


# Self-Esteem Instability and Personality: The Connections Between Feelings of Self-Worth and the Big Five Dimensions of Personality

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## Abstract

Relatively few studies have focused on the connections between self-esteem and basic personality dimensions. The purpose of the present studies was to examine whether self-esteem level and self-esteem instability were associated with the Big Five personality dimensions and whether self-esteem instability moderated the associations that self-esteem level had with these personality features. This was accomplished by conducting a series of studies that included samples from the United States, Israel, and China. Across these studies, self-esteem level was associated with high levels of extraversion, emotional stability, agreeableness, conscientiousness, and openness, whereas self-esteem instability was associated with low levels of emotional stability, agreeableness, and conscientiousness. Individuals with stable high self-esteem reported the highest levels of emotional stability, agreeableness, and conscientiousness, whereas those with stable low self-esteem had the lowest levels of openness. The results of these studies suggest that feelings of self-worth are associated with self-reported and perceived personality features.

## Keywords

self-esteem, unstable, instability, fragile, personality, Big Five

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Self-esteem is the aspect of self-knowledge that reflects how much individuals like themselves (Brown & Marshall, 2006). A large body of research has examined the correlates, causes, and consequences of self-esteem (see Zeigler-Hill, 2013, for a review). High self-esteem has been found to be associated with a range of positive outcomes including subjective well-being (Diener & Diener, 1995), psychological adjustment (Zeigler-Hill & Wallace, 2012), and persistence on difficult tasks (Di Paula & Campbell, 2002). Despite the large number of studies examining self-esteem, relatively few studies have focused on the connections between self-esteem and basic personality dimensions. It is important to note that the studies that have addressed the association between self-esteem and personality features have focused on self-esteem level without including other aspects of self-esteem such as its temporal stability. The purpose of the present studies was to gain a more nuanced understanding of the connection between self-esteem and personality dimensions by considering both self-esteem level and self-esteem instability.

The most widely researched structural model of personality is the Five-Factor Model which consists of five distinct

traits that attempt to capture the breadth of personality (e.g., Costa & McCrae, 1992). These “Big Five” traits are extraversion, emotional stability, agreeableness, conscientiousness, and openness. It is clear from previous research that self-esteem level has consistent associations with each of the Big Five personality dimensions such that it has been found to have strong positive associations with extraversion and emotional stability as well as weaker positive associations with conscientiousness and agreeableness (e.g., Costa, McCrae, & Dye, 1991; Furr & Funder, 1998; Kwan, Bond, & Singelis, 1997; Meier, Orth, Denissen, & Kühnel, 2011; Pullmann & Allik, 2000; Robins, Tracy, Trzesniewski, Potter, & Gosling, 2001). Self-esteem level and openness are often

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uncorrelated or have a weak positive association. It is important to understand the associations that self-esteem level has with these basic personality dimensions because self-esteem and personality may share common developmental origins and may have reciprocal associations with each other. For example, personality features may influence how individuals feel about themselves. It is certainly easy to imagine how the possession of certain personality features (e.g., high levels of extraversion) may have an impact on self-esteem. However, it is important to note that it is quite possible that feelings of self-worth may also play a role in shaping personality features. For instance, an individual with low self-esteem may be reluctant to engage in extraverted behavior due to concerns about social rejection, so this person may eventually develop somewhat introverted personality features. It is quite likely that self-esteem and personality features have reciprocal associations during the earliest years of life and this association may continue into young adulthood.

The nearly exclusive focus on self-esteem level in previous studies may have prevented researchers from gaining a complete understanding of the connections between self-esteem and personality features. As a result, the present studies will examine self-esteem level in conjunction with *self-esteem instability* which refers to fluctuations in moment-to-moment feelings of self-worth (see Kernis, 2003, for a review). The form of self-esteem instability that is the focus of the present studies is often referred to as “barometric” instability because it concerns short-term fluctuations in feelings of self-worth (e.g., those that occur over the course of a week) rather than “baseline” instability which deals with long-term changes in self-esteem (e.g., those that take place over years; Rosenberg, 1986). The only previous study to examine the connection between self-esteem instability and personality dimensions was Meier et al. (2011) which found that self-esteem instability was negatively associated with extraversion, emotional stability, agreeableness, and conscientiousness. However, Meier et al. focused on the main effects of self-esteem level and self-esteem instability without considering their potential interaction. The present research will extend this earlier work by considering the possibility that self-esteem instability may moderate the associations that self-esteem level has with personality features. This is important because self-esteem instability has been found to moderate the associations that self-esteem level has with a variety of outcomes including psychological adjustment (Zeigler-Hill & Wallace, 2012), anger and hostility (Kernis, Grannemann, & Barclay, 1989), aggression (Webster, Kirkpatrick, Nezlek, Smith, & Paddock, 2007), interpersonal style (Zeigler-Hill, Clark, & Beckman, 2011), academic engagement (Zeigler-Hill, Li, et al., 2013), and relationship satisfaction (Zeigler-Hill, Fulton, & McLemore, 2011). Studies that have included self-esteem instability have revealed that self-esteem has more complex associations with important life outcomes than is often assumed (see Jordan & Zeigler-Hill, 2013, for a review). For example,

Kernis et al. (1989) found that individuals with high levels of self-esteem that were unstable over time (i.e., unstable high self-esteem) reported the highest levels of anger and hostility whereas those with high levels of self-esteem that did not fluctuate a great deal over time (i.e., stable high self-esteem) reported the lowest levels of anger and hostility. Individuals with low levels of self-esteem reported modest levels of anger and hostility regardless of the stability of their self-esteem. Conceptually similar patterns have emerged in other studies which suggest that individuals with stable high self-esteem possess a relatively *secure* form of high self-esteem that is well-anchored and resistant to threat whereas those with unstable high self-esteem possess a *fragile* form of high self-esteem that is easily threatened and requires a great deal of external validation (see Jordan & Zeigler-Hill, 2013, for a review).

## Overview and Predictions

The purpose of the present studies was to examine whether self-esteem level and self-esteem instability were associated with the Big Five personality dimensions and whether the associations that self-esteem level had with these personality features would be moderated by self-esteem instability. This was accomplished by conducting a series of studies that included participants from different cultures (i.e., United States, Israel, and China) and utilized different methodologies (i.e., self-report and perceiver reports). We included participants from different cultures to examine the external equivalence of self-esteem level and self-esteem instability with regard to the Big Five personality dimensions (i.e., the extent to which these associations were consistent across cultures; Van de Vijver & Leung, 1997). This is important because previous results suggest that self-esteem level exhibits external equivalence with regard to its connections with personality dimensions (Schmitt & Allik, 2005) but virtually nothing is known about the associations between self-esteem instability and personality dimensions across cultures.

At the most basic level, we expected our results to replicate previous findings showing that self-esteem level would have strong positive associations with extraversion and emotional stability as well as weaker positive associations with agreeableness and conscientiousness. There is often little or no relationship between self-esteem level and openness. We also expected to replicate the results of Meier et al. (2011) which found that self-esteem instability was negatively associated with emotional stability, agreeableness, and conscientiousness. Our novel prediction was that self-esteem instability would moderate the association that self-esteem level had with these basic personality dimensions. More specifically, we expected that individuals with stable high self-esteem would report higher levels of emotional stability, agreeableness, and conscientiousness than those with unstable high self-esteem or low self-esteem (regardless of whether their low self-esteem was stable or unstable). The

rationale for this prediction is that we believe these personality features may create and reflect security in how individuals feel about themselves (e.g., individuals who are emotionally unstable are unlikely to experience secure feelings of self-worth).

## Study 1: Self-Reports of American, Israeli, and Chinese College Students

In Study 1, we examined the associations that self-esteem level and self-esteem instability had with basic personality dimensions among college students from three different cultures. We utilized college students because this population has frequently been used in past research concerning self-esteem instability. We included Israeli and Chinese college students in this study because relatively few studies have examined cultural differences in self-esteem instability (see Zeigler-Hill et al., 2013, for an exception). Their inclusion allowed us to examine similarities and differences in the associations that self-esteem level and self-esteem instability had with personality dimensions across these cultures. This is potentially important because Zeigler-Hill et al. (2013) found cultural differences in the link that self-esteem instability had with academic engagement.

### Method

**Participants and procedure.** Participants were 1,644 undergraduates at universities in the United States ( $n = 945$ ), Israel ( $n = 274$ ), and China ( $n = 425$ ) enrolled in psychology courses who participated in exchange for partial fulfillment of a research participation requirement. Participants completed measures of self-esteem level and personality via a secure website. The questionnaires were translated from their original English versions using the back-translation method for the Israeli and Chinese participants. After completing those questionnaires, participants were offered additional research credit for completing a measure of state self-esteem via the Internet at approximately 10:00 p.m. for 7 consecutive days. To assess self-esteem instability, it is essential that participants complete multiple measures of state self-esteem. As a result, some minimum number of completed state self-esteem measures must be established for participants to be included in the analyses. We decided to only include participants in the final analyses who contributed data for 3 or more days because this is the minimum number of data points that are required to calculate a statistically sound and valid estimate of variability (see Zeigler-Hill & Showers, 2007, for a similar strategy). This basic approach was also followed in Studies 2 to 4. In Study 1, of the 1,644 initial participants, 1,069 participants (192 men and 877 women) completed the daily measures for 3 or more days (i.e.,  $n_{\text{American}} = 662$ ,  $n_{\text{Israeli}} = 230$ ,  $n_{\text{Chinese}} = 177$ ). This was a completion rate of 65% which may seem somewhat low but it is important to remember that completion of the daily measures of state self-esteem was optional

for participants rather than being a required element of their participation (i.e., it was simply a way for them to earn additional research credits). The mean age of our final participants was 20.27 years ( $SD = 2.46$ ). The final participants contributed 6,750 daily reports (i.e., an average of 6.31 reports for each participant) and they did not differ from those who did not complete the daily measures in terms of self-esteem level,  $t(1642) = 1.45$ ,  $p = .15$ ; extraversion,  $t(1642) = 0.30$ ,  $p = .76$ ; emotional stability,  $t(1642) = 1.42$ ,  $p = .18$ ; agreeableness,  $t(1642) = 0.89$ ,  $p = .37$ ; or openness,  $t(1642) = 0.82$ ,  $p = .41$ . However, the participants who completed the daily measures reported higher levels of conscientiousness than those who did not complete the daily measures,  $t(1642) = 2.77$ ,  $p = .01$ ,  $d = .14$ .

### Measures

**Self-esteem level.** The Rosenberg Self-Esteem Scale (Rosenberg, 1965) is a 10-item measure of global self-esteem (e.g., “On the whole, I am satisfied with myself”). Participants were instructed to complete the instrument according to how they generally feel about themselves. The original version of the Rosenberg Self-Esteem Scale used a 4-point response scale but responses were made on scales ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) for the present studies. The internal consistency of this measure for the present study was  $\alpha = .89$ .

**Self-esteem instability.** The method for measuring self-esteem instability was adapted from the procedure developed by Kernis (2003). Participants completed a modified version of the 10-item Rosenberg Self-Esteem Scale via the Internet at the end of each day for 7 consecutive days. This instrument was modified to capture state self-esteem by asking participants to provide the response that best reflected how they felt at that particular moment rather than how they generally felt about themselves. Responses to these items were made on scales ranging from 1 (*strongly disagree*) to 10 (*strongly agree*). The within-subject standard deviation across the repeated assessments of state self-esteem served as the index of self-esteem instability with higher standard deviations indicating higher self-esteem instability.<sup>1</sup> The internal consistency of the daily measure of state self-esteem was .92.

**Personality dimensions.** The Big Five Inventory (BFI; John, Donahue, & Kentle, 1991) was used to capture personality dimensions for the American and Israeli samples. The BFI is a 44-item questionnaire that assesses the Big Five personality dimensions of Extraversion (8 items; for example, “I see myself as someone who is talkative”;  $\alpha = .82$ ), Emotional Stability (8 items; for example, “I see myself as someone who is relaxed, handles stress well”;  $\alpha = .80$ ), Agreeableness (9 items; for example, “I see myself as someone who is considerate and kind to almost everyone”;  $\alpha = .79$ ), Conscientiousness (9 items; for example, “I see myself as someone

**Table 1.** Study 1: Intercorrelations and Descriptive Statistics for Self-Esteem Level, Self-Esteem Instability, and Personality Dimensions.

	1	2	3	4	5	6	7
1. Self-Esteem Level	—						
2. Self-Esteem Instability	-.26***	—					
3. Extraversion	.31***	-.10***	—				
4. Emotional Stability	.45***	-.26***	.24***	—			
5. Agreeableness	.25***	-.17***	.11***	.29***	—		
6. Conscientiousness	.32***	-.24***	.16***	.31***	.40***	—	
7. Openness	.00	.03	.17***	-.09**	.06*	.05	—
<i>M</i> <sub>American</sub>	4.05	0.50	3.18	3.03	3.91	3.66	3.40
<i>SD</i> <sub>American</sub>	0.71	0.38	0.75	0.72	0.61	0.58	0.60
<i>M</i> <sub>Israeli</sub>	4.09	0.56	3.37	2.96	3.67	3.84	3.04
<i>SD</i> <sub>Israeli</sub>	0.64	0.35	0.69	0.70	0.58	0.64	0.70
<i>M</i> <sub>Chinese</sub>	3.96	0.46	4.55	4.25	4.98	4.83	4.23
<i>SD</i> <sub>Chinese</sub>	0.56	0.41	1.20	1.23	1.11	1.41	1.33

Note. Personality dimensions were assessed using the BFI for American and Israeli participants, whereas the TIPI was used for Chinese participants. BFI = Big Five Inventory; TIPI = Ten-Item Personality Inventory.

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

who does a thorough job";  $\alpha = .73$ ), and Openness (10 items; for example, "I see myself as someone who is original, comes up with new ideas";  $\alpha = .74$ ). Responses were made on scales that ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). The BFI has been shown to possess adequate psychometric properties in previous studies (e.g., Benet-Martinez & John, 1998). The Big Five personality dimensions were captured using the Ten-Item Personality Inventory (TIPI; Gosling, Rentfrow, & Swann, 2003) for the Chinese participants (see Zeigler-Hill et al., 2013, for additional information about the Chinese sample). The TIPI consists of two items for each personality dimension: Extraversion (e.g., "Extraverted, enthusiastic";  $\alpha = .50$ ), Agreeableness (e.g., "Sympathetic, warm";  $\alpha = .65$ ), Conscientiousness (e.g., "Dependable, self-disciplined";  $\alpha = .55$ ), Emotional Stability (e.g., "Calm, emotionally stable";  $\alpha = .51$ ), and Openness (e.g., "Open to new experiences, complex";  $\alpha = .48$ ). These low internal consistency estimates are most likely due to the fact that there are only two items for each personality dimension (Streiner, 2003). Responses were made on scales that ranged from 1 (*strongly disagree*) to 7 (*strongly agree*).

## Results

The means, standard deviations, and intercorrelations for Study 1 are presented in Table 1. There were no cultural differences for self-esteem level,  $F(2, 1066) = 2.19, p = .11$ , but there were cultural differences for self-esteem instability,  $F(2, 1066) = 4.00, p = .02, \eta^2 = .01$ , such that Israeli participants reported greater self-esteem instability than the Chinese participants ( $t = 2.72, p = .02, d = .27$ ). American participants had modest levels of self-esteem instability that did not differ from those of the Israeli participants ( $t = 2.17, p = .08$ ) or the Chinese participants ( $t = 1.26, p = .42$ ). Compared with the American participants, the Israeli participants reported

higher levels of extraversion,  $F(1, 890) = 11.68, p < .001, \eta^2 = .01$ ; lower levels of agreeableness,  $F(1, 890) = 28.17, p < .001, \eta^2 = .03$ ; higher levels of conscientiousness,  $F(1, 890) = 17.00, p < .001, \eta^2 = .02$ ; and lower levels of openness,  $F(1, 890) = 58.00, p < .001, \eta^2 = .06$ . We were unable to compare the levels of the Big Five personality dimensions reported by the American and Israeli participants with those reported by the Chinese participants because the Chinese participants completed the TIPI instead of the BFI. As a result, we calculated standardized scores within each culture for the personality dimensions which allowed us to determine whether there were cultural differences in the strength of the associations that self-esteem level and self-esteem instability had with the personality dimensions.

Examination of the correlation matrix revealed that self-esteem level and self-esteem instability were negatively correlated which is consistent with the results of previous studies (e.g., Zeigler-Hill & Wallace, 2012). However, it remains unclear whether this association is due to underlying psychological processes or the fact that there is forced dependence between means and standard deviations in combination with the negatively skewed distribution for self-esteem level (e.g., Baird, Le, & Lucas, 2006). It is also important to note that self-esteem level was positively associated with extraversion, emotional stability, agreeableness, and conscientiousness, whereas self-esteem instability was negatively associated with these personality dimensions. Neither self-esteem level nor self-esteem instability was associated with openness.

Moderational analyses were conducted to determine whether self-esteem instability qualified the associations that self-esteem level had with these personality dimensions. This was accomplished by conducting a series of moderated multiple regression analyses. Each personality dimension was regressed onto self-esteem level, self-esteem instability,

**Table 2.** Study 1: Regressions of Personality Dimensions on Self-Esteem Level, Self-Esteem Instability, and Culture.

	Extraversion		Emotional Stability		Agreeableness		Conscientiousness		Openness	
	R <sup>2</sup>	β	R <sup>2</sup>	β	R <sup>2</sup>	β	R <sup>2</sup>	β	R <sup>2</sup>	β
Model	.10***		.24***		.09***		.14***		.07***	
SEL		.31***		.46***		.24***		.28***		.08*
SEI		.00		-.12***		-.15***		-.16***		-.01
Dummy 1 (Chinese)		.01		.01		.02		.02		.02
Dummy 2 (Israeli)		.00		.02		.02		.01		.00
SEL × SEI		-.05		-.09**		-.08*		-.13***		-.10*
SEL × Dummy 1		-.04		-.08**		-.04		.00		.06
SEL × Dummy 2		.03		-.06		-.04		.00		-.18***
SEI × Dummy 1		-.01		-.02		.10**		.00		-.04
SEI × Dummy 2		-.02		-.06		-.02		-.03		.12***
SEL × SEI × Dummy 1		.01		.01		.02		.01		.04
SEL × SEI × Dummy 2		.02		.05		.06		.03		.04

Note. SEL = self-esteem level; SEI = self-esteem instability.

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

and two dummy variables created to distinguish between the three samples (i.e., Dummy 1 = *Chinese*, Dummy 2 = *Israeli*) with the American sample serving as the reference category.<sup>2</sup> The continuous predictor variables were centered. The results of these analyses are presented in Table 2. Regression analyses were followed by the simple slopes tests recommended by Aiken and West (1991) to describe the interaction of continuous variables. Simple slopes were conducted using values that were one standard deviation above and below the mean to represent those with high and low levels of self-esteem.

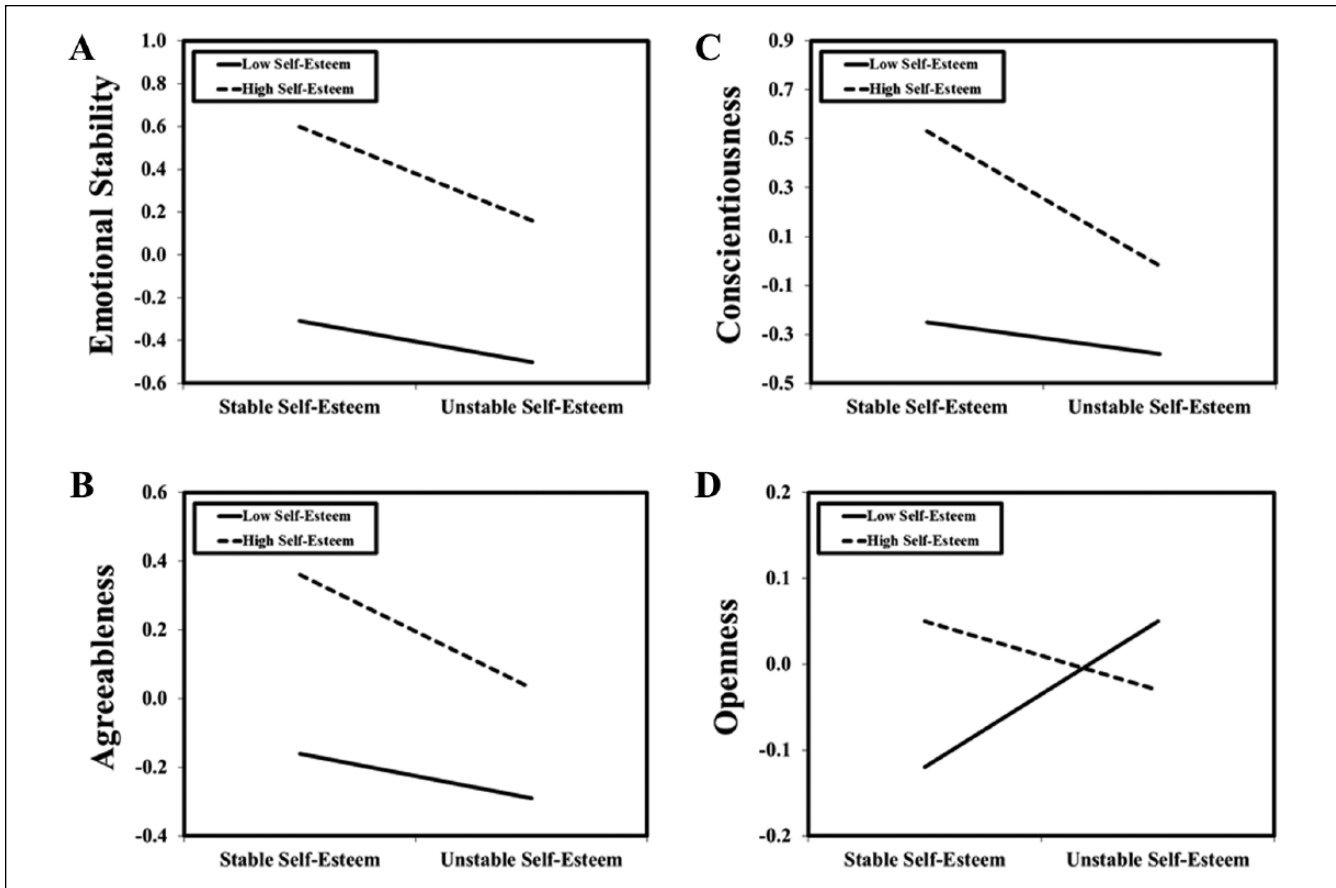
**Extraversion.** The results of the analysis concerning extraversion found a main effect for self-esteem level ( $\beta = .31$ ,  $t = 8.50$ ,  $p < .001$ ) such that participants who reported higher levels of self-esteem also reported being more extraverted. No other main effects or interactions emerged from this analysis.

**Emotional stability.** The results of the analysis concerning emotional stability found main effects for self-esteem level ( $\beta = .46$ ,  $t = 13.69$ ,  $p < .001$ ) and self-esteem instability ( $\beta = -.12$ ,  $t = -3.35$ ,  $p < .001$ ) but these main effects were qualified by their two-way interaction ( $\beta = -.09$ ,  $t = -2.64$ ,  $p = .008$ ). The predicted values for this interaction are presented in Panel A of Figure 1. Simple slopes tests found that the slope of the line representing the association between self-esteem instability and emotional stability was significant for those with high self-esteem ( $\beta = -.20$ ,  $t = -4.48$ ,  $p < .001$ ) but not for those with low self-esteem ( $\beta = -.03$ ,  $t = -.66$ ,  $p = .51$ ). Taken together, these results reveal that the highest levels of emotional stability were reported by those with stable high self-esteem. In addition, the interaction of self-esteem level and Dummy 1 also emerged ( $\beta = -.08$ ,  $t = -2.58$ ,  $p = .01$ ). Simple slopes tests found that the slope of the line

representing the association between self-esteem level and emotional stability was significant for the Chinese participants ( $\beta = .20$ ,  $t = 2.65$ ,  $p = .01$ ) but it was even stronger for the American participants ( $\beta = .48$ ,  $t = 14.13$ ,  $p < .001$ ).

**Agreeableness.** The results of the analysis concerning agreeableness revealed main effects for self-esteem level ( $\beta = .24$ ,  $t = 6.59$ ,  $p < .001$ ) and self-esteem instability ( $\beta = -.15$ ,  $t = -3.82$ ,  $p < .001$ ) that were qualified by their two-way interaction ( $\beta = -.08$ ,  $t = -2.22$ ,  $p = .03$ ). The predicted values for this interaction are presented in Panel B of Figure 1. Simple slopes tests found that the slope of the line representing the association between self-esteem instability and agreeableness was significant for those with high self-esteem ( $\beta = -.23$ ,  $t = -4.55$ ,  $p < .001$ ) but not for those with low self-esteem ( $\beta = -.07$ ,  $t = -1.26$ ,  $p = .21$ ). These results show that the highest levels of agreeableness were reported by those with stable high self-esteem. In addition, the interaction of self-esteem instability and Dummy 1 emerged ( $\beta = .10$ ,  $t = 2.64$ ,  $p = .01$ ). Simple slopes tests found that the slope of the line representing the association between self-esteem instability and agreeableness was significant for the American participants ( $\beta = -.15$ ,  $t = -3.87$ ,  $p < .001$ ) but not for the Chinese participants ( $\beta = .08$ ,  $t = 0.92$ ,  $p = .36$ ).

**Conscientiousness.** Main effects emerged for self-esteem level ( $\beta = .28$ ,  $t = 7.94$ ,  $p < .001$ ) and self-esteem instability ( $\beta = -.16$ ,  $t = -4.21$ ,  $p < .001$ ) but these main effects were qualified by their two-way interaction ( $\beta = -.13$ ,  $t = -3.46$ ,  $p < .001$ ). The predicted values for this interaction are presented in Panel C of Figure 1. Simple slopes tests found that the slope of the line representing the association between self-esteem instability and conscientiousness was significant for those with high self-esteem ( $\beta = -.28$ ,  $t = -5.73$ ,  $p < .001$ ) but not for those with low self-esteem ( $\beta = -.04$ ,  $t = -0.74$ ,



**Figure 1.** Study 1: Predicted values for emotional stability (Panel A), agreeableness (Panel B), conscientiousness (Panel C), and openness (Panel D) illustrating the interaction of self-esteem level and self-esteem instability at values that are one standard deviation above and below their respective means.

$p = .46$ ). These results revealed that the highest levels of conscientiousness were reported by those with stable high self-esteem.

**Openness.** The analysis for openness revealed a main effect for self-esteem level ( $\beta = .08, t = 2.13, p = .03$ ) that was qualified by its interaction with self-esteem instability ( $\beta = -.10, t = -2.51, p = .01$ ). The predicted values for this interaction are presented in Panel D of Figure 1. Simple slopes tests found that the slope of the line representing the association between self-esteem instability and openness was significant for those with high self-esteem ( $\beta = -.10, t = -2.04, p = .04$ ) but not for those with low self-esteem ( $\beta = .08, t = 1.38, p = .17$ ). These results revealed that the lowest levels of openness were reported by those with stable low self-esteem. The following interactions also emerged: Self-esteem level  $\times$  Dummy 2 ( $\beta = -.18, t = -4.69, p < .001$ ) and Self-esteem instability  $\times$  Dummy 2 ( $\beta = .12, t = 3.05, p = .002$ ). For the interaction of Self-esteem level  $\times$  Dummy 2, simple slopes tests found that the slope of the line representing the association between self-esteem level and openness was negative for the Israeli participants ( $\beta = -.32, t = -4.58, p < .001$ ) and

positive for the American participants ( $\beta = .08, t = 2.08, p = .04$ ). For the interaction of Self-esteem instability  $\times$  Dummy 2, simple slopes tests found that the slope of the line representing the association between self-esteem instability and openness was significant for the Israeli participants ( $\beta = .24, t = 3.54, p < .001$ ) but not for the American participants ( $\beta = -.01, t = -0.32, p = .75$ ).

### Discussion

The results of Study 1 showed that high levels of self-esteem were positively associated with extraversion, emotional stability, agreeableness, conscientiousness, and openness. In addition, self-esteem instability was negatively associated with emotional stability, agreeableness, and conscientiousness. This study extends what is known about the connection between self-esteem and basic personality dimensions by showing that self-esteem instability moderated the association that self-esteem level had with emotional stability, agreeableness, conscientiousness, and openness. These results revealed that individuals with stable high self-esteem reported the highest levels of emotional stability, agreeableness, and

conscientiousness. A different pattern emerged for openness such that those with stable low self-esteem reported the lowest levels of openness. There were also some cultural differences that emerged from these analyses (e.g., the link between self-esteem level and emotional stability was stronger for the American sample than it was for the Chinese sample) but the general pattern of the results suggested that the connections that self-esteem level and self-esteem instability had with personality dimensions were relatively consistent across these three cultures. That is, self-esteem level and self-esteem instability displayed reasonable levels of external equivalence with regard to the Big Five personality dimensions. It is also important to note that the differences that emerged for the Chinese sample may have been due to the fact that those participants completed a different personality measure than the American and Israeli samples.

## Study 2: Observer Reports of American College Students

The purpose of Study 2 was to extend the results of the previous study by using perceivers to also describe the personality features of the targets rather than relying exclusively on self-reports of personality features. Participants were asked to complete measures of their own self-esteem level, self-esteem instability, and personality features before recruiting friends and family members to evaluate their personality characteristics. This is an important extension of Study 1 because it is possible that the associations that self-esteem level and self-esteem instability have with personality features may be due to socially desirable response tendencies. Furr and Funder (1998) used a similar approach when they asked college students to report their level of self-esteem and personality features before asking their peers and parents to describe their personality features. The results of Furr and Funder showed that individuals who reported high levels of self-esteem were rated by others as more extraverted, emotionally stable, and agreeable but this previous work did not account for self-esteem instability.

### Method

**Participants and procedure.** Participants were 357 undergraduates at a university in the southern region of the United States enrolled in psychology courses who participated in return for partial fulfillment of a research participation requirement. Participants completed measures of self-esteem level, self-esteem instability, and personality features as was done in Study 1. Of the 357 participants who completed the initial measures, 280 participants completed at least three daily measures of state self-esteem. These 280 participants were offered additional research credit for recruiting up to five friends or family members (i.e., perceivers) to complete questionnaires concerning the participant (i.e., the target) via the Internet. Of these 280 participants, 276 participants (40 men and 236 women)

recruited at least one perceiver to participate in the study. Our final sample recruited 1,282 observers (an average of 4.64 observers for each participant). The mean age was 20.76 years ( $SD = 4.82$ ) and their racial/ethnic composition was 61% White, 33% Black, 2% Hispanic, and 4% Other. The final participants contributed 1,322 daily reports (i.e., an average of 4.79 reports for each participant) and they did not differ from those who were not included in the final analyses in terms of self-esteem level,  $t(355) = 0.21, p = .84$ ; extraversion,  $t(355) = 1.79, p = .07$ ; emotional stability,  $t(355) = 1.11, p = .27$ ; agreeableness,  $t(355) = 0.73, p = .47$ ; conscientiousness,  $t(355) = 1.05, p = .29$ ; or openness,  $t(355) = 1.42, p = .23$ .

**Measures completed by the targets.** Participants completed the Rosenberg Self-Esteem Scale ( $\alpha = .88$ ) and the BFI ( $\alpha s = .72-.85$ ) as was done in Study 1. Self-esteem instability was also assessed using the same procedure as in Study 1. The internal consistency for the daily measure of state self-esteem was .89.

### Measures completed by the observers

**Perceived personality features.** Perceivers described the personality features of the targets by completing a modified version of the TIPI (Gosling et al., 2003). The modified version of the TIPI has been used to describe the personality features of targets in previous studies (e.g., Zeigler-Hill, Besser, Myers, Southard, & Malkin, 2013). The perceivers provided relatively consistent ratings of the personality features of the targets across the Big Five dimensions (intraclass correlation coefficients = .71-.89).

## Results

The means, standard deviations, and intercorrelations for Study 2 are presented in Table 3.

**The associations that self-esteem level and self-esteem instability have with self-reported personality features.** Moderated multiple regression analyses were conducted to determine whether self-esteem instability qualified the associations between self-esteem level and personality features. The results are presented in Table 4.

**Extraversion.** The results of the analysis concerning extraversion found a main effect for self-esteem level ( $\beta = .21, t = 3.48, p < .001$ ). Participants who reported high levels of self-esteem reported being more extraverted. Neither the main effect of self-esteem instability nor the interaction of self-esteem level and self-esteem instability emerged.

**Emotional stability.** The results of the analysis concerning emotional stability found main effects for self-esteem level ( $\beta = .45, t = 8.42, p < .001$ ) and self-esteem instability ( $\beta = -.18, t = -3.41, p < .001$ ) that were qualified by their interaction ( $\beta = -.15, t = -2.92, p = .004$ ). The predicted values for

**Table 3.** Study 2: Intercorrelations and Descriptive Statistics for Self-Esteem Level, Self-Esteem Instability, and Personality Dimensions.

	1	2	3	4	5	6	7	8	9	10	11	12
1. Self-Esteem Level	—											
2. Self-Esteem Instability	-.22***	—										
3. Extraversion (T)	.24***	-.14*	—									
4. Emotional Stability (T)	.47***	-.26***	.21***	—								
5. Agreeableness (T)	.38***	-.42***	.15*	.44***	—							
6. Conscientiousness (T)	.44***	-.31***	.20***	.39***	.49***	—						
7. Openness (T)	.19**	-.05	.16**	.17**	.27***	.21**	—					
8. Extraversion (P)	.18*	-.11	.56***	.14*	.07	.11	.01	—				
9. Emotional Stability (P)	.37***	-.23***	-.01	.48***	.22***	.20***	.08	.11	—			
10. Agreeableness (P)	.26***	-.16**	-.12	.20***	.29***	.23***	.02	-.01	.59***	—		
11. Conscientiousness (P)	.13	-.18*	-.10	.12	.09	.44***	-.04	.13	.40***	.53***	—	
12. Openness (P)	.19**	-.18**	.13	.24***	.19**	.27***	.27***	.31***	.41***	.45***	.54***	—
M	4.10	0.55	3.25	3.08	3.90	3.57	3.40	4.73	4.67	5.15	5.50	5.22
SD	0.80	0.53	0.74	0.73	0.66	0.61	0.59	1.11	1.09	0.94	0.99	0.84

Note. T = Targets' self-reported personality features; P = Perceivers' reports of the personality features of the targets.

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

**Table 4.** Study 2: Regressions of Personality Dimensions on Self-Esteem Level and Self-Esteem Instability.

	Extraversion		Emotional Stability		Agreeableness		Conscientiousness		Openness	
	R <sup>2</sup>	$\beta$	R <sup>2</sup>	$\beta$	R <sup>2</sup>	$\beta$	R <sup>2</sup>	( $\beta$ )	R <sup>2</sup>	( $\beta$ )
Model	.07***		.27***		.27***		.26***		.04**	
SEL		.21***		.45***		.31***		.41***		.19**
SEI		-.09		-.18***		-.36***		-.24***		-.02
SEL $\times$ SEI		.06		-.15**		-.11*		-.12*		-.08

Note. SEL = self-esteem level; SEI = self-esteem instability.

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

this interaction are presented in Panel A of Figure 2. Simple slopes tests found that the slope of the line representing the association between self-esteem instability and emotional stability was significant for those with high self-esteem ( $\beta = -.31$ ,  $t = -4.26$ ,  $p < .001$ ) but not for those with low self-esteem ( $\beta = -.04$ ,  $t = -0.64$ ,  $p = .52$ ). Taken together, these results reveal that the highest levels of emotional stability were reported by those with stable high self-esteem.

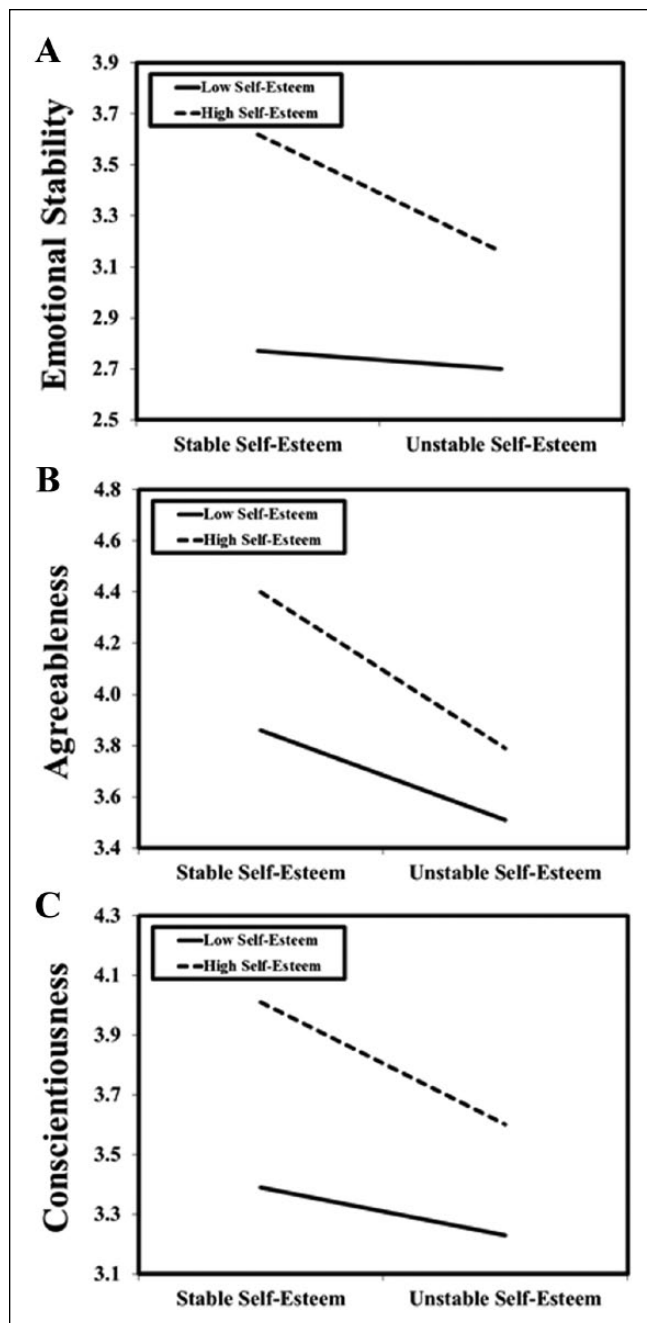
**Agreeableness.** The results of the analysis concerning agreeableness found main effects for self-esteem level ( $\beta = .31$ ,  $t = 5.86$ ,  $p < .001$ ) and self-esteem instability ( $\beta = -.36$ ,  $t = -6.83$ ,  $p < .001$ ) that were qualified by their interaction ( $\beta = -.11$ ,  $t = -2.12$ ,  $p = .04$ ). The predicted values for this interaction are presented in Panel B of Figure 2. Simple slopes tests found that the slope of the line representing the association between self-esteem instability and agreeableness was significant for those with low self-esteem ( $\beta = -.26$ ,  $t = -3.90$ ,  $p < .001$ ) but the association was even stronger for those with high self-esteem ( $\beta = -.46$ ,  $t = -6.27$ ,  $p < .001$ ). Taken together, these results reveal that the highest levels of agreeableness were reported by those with stable high self-esteem.

**Conscientiousness.** The results of the analysis concerning conscientiousness found main effects for self-esteem level ( $\beta = .41$ ,  $t = 7.56$ ,  $p < .001$ ) and self-esteem instability ( $\beta = -.24$ ,  $t = -4.44$ ,  $p < .001$ ) but these main effects were qualified by their interaction ( $\beta = -.12$ ,  $t = -2.27$ ,  $p = .02$ ). The predicted values for this interaction are presented in Panel C of Figure 2. Simple slopes tests found that the slope of the line representing the association between self-esteem instability and conscientiousness was significant for those with high self-esteem ( $\beta = -.34$ ,  $t = -4.62$ ,  $p < .001$ ) but not for those with low self-esteem ( $\beta = -.13$ ,  $t = -1.91$ ,  $p = .06$ ). Taken together, these results reveal that the highest levels of conscientiousness were reported by those with stable high self-esteem.

**Openness.** The main effect of self-esteem level emerged for conscientiousness ( $\beta = .19$ ,  $t = 3.15$ ,  $p = .002$ ). Neither the main effect of self-esteem instability nor its interaction with self-esteem level reached conventional levels of significance for openness.

*The associations that self-esteem level and self-esteem instability have with perceiver reported personality features.* The goal of





**Figure 2.** Study 2: Predicted values for emotional stability (Panel A), agreeableness (Panel B), and conscientiousness (Panel C) illustrating the interaction of self-esteem level and self-esteem instability at values that are one standard deviation above and below their respective means.

the present analyses was to determine whether the self-reported self-esteem level and self-esteem instability of the targets were associated with the perceiver ratings of the targets' personality features. The data from the present study comprised a multilevel data structure because observations at one level of analysis were nested within another level of analysis (i.e., perceiver ratings were nested within targets). More

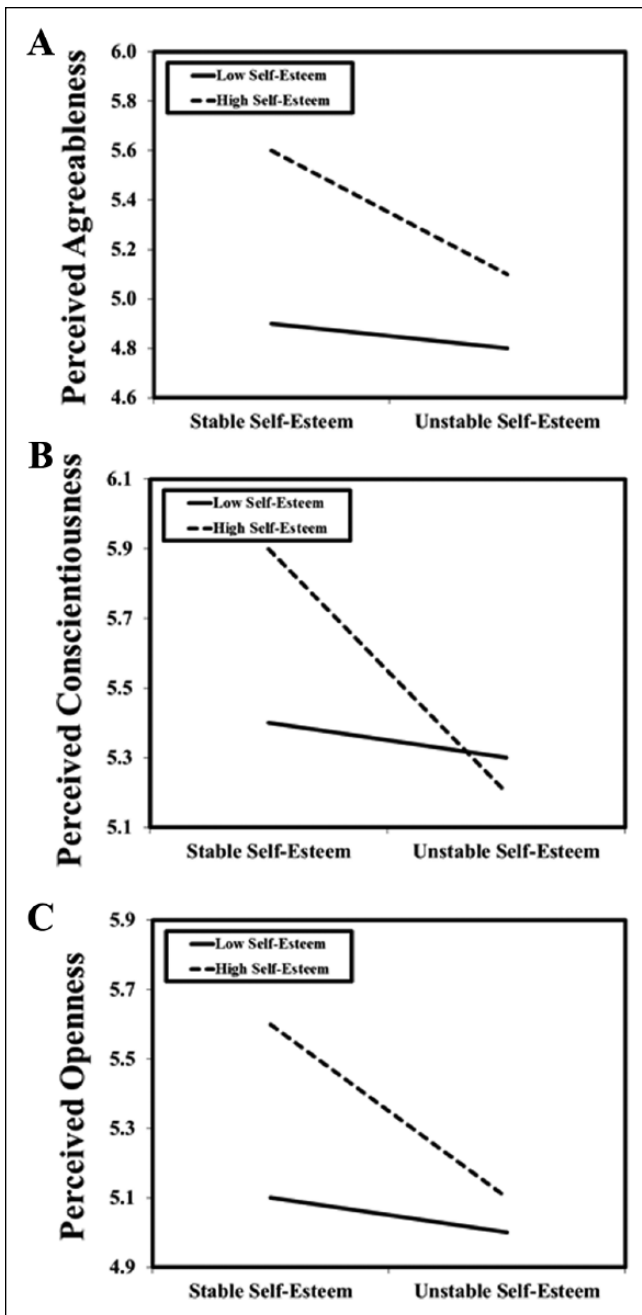
specifically, this was a *one-with-many design* (Marcus, Kashy, & Baldwin, 2009) in which each target was evaluated by multiple perceivers. A multilevel model using hierarchical linear modeling (HLM; Bryk, Raudenbush, & Congdon, 1998) was used to analyze these data due to this hierarchical structure. This approach is necessary to account for the violation of the independence assumption that occurs when using multiple perceivers for each target. The particular type of two-level model that was used in the present study is referred to as a *means as outcomes* analysis (Bryk & Raudenbush, 1992).

**Perceived extraversion.** The results of the analysis concerning extraversion found a main effect for self-esteem level ( $B = .14, SE = .09, t = 2.04, p = .04$ ). Participants who reported high self-esteem were viewed as more extraverted. Neither the main effect of self-esteem instability nor the interaction of self-esteem level and self-esteem instability emerged.

**Perceived emotional stability.** The results of the analysis concerning emotional stability found main effects for self-esteem level ( $B = .35, SE = .07, t = 5.25, p < .001$ ) and self-esteem instability ( $B = -.15, SE = .08, t = -2.14, p = .03$ ). Participants reporting high self-esteem and more stable self-esteem were viewed as more emotionally stable. The interaction of self-esteem level and self-esteem instability failed to emerge.

**Perceived agreeableness.** The results of the analysis concerning agreeableness found main effects for self-esteem level ( $B = .20, SE = .06, t = 3.30, p = .002$ ) and self-esteem instability ( $B = -.14, SE = .05, t = -2.80, p = .01$ ). These main effects were qualified by the interaction of self-esteem level and self-esteem instability ( $B = -.14, SE = .05, t = -3.00, p = .003$ ). The predicted values for this interaction are presented in Panel A of Figure 3. To examine the pattern of this interaction, simple slopes tests for multilevel models were employed (Curran, Bauer, & Willoughby, 2006). These analyses found that the slope of the line representing the association between self-esteem instability and perceived agreeableness was significant for those with high self-esteem ( $B = -.24, SE = .09, t = -2.53, p = .01$ ) but not for those with low self-esteem ( $B = -.04, SE = .05, t = -0.51, p = .61$ ). These results show that those targets with stable high self-esteem were perceived to be more agreeable than other targets.

**Perceived conscientiousness.** The results of the analysis concerning conscientiousness found a main effect for self-esteem level ( $B = .15, SE = .07, t = 2.31, p = .02$ ) that was qualified by its interaction with self-esteem instability ( $B = -.12, SE = .06, t = -2.00, p = .05$ ). The predicted values for this interaction are presented in Panel B of Figure 3. These analyses found that the slope of the line representing the association between self-esteem instability and perceived conscientiousness was significant for those with high self-esteem ( $B = -.33, SE = .10, t = -3.36, p < .001$ ) but not for



**Figure 3.** Study 2: Predicted values for perceived agreeableness (Panel A), perceived conscientiousness (Panel B), and perceived openness (Panel C) illustrating the interaction of self-esteem level and self-esteem instability at values that are one standard deviation above and below their respective means.

those with low self-esteem ( $B = -.08$ ,  $SE = .08$ ,  $t = -1.01$ ,  $p = .32$ ). These results show that those targets with stable high self-esteem were perceived to be more conscientious than the other targets.

*Perceived openness.* The results of the analysis concerning openness found a main effect for self-esteem level

( $B = .14$ ,  $SE = .06$ ,  $t = 2.48$ ,  $p = .01$ ) that was qualified by its interaction with self-esteem instability ( $B = -.12$ ,  $SE = .04$ ,  $t = -2.84$ ,  $p = .01$ ). The predicted values for this interaction are presented in Panel C of Figure 3. These analyses found that the slope of the line representing the association between self-esteem instability and perceived openness was significant for those with high self-esteem ( $B = -.28$ ,  $SE = .08$ ,  $t = -3.38$ ,  $p < .001$ ) but not for those with low self-esteem ( $B = -.06$ ,  $SE = .06$ ,  $t = -0.87$ ,  $p = .39$ ). These results show that those targets with stable high self-esteem were perceived as being more open than other targets.

### Discussion

The results of the self-report analyses of college students from Study 2 partially replicated the results of Study 1. Self-esteem level was positively associated with all personality features and self-esteem instability was negatively associated with emotional stability, agreeableness, and conscientiousness. The interaction of self-esteem level and self-esteem instability emerged for emotional stability, agreeableness, and conscientiousness. The pattern of these results showed that individuals with stable high self-esteem reported the highest levels of self-reported emotional stability, agreeableness, and conscientiousness which were similar to the results from Study 1. However, the interaction of self-esteem level and self-esteem instability did not emerge for self-reported openness. It is important to note that the interaction of self-esteem level and self-esteem instability also emerged for the perceiver evaluations of the targets. That is, targets with stable high self-esteem were perceived as being especially agreeable, conscientious, and open to experience. This pattern of results suggests that individuals with stable high self-esteem are perceived to possess personality features that are similar to their self-reported personality features.

### Study 3: Self-Reports of American Community Members

The purpose of Study 3 was to extend previous results by examining the associations between self-esteem and personality dimensions in a community sample. This extension is important because the previous studies relied on college student samples consisting primarily of individuals in late adolescence and emerging adulthood. Previous research has shown consistent developmental shifts in self-esteem across the life span such that self-esteem level tends to increase from adolescence to late adulthood whereas self-esteem instability decreases during the same period (Meier et al., 2011). Therefore, we believed it would improve our understanding of the connection between self-esteem and personality dimensions to examine a community sample that was at least somewhat older.

**Table 5.** Study 3: Intercorrelations and Descriptive Statistics for Self-Esteem Level, Self-Esteem Instability, and Personality Dimensions.

	1	2	3	4	5	6	7
1. Self-Esteem Level	—						
2. Self-Esteem Instability	-.34***	—					
3. Extraversion	.46***	-.14	—				
4. Emotional Stability	.59***	-.38***	.33***	—			
5. Agreeableness	.40***	-.18	.15	.41***	—		
6. Conscientiousness	.51***	-.22*	.25**	.37***	.48***	—	
7. Openness	.26**	-.21*	.33**	.09	.11	.26**	—
M	3.77	0.55	2.68	3.22	3.69	3.81	3.61
SD	0.92	0.48	0.79	0.88	0.62	0.66	0.66

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

**Table 6.** Study 3: Regressions of Personality Dimensions on Self-Esteem Level and Self-Esteem Instability.

	Extraversion		Emotional Stability		Agreeableness		Conscientiousness		Openness	
	R <sup>2</sup>	$\beta$	R <sup>2</sup>	$\beta$	R <sup>2</sup>	$\beta$	R <sup>2</sup>	$\beta$	R <sup>2</sup>	$\beta$
Model	.21***		.39***		.16***		.28***		.10**	
SEL		.47***		.52***		.39***		.51***		.23*
SEI		.03		-.21*		-.05		-.05		-.14
SEL $\times$ SEI		-.07		-.02		-.06		-.11		-.14

Note. SEL = self-esteem level; SEI = self-esteem instability.

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

## Method

**Participants and procedure.** Participants were 573 community members recruited using Mechanical Turk. Participants completed the same self-report measures as the earlier studies via a secure website. These participants were paid US\$0.20 for completing the measures of self-esteem level (Rosenberg Self-Esteem Scale;  $\alpha = .87$ ) and personality (BFI;  $\alpha = .73-.87$ ). These participants were offered an opportunity to earn an additional US\$0.30 for each daily measure of self-esteem they completed. Of the 573 participants who completed the initial questionnaires, 108 participants (47 men and 61 women) completed at least three of the daily measures which allowed us to estimate their self-esteem instability. The internal consistency of the daily measure of state self-esteem was .88. These data were collected over a period of 14 days. It is important to note that the reason for the relatively large drop in the number of participants at this stage was that the completion of the daily measures was completely optional and was not required as part of their completion in the initial phase of the study. The mean age of the participants was 34.68 years ( $SD = 12.78$ ) and their racial/ethnic composition was 76% White, 10% Black, 10% Asian, and 4% Other. The final participants contributed 680 daily reports (i.e., an average of 6.30 reports for each participant) and they did not differ from those who did not complete the daily measures in terms of self-esteem level,  $t(571) = 0.60$ ,  $p = .65$ ; extraversion,  $t(571) = 1.35$ ,  $p = .18$ ; emotional stability,  $t(571) = 1.09$ ,

$p = .28$ ; agreeableness,  $t(571) = 0.35$ ,  $p = .73$ ; or openness,  $t(571) = 1.62$ ,  $p = .11$ . However, the participants who completed the daily measures reported higher levels of conscientiousness than those who did not complete the daily measures,  $t(571) = 2.72$ ,  $p = .01$ ,  $d = .23$ .

## Results

The means, standard deviations, and intercorrelations for Study 3 are presented in Table 5. Moderated multiple regression analyses were again conducted to determine whether self-esteem instability qualified the associations between self-esteem level and personality features. The results are presented in Table 6.

**Extraversion.** The results of the analysis concerning extraversion found a main effect for self-esteem level ( $\beta = .47$ ,  $t = 5.09$ ,  $p < .001$ ) such that participants with high self-esteem reported being more extraverted. Neither the main effect of self-esteem instability nor its interaction with self-esteem level emerged from this analysis.

**Emotional stability.** The results of the analysis concerning emotional stability found main effects for self-esteem level ( $\beta = .52$ ,  $t = 6.33$ ,  $p < .001$ ) and self-esteem instability ( $\beta = -.21$ ,  $t = -2.51$ ,  $p = .01$ ). The interaction of self-esteem level and self-esteem instability did not emerge from this analysis.

**Table 7.** Study 4: Regressions of Personality Dimensions on Self-Esteem Level and Self-Esteem Instability.

	Extraversion		Emotional Stability		Agreeableness		Conscientiousness		Openness	
	R <sup>2</sup>	β	R <sup>2</sup>	β	R <sup>2</sup>	β	R <sup>2</sup>	β	R <sup>2</sup>	β
Model	.10***		.24***		.11***		.17***		.01**	
SEL		.30***		.43***		.25***		.32***		.07*
SEI		-.03		-.16***		-.16***		-.18***		.01
SEL × SEI		-.02		-.08***		-.07**		-.11***		-.09***

Note. SEL = self-esteem level; SEI = self-esteem instability.

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

**Agreeableness.** The results of the analysis concerning agreeableness found a main effect for self-esteem level ( $\beta = .39$ ,  $t = 4.04$ ,  $p < .001$ ) such that individuals with high self-esteem reported being more agreeable. Neither the main effect of self-esteem instability nor its interaction with self-esteem level emerged from this analysis.

**Conscientiousness.** The results of the analysis concerning conscientiousness found main effects for self-esteem level ( $\beta = .51$ ,  $t = 5.69$ ,  $p < .001$ ). Neither the main effect of self-esteem instability nor its interaction with self-esteem level emerged from this analysis.

**Openness.** The results of the analysis concerning openness found a main effect for self-esteem level was significant ( $\beta = .23$ ,  $t = 2.27$ ,  $p = .03$ ). Neither the main effect of self-esteem instability nor its interaction with self-esteem level emerged from this analysis.

## Discussion

The results for self-esteem level in this adult community sample were consistent with our previous studies such that self-esteem level was positively associated with extraversion, emotional stability, agreeableness, conscientiousness, and openness. Self-esteem instability was negatively associated with emotional stability but it was not associated with agreeableness or conscientiousness as it was in Studies 1 and 2. It is important to note that self-esteem instability did not moderate the associations that self-esteem level had with personality dimensions. These results may either reflect the fact that the sample size for Study 3 is relatively small compared with the previous studies or it may suggest that self-esteem instability has different associations with personality dimensions among those who are beyond emerging adulthood.

## Study 4: Joint Analysis of Studies 1-3

The purpose of Study 4 was to examine the overall associations that self-esteem level and self-esteem instability had with self-reported personality dimensions across Studies 1 to 3 by examining those combined samples.

## Method

**Participants and procedure.** Participants were the 1,453 participants from Studies 1 to 3 who completed an adequate number of daily measures to be included in those studies ( $n_{\text{Study 1}} = 1,069$ ,  $n_{\text{Study 2}} = 276$ ,  $n_{\text{Study 3}} = 108$ ).

## Results

Moderated multiple regression analyses were again conducted to determine whether self-esteem instability qualified the associations between self-esteem level and personality dimensions. Due to differences across samples (e.g., cultural differences in Study 1), we calculated standardized scores within each group so that we could capture the strength of the associations that self-esteem level and self-esteem instability had with the personality dimensions. The results of these analyses are presented in Table 7.

**Extraversion.** The results of the analysis concerning extraversion found a main effect for self-esteem level ( $\beta = .30$ ,  $t = 11.55$ ,  $p < .001$ ) such that participants who reported higher levels of self-esteem also reported being more extraverted. No other main effects or interactions emerged from this analysis.

**Emotional stability.** The results of the analysis concerning emotional stability found main effects for self-esteem level ( $\beta = .43$ ,  $t = 17.81$ ,  $p < .001$ ) and self-esteem instability ( $\beta = -.16$ ,  $t = -6.82$ ,  $p < .001$ ) but these main effects were qualified by their two-way interaction ( $\beta = -.08$ ,  $t = -3.40$ ,  $p < .001$ ). The predicted values for this interaction were similar to those presented in Panel A of Figures 1 and 2. Simple slopes tests found that the slope of the line representing the association between self-esteem instability and emotional stability was significant for those with low self-esteem ( $\beta = -.09$ ,  $t = -2.84$ ,  $p = .001$ ) but the association was even stronger for those with high self-esteem ( $\beta = -.24$ ,  $t = -7.15$ ,  $p < .001$ ). Taken together, these results revealed that the highest levels of emotional stability were reported by those with stable high self-esteem.

**Agreeableness.** The results of the analysis concerning agreeableness revealed main effects for self-esteem level ( $\beta = .25$ ,

$t = 9.47, p < .001$ ) and self-esteem instability ( $\beta = -.16, t = -6.23, p < .001$ ) that were qualified by their two-way interaction ( $\beta = -.07, t = -2.62, p = .009$ ). The predicted values for this interaction were similar to those presented in Panel B of Figures 1 and 2. Simple slopes tests found that the slope of the line representing the association between self-esteem instability and agreeableness was significant for those with low self-esteem ( $\beta = -.10, t = -2.93, p = .003$ ) but the association was even stronger for those with high self-esteem ( $\beta = -.22, t = -6.21, p < .001$ ). These results show that the highest levels of agreeableness were reported by those with stable high self-esteem.

**Conscientiousness.** Main effects emerged for self-esteem level ( $\beta = .32, t = 12.95, p < .001$ ) and self-esteem instability ( $\beta = -.18, t = -7.14, p < .001$ ) but these main effects were qualified by their two-way interaction ( $\beta = -.11, t = -4.47, p < .001$ ). The predicted values for this interaction were similar to those presented in Panel C of Figures 1 and 2. Simple slopes tests found that the slope of the line representing the association between self-esteem instability and conscientiousness was significant for those with low self-esteem ( $\beta = -.08, t = -2.34, p = .02$ ) but the association was even stronger for those with high self-esteem ( $\beta = -.28, t = -8.09, p < .001$ ). These results revealed that the highest levels of conscientiousness were reported by those with stable high self-esteem.

**Openness.** The analysis for openness revealed a main effect for self-esteem level ( $\beta = .07, t = 2.40, p = .02$ ) that was qualified by its interaction with self-esteem instability ( $\beta = -.09, t = -3.34, p < .001$ ). The predicted values for this interaction were similar to those presented in Panel D of Figure 1. Simple slopes tests found that the slope of the line representing the association between self-esteem instability and openness was negative for those with high self-esteem ( $\beta = -.07, t = -2.12, p = .03$ ) but it was positive for those with low self-esteem ( $\beta = .09, t = 2.63, p = .009$ ). Taken together, these results show that the lowest levels of openness were reported by those with stable low self-esteem.

## Discussion

The results of Study 4 showed that self-esteem level was positively associated with each personality dimension and that self-esteem instability moderated the associations that self-esteem level had with emotional stability, agreeableness, conscientiousness, and openness. These results revealed that individuals with stable high self-esteem reported the highest levels of emotional stability, agreeableness, and conscientiousness, whereas those individuals with stable low self-esteem reported the lowest levels of openness.

## General Discussion

The purpose of the present studies was to examine whether self-esteem level and self-esteem instability were associated

with basic personality dimensions and whether self-esteem instability moderated the associations that self-esteem level had with these personality dimensions. Self-esteem level had consistent associations with personality features such that those with high levels of self-esteem reported higher levels of extraversion, emotional stability, agreeableness, conscientiousness, and openness. It has been suggested that self-esteem may be connected with extraversion and emotional stability because of similar affective underpinnings (e.g., more positive affect for extraversion and less negative affect for emotional stability; DeNeve & Cooper, 1998) and the present results are consistent with that perspective. In contrast, self-esteem instability had relatively consistent negative associations with emotional stability, agreeableness, and conscientiousness. Although these effects were not perfectly consistent across the studies, the general pattern that emerged is relatively clear given the diverse samples and methods that were included in these studies.

We expected self-esteem instability to moderate some of the associations that were observed between self-esteem level and personality features and this emerged in a relatively consistent fashion across the present studies. As expected, these results showed that individuals with stable high self-esteem reported the highest levels of emotional stability, agreeableness, and conscientiousness. The personality dimensions of emotional stability, agreeableness, and conscientiousness often cluster together as a higher order factor that was originally labeled as Factor  $\alpha$  (Digman, 1997) and has been referred to more recently as the *social self-regulation* dimension (Saucier et al., 2014). The social self-regulation dimension is closely associated with communion, morality, warmth, and interpersonal nurturance. The present findings concerning the link between stable high self-esteem and the traits associated with social self-regulation may be interpreted using the sociometer model developed by Leary and his colleagues (e.g., Leary, Tambor, Terdal, & Downs, 1995). According to the sociometer model, self-esteem is an evolutionary adaptation that serves as a status-tracking system such that an individual's self-esteem level reflects his or her perceived relational value. Personality traits associated with social self-regulation would likely enhance relational value by allowing individuals to get along with others more effectively. This may provide at least a partial explanation for the finding that individuals who possessed traits indicative of social self-regulation reported relatively high levels of self-esteem that were stable over time. For example, individuals with high levels of agreeableness may have relatively good interpersonal relationships which may lead them to perceive themselves as having greater relational value than those with low levels of agreeableness. In turn, the high levels of perceived relational value that accompany agreeableness may lead to relatively high levels of self-esteem. In contrast, individuals who had relatively poor social self-regulation skills may have reported low levels of self-esteem or unstable feelings of self-worth because they had difficulty

maintaining their relational value over time. This explanation is consistent with the fact that individuals with stable high self-esteem were perceived by their friends and family members as being highly agreeable, conscientious, and open to experience.

The results of the present studies suggest the intriguing possibility that self-esteem instability may play an especially important role in the link between self-esteem level and personality for those who are either in late adolescence or early adulthood given that Studies 1 and 2 focused on college students from the United States, Israel, and China. However, the strength of the links between aspects of self-esteem and personality dimensions is unclear during other periods of life. It is possible, for example, that the reciprocal relationship between self-esteem and personality features may be especially strong when individuals are still developing their sense of identity. This is potentially important and should be examined more closely in future research.

Gaining a better understanding of the connections between self-esteem and personality features is important for a number of reasons. First, self-esteem and basic personality features may have reciprocal associations with each other. That is, an individual's feelings of self-worth may shape personality processes (e.g., individuals with high self-esteem may be more extraverted in their behavior) at the same time that personality processes impact the development of self-esteem (e.g., individuals who possess personality features reflecting social self-regulation may develop stable high self-esteem). Second, this will improve our understanding of self-esteem by placing it in the nomological network that is formed by the Big Five personality dimensions (e.g., John, Hampson, & Goldberg, 1991). Third, these results suggest that there are important similarities in the basic associations that self-esteem level and self-esteem instability have with personality dimensions across cultures. This suggests that the links between feelings of self-worth and personality features do not only emerge in samples drawn from the United States.

It is important to note that the present studies focused exclusively on barometric self-esteem instability (i.e., short-term fluctuations in feelings of self-worth) and did not include baseline instability (i.e., long-term changes in self-esteem). It is unclear whether similar results would emerge with regard to the link between self-esteem instability and personality dimensions if researchers focused on long-term changes in self-esteem rather than short-term fluctuations. We suspect that the results would be similar because we think that short-term fluctuations in state self-esteem may play a role in long-term changes in feelings of self-worth. However, this is an open empirical question that should be examined in future studies.

The present studies had a number of strengths including relatively large samples, data from three cultures (i.e., United States, Israel, and China), and different methodologies (i.e., self-report and perceiver ratings). Despite the strengths of this research, it is also important to acknowledge some of its

limitations. First, we were unable to determine the direction of causation between feelings of self-worth and personality dimensions due to the correlational nature of our data. Our underlying process model was that self-esteem and personality dimensions had reciprocal relationships with each other, but we cannot clearly determine whether this is the case using our present data. The underlying causal process that explains the link between self-esteem and personality features is worthy of future investigation. Second, the present studies generally contained relatively large numbers of women compared with men. It would be helpful if future studies were able to include a more equal balance of male and female participants. Third, the generalizability of the present findings may be at least somewhat limited due to our reliance on undergraduate participants in two of the present studies and the fact that we only included samples from three cultures. Future studies should attempt to extend the present results by including a broader range of participants in terms of their ages and including samples from cultures other than the United States, Israel, and China.

## Conclusion

The findings of the present studies suggest that self-esteem level and self-esteem instability have associations with personality dimensions. That is, self-esteem was positively associated with extraversion, emotional stability, agreeableness, conscientiousness, and openness, whereas self-esteem instability was negatively associated with emotional stability, agreeableness, and conscientiousness. In addition, individuals with stable high self-esteem reported the highest levels of emotional stability, agreeableness, and conscientiousness, whereas those individuals with stable low self-esteem reported the lowest levels of openness. Furthermore, individuals with stable high self-esteem were perceived by their friends and family members as having high levels of agreeableness, conscientiousness, and openness. These results extend our understanding of the link between aspects of self-esteem and personality dimensions as well as providing additional information about the similarities and differences in the connections between feelings of self-worth and personality features across cultural backgrounds.

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## Notes

1. Previous work has raised concerns about the use of within-subject standard deviation as an indicator of intraindividual variability

(Baird, Le, & Lucas, 2006). To address this concern, we conducted additional analyses that included alternate methods for calculating self-esteem instability. The first of these alternate methods was the corrected standard deviation suggested by Baird et al. (2006) which involved predicting the within-subject standard deviation from the linear and quadratic effects of the average state self-esteem score and saving the residual as an indicator of self-esteem instability that is not confounded with mean-level information. The second alternate method was the relative standard deviation which is calculated by multiplying the within-subject standard deviation by 100 and then dividing this product by the within-subject average of the state self-esteem assessments. The third alternate method was the mean square successive difference which is the average of squared differences between successive observations of state self-esteem. These alternate methods for evaluating self-esteem instability provided results that were largely consistent with those that emerged when we used the within-subject standard deviation. Given the similarity in the results, we only present the results using the within-subject standard deviation as this is the most commonly used method for estimating self-esteem instability.

2. The trait-version of the Rosenberg Self-Esteem Scale was highly correlated with the average of the repeated assessments of the state-version of the Rosenberg Self-Esteem Scale across the studies. It is also important to note that both of these indicators of self-esteem level had similar associations with self-esteem instability. Additional analyses that replaced the trait-version of the Rosenberg Self-Esteem Scale with the average of the state-version of the Rosenberg Self-Esteem Scale produced a relatively similar set of results across the studies. As a consequence, we only present the analyses using the trait-version of the Rosenberg Self-Esteem Scale because this is what has been used most commonly to capture “self-esteem level” in previous studies.

## Supplemental Material

The online supplemental material is available at <http://pspb.sagepub.com/supplemental>.

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