, but the coefficient of indirect effect was .12. This was common in other dimensions of self-oriented perfectionism. However, the total of indirect effects of each dimension of self-oriented perfectionism was too large to be discounted. Therefore, it is appropriate to interpret these results, although we should be careful in the interpretation.

Furthermore, this study was limited to mental health and the framework of the psychological stress model. Self-oriented perfectionism may not always function undesirably in high self-efficacy. For example, when a person carries out tasks which require perfection such as art, striving for excessively high standards may help to create beautiful art work. In future studies, such comparisons of quantity and quality of work and addition of other factors will be undertaken.

Moreover, although this study discussed the process of effect from self-oriented perfectionism to depression, causal relations, and confluent relations were not exactly identified by this investigation. Further studies should be performed which clarify causal relations. Furthermore, in this study, we did not consider gender differences; some studies suggest that coping styles vary depending on gender (e.g., Sakano, Miura, & Shimada, 1994). Therefore, future studies are expected to deal in demographic variables such as gender.

In this study, it was shown that self-efficacy had a moderation effect over the psychological stress model. Therefore, in further studies, moderation effects which work in performing daily tasks should be taken into account in order to understand an "individual person" as opposed to a non-existent "average person".

No previous research has constructed a psychological stress model assuming self-oriented perfectionism as an antecedent factor. This study has significance not only for studies of self-oriented perfectionism, but also for comparisons between self-oriented perfectionism and other personality traits. In further studies, comparisons between self-oriented perfectionism and other personal-

ity traits by means of meta-analysis will enable us to obtain a deeper understanding of self-oriented perfectionism.

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ABSTRACT

Psychological Stress Model Assumes Self-Oriented Perfectionism as Antecedent Factor and Self-Efficacy's Moderation Effect

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Perfectionism is the striving for flawlessness, and extreme perfectionists are people who want to be perfect in all aspects of their lives. Perfectionism is related to a number of psychological and physiological problems, such as apathy, neurosis, alcoholism, and anorexia nervosa. It is known that perfectionism has three dimensions such as self-oriented perfectionism, other-oriented perfectionism, and socially prescribed perfectionism. Previous studies suggested that self-oriented perfectionism has both adaptive and maladaptive dimensions. However, it has not been revealed the process of effects from self-oriented perfectionism to depression. In order to examine this issue, we adopted a psychological stress model as the process of effects from self-oriented perfectionism. A psychological stress model is one of core concepts of stress. In this model, the following causal chain was proposed: stressor => cognitive appraisal => coping => mental health. Both cognitive appraisal and coping style are mediating processes from the event to mental health and are regulated by antecedent conditions such as personality traits. Adopting self-oriented perfectionism as an antecedent condition will reveal the process of effect from each dimension of self-oriented perfectionism to depression in different ways. On the other hand, those who have self-oriented perfectionism will not necessarily reach similar adaptation states. That is, there may be some psychological factor showing the moderation effect on the process of effect from self-oriented perfectionism to depression. We give attention to self-efficacy as a factor which has this moderation effect. Self-efficacy is a key concept in social cognitive theory and refers to confidence in achieving a task. There are two possibilities regarding how self-efficacy moderates the effect of self-oriented perfectionism on mental health. That is, the moderation effect of self-efficacy is either positive or negative. By revealing these issue as discussed above, we can understand how self-oriented perfectionism affects mental health precisely. The purpose of this study was to examine how self-oriented perfectionism works as an antecedent factor in a psychological stress model and how self-efficacy exerts a moderation effect in the model. Participants were 307 Japanese undergraduates who completed a questionnaire assessing dimensions of self-oriented perfectionism (desire for perfection, personal standards, concern over mistakes, and doubting of actions), self-efficacy, cognitive appraisal (impact and controllability of stressors), coping style (active and passive coping), and depression. The data was divided into two groups based on the self-efficacy scores. The cut-off point was set to the mean score of self-efficacy (2.83). Multiple-group analysis was conducted to compose models which explained relationships between self-oriented perfectionism and depression. Moderation effects on these relationships were also examined. A path diagram of the best fit model was adopted. The fit indices were $df = 29$, $\chi^2 = 35.61$ ($p = .19$), $GFI = .972$, $AGFI = .939$, $RMSEA = .039$, and $CFI = .985$. In order to examine whether different models were adopted in each high-low self-efficacy group, the models were

exchanged with each other. The fit indices computed as a result were $df = 29$, $\chi^2 = 106.59$ ($p = .00$), $GFI = .924$, $AGFI = .831$, $RMSEA = .132$, and $CFI = .821$. Consequently, different models for the high self-efficacy group and low self-efficacy group were adopted. Furthermore, self-oriented perfectionism was found to have positive effects on mental health in the low self-efficacy group, and negative effects in the high self-efficacy group. These results suggest that self-efficacy determines the way self-oriented perfectionism affects mental health. On the other hand, high self-efficacy influences self-oriented perfectionists to persist in seeking unattainable standards, which is detrimental to their mental health. On the other hand, low self-efficacy enabled self-oriented perfectionists to give up unattainable standards adequately and this is desirable for their mental health.

Key words: Personality, perfectionism, psychological stress model, self-efficacy, multiple-group analysis