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Unpacking the differential effects of dispositional envy on happiness among adolescents and young adults: The mediated moderation role of self-esteem

Jacky C.K. Ng^{a,*}, Vince W.T. Cheung^b, Victor C.Y. Lau^c^a Hong Kong Shue Yan University, Hong Kong^b Hong Kong Polytechnic University, Hong Kong^c Hong Kong Baptist University, Hong Kong

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ABSTRACT

A robust association between dispositional envy and happiness was primarily concluded among young adults. As social contexts can vary across developmental stages, the effect of dispositional envy may be enhanced or diminished in different age groups. Thus, the present research attempted to quantify the differential associations between dispositional envy and happiness among adolescents and young adults ($N = 586$). Moreover, we examined another important question of why the association differed across the two age groups. Using mediated moderation analysis, we found a stronger association between dispositional envy and happiness among young adults than adolescents. We also revealed that self-esteem was a valid mechanism to unpack the differential associations across two age groups.

1. Introduction

Myers and Diener (1995) attempted to identify who can be a happy person. After more than twenty years, researchers are still investigating what can contribute to or take away happiness (e.g., Myers & Diener, 2018; Tamir, Schwartz, Oishi, & Kim, 2017). These long-lasting examinations have signified that happiness is perhaps one of the most essential pursuits among human being. On the predictors of happiness, Diener and Lucas (1999) concluded that dispositional variables, such as personality traits, have explained why some people are happier than others consistently. Nonetheless, these investigations extensively focused on the Big Five personality traits (e.g., Soto, 2015; Steel & Ones, 2002). Thus, in the present research, we aim at further contributing to the literature of happiness by focusing on another personality predictor of happiness – dispositional envy.

Happiness has been found to be strongly associated with the social comparison process. Specifically, upward social comparison could lower one's happiness (Boyce, Brown, & Moore, 2010), while downward comparison could enhance one's happiness (Collins, 1996). Given that upward comparison is an essence in envy, the experience of envy is expected to be tightly associated with happiness. Compared to other personality traits, the chronic tendency to experience envy – dispositional envy (Smith, Parrott, Diener, Hoyle, & Kim, 1999) has received relatively less attention on the research of happiness. To fill this gap, an

increasing number of studies had revealed a robust association between dispositional envy and happiness. However, to what extent this association differs across developmental stages remains largely unexplored. More critically, the possible mechanisms underlying the differential associations between dispositional envy and happiness across developmental stages are unclear. Built upon previous findings and the social ecological perspective of personality, we aim at quantifying the extent of differential associations across adolescence and young adulthood, as well as investigating the mediated moderation role of self-esteem.

Taken together, the present investigation is significant to the research of happiness in 1) capturing the extent that dispositional envy differentially associates with happiness among adolescents and young adults as well as 2) unpacking why the differential effects have taken place.

1.1. The association between dispositional envy and happiness among adolescents and young adults

The experience of envy typically involves a situation where an envier lacks a desired object from an envied person. The object can be tangible (e.g., money) and non-tangible (e.g., popularity). Essentially, upward social comparison plays a role in this situation where the envier compares himself or herself with the envied person on the desired object, triggering the experience of envy (Cohen-Charash, 2009).

* Corresponding author at: Department of Counselling and Psychology, Hong Kong Shue Yan University, 10 Wai Tsui Crescent, Braemar Hill, North Point, Hong Kong.

E-mail address: jckng@link.cuhk.edu.hk (J.C.K. Ng).

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Although the experience involves some mixed emotional reactions, it is generally highlighted by two major feelings, namely inferiority and hostility (Lange, Blatz, & Crusius, 2016). In the experience of envy, one's inadequacy is extensively pushed out by the perceived lack of a desired object. Thus, feeling of inferiority is typically elicited. Moreover, envier often regards the desired object as unachievable. These frustrated desires and perceptions of unfairness can in turn result in a feeling of hostility (Smith et al., 1999).

Some individuals may experience envy occasionally, while some people chronically experience envy across various social situations. A stable personality trait of dispositional envy can be used to depict this habitual tendency (Smith et al., 1999). It was observed that people who were high in dispositional envy were more sensitive to the signs highlighting their inadequacy and more likely to perceive social comparisons as an upward type (Collins, 1996; Smith, Parrott, Ozer, & Moniz, 1994). As upward social comparison is an essence in envy, dispositional envy was consistently found to be psychologically detrimental. For instance, dispositional envy was significantly associated with low levels of happiness and life satisfaction, as well as high levels of depression and anxiety (e.g., Briki, 2018; Rentzsch & Gross, 2015).

Although the association between dispositional envy and psychological health is robust in the literature, most of the research evidence is provided on the sample of young adults. Indeed, based on the social ecological framework of personality, the effect of one's dispositional envy on happiness is likely to be contingent on the context where he or she situates or the values that he or she endorses (Diener, Lucas, & Oishi, 2018). The social contexts in different developmental stages can be substantially distinct from one another. Therefore, it is possible that the sampling bias on young adults may mask the meaningful differences in the association between dispositional envy and happiness across developmental stages.

In addition to young adulthood, adolescence is regarded as another critical developmental stage with substantial identity exploration and consolidation of social relations (Masselink, Van Roekel, & Oldehinkel, 2018). However, studies examining the effect of dispositional envy on this relevant but distinct developmental stage are limited. Except one that Yu, Hao, and Shi (2018) investigated the association between dispositional envy and prosocial behaviors among adolescents. Built upon the envier's hostility toward others, they observed that adolescents who were high in dispositional envy would tend to inhibit prosocial behaviors.

Though this attempt generalized the effect of dispositional envy to another developmental stage, it is noteworthy that this study sampled adolescents only and conducting systematic comparison across age groups is not feasible. Thus, the social ecological perspective in which the effect of dispositional envy is contingent on one's context still cannot be fully tested. Recently, Ng, Lau, and Chen (2019) provided findings on the differential effect of dispositional envy on life satisfaction across young adults and adolescents. They found that the association between dispositional envy and life satisfaction was stronger in young adults than in adolescents, supporting the notion that the effect of dispositional envy is likely to be context-dependent.

1.2. Unpacking the differential associations with self-esteem

Based on the differential effect of dispositional envy demonstrated in the literature, we intend to unpack the mechanism of this differential effect on happiness across young adulthood and adolescence. Both developmental stages of young adulthood and adolescence involve substantial identity exploration and consolidation of social relations (Masselink et al., 2018). Although the developmental tasks can be comparably important across two stages, the sources of identity formation and social support could vary (Arnett, Žukauskienė, & Sugimura, 2014). For instance, young adults may pay more attention to work prospects and romantic relationship, while adolescents may concentrate more on school performance and friendship.

To explain the differential association between dispositional envy and happiness across young adulthood and adolescence, we hypothesized that one's self-esteem may play a role. Self-esteem reflects an attitude toward one's own value and importance (Rosenberg, 1965). Since both young adulthood and adolescence concern identity exploration and social relations, individual's self-esteem can be affected among these two developmental stages. Nonetheless, the extent to which self-esteem is enhanced or diminished could vary across stages. Empirical research indicated self-esteem generally would increase from adolescence to young adulthood. Erol and Orth (2011) conducted a longitudinal study from age 14 to 30 and revealed an increased trajectory of one's self-esteem from adolescence to young adulthood. Similarly, Maldonado et al. (2013) conducted a 3-wave longitudinal study, tracking individuals from ages 13 to 22; they found that self-esteem increased during adolescence and continued to increase in young adulthood.

The different levels of self-esteem across adolescence and young adulthood may contribute to the differential effect of dispositional envy across the two stages, yielding a possible moderation effect. The moderation effect of self-esteem has been demonstrated on some personality predictors, such as extraversion (Li, Lan, & Ju, 2015) and narcissism (Zuo, Wang, Xu, Wang, & Zhao, 2016). Nonetheless, limited studies have investigated whether self-esteem can moderate the effect of dispositional envy, except for the study of Yu et al. (2018). Built upon the negative effect of dispositional envy on prosocial behaviors, they found that one's self-esteem significantly moderated this linkage. Specifically, among people with high self-esteem, the negative effect of dispositional envy was stronger. On these findings, they explained that individuals with high dispositional envy may experience more conflict in their mind when they have high self-esteem, which denotes a more positive sense of their own value and importance (Rosenberg, 1965). Those who have high dispositional envy, are more likely to feel inferiority from upward social comparisons. If they hold a strong sense of their own value and importance at the same time, they may experience more psychological conflict and are less likely to act prosocially. Noteworthy, these findings are also consistent with previous research, in which envy elucidated hostility especially when one considered himself and herself as deserving of a better outcome, which reflected a much positive self-regard (Smith et al., 1994).

The notion that self-esteem exacerbates the effect of dispositional envy has been empirically supported and can be explained by the increase of psychological conflict. It is also possible for self-esteem to diminish the effect of dispositional envy on happiness by its buffering function (Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004). In the face of adverse life events, such as experiencing ego threat during upward comparison, self-esteem may serve as a protective factor to safeguard one's psychological health by offering more mental resources to cope with the adversities (Orth, Robins, Trzesniewski, Maes, & Schmitt, 2009). For instance, Jones and Buckingham (2005) found that self-esteem could buffer the negative effect of upward social comparison (viewing an attractive peer) on female's body image.

Since the empirical stability of an observed interaction effect has always been questioned (Aguinis & Stone-Romero, 1997), the present research can be an attempt to cross-validate the direction of the moderation effect of self-esteem found in previous research, as well as to examine the validity of the alternative direction.

1.3. The current study

Little research has directly compared the association between dispositional envy and happiness across developmental stages. Built upon previous findings on adolescence and young adulthood, the present research attempted to cross-validate the differential associations between dispositional envy and happiness among adolescents and young adults. Most importantly, the present research tried to examine whether self-esteem, which plays a critical role in adolescence and young

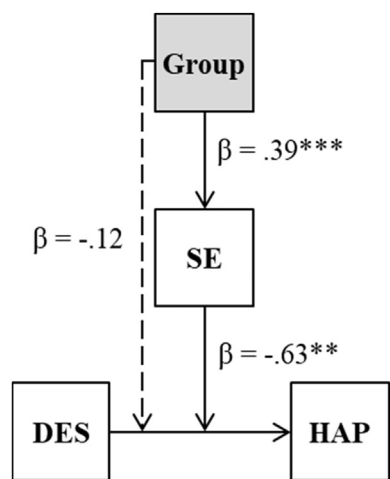


Fig. 1. The mediated moderation model with self-esteem unpacking the differential association between dispositional envy and happiness among young adults and adolescents. Group = binary coding of young adults and adolescents (young adults = 1, adolescents = 0); SE = self-esteem; DES = dispositional envy; HAP = subjective happiness. All the coefficients are standardized and the solid lines indicate statistical significance. ** $p < .01$, *** $p < .001$.

adulthood, could unpack the differential associations between dispositional envy and happiness across the two age groups. Analytically, to unpack a moderating effect, a statistical model of mediated moderation should be used (see Fig. 1). Nonetheless, mediated moderation model has been regarded as a flip side of the same coin of a moderated mediation model (Muller, Judd, & Yzerbyt, 2005). Thus, research questions related to the use of mediated moderation analysis has been largely ignored. More recently, a new specification of a mediated moderation model has been developed to analytically differentiate a mediated moderation model from a moderated mediation model (Kwan & Chan, 2018). This method has been shown to be useful in unpacking the structure-oriented cultural differences (Ng, Chan, Kwan, & Chen, 2018). With this newly-developed method, this study aimed at unpacking the differential associations between dispositional envy and happiness among two age groups, testing the mediated moderation role of self-esteem.

2. Method

2.1. Participants and procedure

A total of 586 Hong Kong Chinese participants was recruited in the current study. Among them, 263 adolescents (120 females) were recruited from five different grades in a secondary school (equivalent to Grades 7 to 11 in the American school system) with an age range of 11 to 16 ($M_{age} = 13.84$, $SD = 1.68$), and 323 undergraduate students were recruited from a university (267 females) with an age range of 18 to 25 ($M_{age} = 20.39$, $SD = 2.14$). Assuming small-to-medium effect size ($\rho = 0.2$, Cohen, 1988) in the two links of a mediated moderation effect, a sample of 150 in each group is required to obtain at least 80% statistical power, unbiased point estimate, and standard error (Ng et al., 2018). Therefore, in the present study, we recruited the two age groups larger than the required sample size.

2.2. Measures

2.2.1. Dispositional envy

A chronic tendency to experience envy was measured by the Dispositional Envy Scale (Smith et al., 1999). It consists of 8 items on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). A sample item includes “It somehow doesn’t seem fair that some people

seem to have all the talent” ($\alpha = 0.92$ and 0.86 for adolescents and young adults, respectively).¹

2.2.2. Subjective happiness

A global subjective happiness and well-being was measured by the Subjective Happiness Scale (Lyubomirsky & Lepper, 1999). It consists of 4 items on a 7-point scale ranging from 1 (*very inaccurate*) to 7 (*very accurate*). A sample item includes “Some people are generally very happy. They enjoy life regardless of what is going on, getting the most out of everything. To what extent does this characterization describe you” ($\alpha = 0.76$ and 0.83 for adolescents and young adults, respectively).

2.2.3. Self-esteem

An overall evaluation of self-worth was measured by the Rosenberg Self-Esteem Scale (Rosenberg, 1965). It consists of 10 items on a 4-point scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). A sample item includes “I have a number of good qualities” ($\alpha = 0.82$ and 0.84 for adolescents and young adults, respectively).

3. Results

Descriptive statistics and bivariate correlations are summarized in Table 1. Two sets of hierarchical regression analysis were conducted to confirm the moderation effects of age groups and self-esteem. Then, as a whole, a mediated moderation model would be tested.

Hierarchical regression analysis was performed to examine the moderation effect of age groups. Results indicated that, in block 1, the binary coding of age group (young adults = 1 and adolescents = 0) predicted happiness, $b = 0.45$, $\beta = 0.20$, $p < .001$, in which young adults reported more happiness than adolescents. Also, as expected, dispositional envy was negatively associated with happiness, $b = -0.64$, $\beta = -0.43$, $p < .001$. In block 2, the interaction term between binary coding of age group and dispositional envy was significant, $b = -0.22$, $\beta = -0.28$, $p = .043$, in which the negative association between dispositional envy and happiness was stronger among young adults, $b = -0.75$, $\beta = -0.51$, $p < .001$, than that of adolescents, $b = -0.54$, $\beta = -0.36$, $p < .001$.

A second set of hierarchical regression analysis was performed to examine the moderation effect of self-esteem. Dispositional envy was negatively associated with happiness in block 1, $b = -0.59$, $\beta = -0.40$, $p < .001$. Self-esteem was also significantly associated with happiness in block 1, $b = 0.75$, $\beta = 0.29$, $p < .001$. Most importantly, in block 2, a significant interaction effect between dispositional envy and self-esteem was observed, $b = -0.34$, $\beta = -0.67$, $p < .001$, in which the negative association between dispositional envy and happiness was stronger among those who are high in self-esteem (1 SD above mean value), $b = -0.77$, $\beta = -0.52$, $p < .001$, than that among those who are low in self-esteem (1 SD below mean value), $b = -0.48$, $\beta = -0.32$, $p < .001$.

To examine whether self-esteem can be a mediated moderator to unpack the moderation effect of age group, it is important to test whether self-esteem showed differences across age groups. Regression

¹ The dispositional envy scale has been well-validated in the literature. For instance, among young adults, Neufeld and Johnson (2016) found that this instrument was positively correlated with the episodic envy induced by the experimental task ($r = 0.55$), while Rentzsch and Gross (2015) found that this instrument was positively correlated with hostility ($r = 0.60$) and trait anger ($r = 0.52$). Among adolescents, this instrument was negatively associated with prosocial behaviors ($r = -0.31$) (Yu et al., 2018). Besides, Ng et al. (2019) have established factorial validity and measurement invariance for this instrument among Chinese adolescents and young adults, and found that this instrument was negatively associated with life satisfaction ($r_s = -0.31$ to -0.41). Overall, these studies provided evidence that the dispositional envy scale had sufficient validity and sensitivity on its nomological network.

Table 1
Descriptive statistics and bivariate correlations in young adults and adolescents.

	Young adults			Adolescents		
	1	2	3	1	2	3
1. Dispositional envy	2.62 (0.67)	−0.49 ***	−0.20 ***	2.76 (0.81)	−0.40 ***	−0.12 †
2. Subjective happiness	–	4.86 (1.04)	0.41 ***	–	4.32 (1.09)	0.21 **
3. Self-esteem	–	–	2.88 (0.36)	–	–	2.56 (0.44)

Mean and standard deviation are provided on the diagonal.

† $p < .010$.

** $p < .01$.

*** $p < .001$.

analysis indicated the binary coding of age group had a significant effect on self-esteem, $b = 0.32$, $\beta = 0.38$, $p < .001$, in which young adults reported higher self-esteem ($M = 2.88$) than adolescents ($M = 2.56$).

Taken all the analyses as a whole, we tested a mediated moderation model with self-esteem as a mediated moderator (Fig. 1). Overall, this model fitted the data well, $\chi^2(4) = 15.49$, $p = .004$, CFI = 0.998, NNFI = 0.985, SRMR = 0.068, RMSEA = 0.070. As in Fig. 1, the total moderation effect of age groups on the association between dispositional envy and happiness was decomposed into the direct moderation effect and the indirect moderation effect through self-esteem. First, after taking the moderation effect of self-esteem into account, the direct moderation effect of age groups became non-significant, $b = -0.09$, $\beta = -0.12$, $p = .405$. Second, the two paths in the indirect moderation effect were significant, in which the binary coding of age group had an effect on self-esteem, $b = 0.33$, $\beta = 0.39$, $p < .001$, which in turn moderated the association between dispositional envy and happiness, $b = -0.30$, $\beta = -0.63$, $p = .001$. To further examine whether self-esteem can be qualified as a valid mediated moderator, we followed previous practices to compute a 95% bias-corrected bootstrap confidence interval based on 5000 bootstrap samples (Ng et al., 2018). Results indicated that the indirect moderation effect through self-esteem was significant, $b = -0.10$, 95% bias-corrected bootstrap CI $[-0.20, -0.01]$, $\beta = -0.13$, 95% bias-corrected bootstrap CI $[-0.25, -0.01]$. Following the conventional terminology, the moderation effect of age groups was fully mediated by self-esteem, indicating that the differential effect of dispositional envy on happiness among young adults and adolescents could be primarily explained by the group differences in self-esteem.²

4. Discussion

The present research examined the association between dispositional envy and happiness in both adolescents and young adults. Consistent with previous findings (e.g., Ng et al., 2019), the association between dispositional envy and happiness differed across the two age groups. Moreover, aligned with the literature (e.g., Yu et al., 2018), we found that self-esteem could moderate the association between dispositional envy and happiness. Taken together, we tested whether self-esteem would be a possible mechanism underlying the differential associations across the two age groups. With the newly-developed specification of a mediated moderation model (Kwan & Chan, 2018; Ng et al., 2018), the mediated moderation effect of self-esteem was found to be significant. This indicated its ability to unpack the differential

associations across the two age groups.

4.1. Self-esteem exacerbates the effects of dispositional envy

Self-esteem refers to a positive perception toward one's own value and importance (Rosenberg, 1965). Protecting our own self-esteem is widely regarded as one of the most fundamental goals in human beings (Baumeister, Campbell, Krueger, & Vohs, 2003). Although high self-esteem is generally considered to be desirable, it can also be maladaptive, posing backfire on human functioning (David & Kistner, 2000). The present findings show that high self-esteem, compared to low self-esteem, can be undesirable since high self-esteem exacerbates the negative effect of dispositional envy on happiness. Among those who have very positive perception toward their own value and importance, the chronic experience of envy has larger impact on one's happiness. These findings are consistent with the dark side of self-esteem proposed by Baumeister, Smart, and Boden (1996). Focusing on the behavioral aggression, they suggested that among those who pose very positive self-views, the negative social feedbacks from others may possibly pose more ego threats and give rise to more subsequent anger and hostility. When the essence of dispositional envy is about making upward comparisons constantly with social others, a chronic experience of ego threats is expected. It is similar to receiving negative social feedbacks explicitly from others. Therefore, the experience of ego threats and positive self-views may clash and result psychological conflicts that dampen one's happiness. Certainly, psychological conflicts are not necessarily emerged as long as one can accept the negative feedbacks or the inferior images, and then lower the positive self-view (Baumeister et al., 1996). Nonetheless, when protecting self-worth is one of the important life goals, lowering self-esteem may not be an easy task under ego threats. Overall, the present findings provide support to the dark side of self-esteem under ego threats.

4.2. Self-esteem explains the differential associations among adolescents and young adults

Consistent with previous studies (Erol & Orth, 2011; Maldonado et al., 2013), we found that young adults have more positive perceptions toward their own values and importance than adolescents. Although identity formation is a typical developmental task on adolescence, it is suggested that the crisis of identity versus role confusion may extend beyond adolescence to the emerging adulthood aged roughly from 18 to 25 (Arnett, 2000). Therefore, both adolescents and young adults may consider identity exploration as important across life domains. Across adolescence and young adulthood, the domains for identity exploration may vary. For instance, adolescents are employed in a part-time basis and concentrate on schooling to explore their own values and importance, whereas young adults start sticking with more stable jobs to prepare for the groundwork for the jobs they may take in the future (Arnett et al., 2014). Thus, the identity formation can be more short-lived and tentative during adolescence, while more stable and serious during young adulthood. These distinctions in identity

² The mediated moderation model was estimated with the control of gender. After controlling the gender effect, the model also fitted the data well, $\chi^2(4) = 15.63$, $p = .004$, CFI = 0.995, NNFI = 0.981, SRMR = 0.059, RMSEA = 0.070. All the estimates of path coefficients remain consistent. Most importantly, the indirect moderation effect through self-esteem remained significant, $b = -0.099$, 95% bias-corrected bootstrap CI $[-0.203, -0.008]$, $\beta = -0.128$, 95% bias-corrected bootstrap CI $[-0.252, -0.004]$.

formation may elucidate that young adults hold more positive perceptions of their own values and importance than adolescents. Taken together with the exacerbating role of self-esteem, the group difference in self-esteem mediates the differential effects of dispositional envy on happiness among these two age groups, yielding a significant mediated moderation effect.

Conventionally, the full mediated moderation effect of self-esteem observed in this study can indicate that self-esteem fully explains why the association between dispositional envy and happiness differs across two age groups. Nonetheless, this finding should be interpreted with caution as the non-significant direct effect can be down to the fact that it has particularly low statistical power (Kenny & Judd, 2014). Thus, we take a conservative position that there certainly are other uninvestigated mechanisms. These mechanisms can be correlated with self-esteem and thereby, confounding the full mediated moderation effect of self-esteem.

4.3. Limitations and future directions

This study has some limitations. First, the present study only investigates one mechanism (i.e., self-esteem) to explain why the association between dispositional envy and happiness differs across two age groups. Other distinct but relevant mechanisms should also be tested in future research. For instance, one's perceived social support can be another mechanism. It has been proposed that adolescents may receive more social support from friendships, while young adults may regard romantic relationships as their primary source of social support (Arnett, 2015). It is possible that social resources gathered from friends or romantic partners can mitigate the ego threat experienced during upward comparisons (Lee & Goldstein, 2016). Besides, a chronic orientation to compare with social others can be another possible mechanism (Gibbons & Buunk, 1999). The experience of envy essentially emerges from upward social comparisons. If one is inclined to make social comparisons with others frequently, it is likely for one's dispositional envy to have a stronger effect on happiness.

Second, the present research only uses the Subjective Happiness Scale (Lyubomirsky & Lepper, 1999) to measure happiness. Although this 4-item instrument is well-validated among Hong Kong Chinese (Nan et al., 2014), the reliability is not high in the current sample (e.g., $\alpha = 0.76$ for adolescents). This instability across studies may be due to the small number of items in this instrument. To ensure better psychometric properties in measuring happiness, future studies can be conducted with other instruments, such as 29-item Oxford Happiness Scale (Hills & Argyle, 2001) or 18-item Orientation to Happiness (Peterson, Park, & Seligman, 2005).

Moreover, the broad concept of psychological well-being can be defined by two major principles, namely hedonia and the eudaimonia (Ryan & Deci, 2001). The hedonic view regards well-being as the pursuit of gratifying immediate pleasure and enjoyment, whereas the eudaimonic view sees it as the seeking to fully develop and function the true selves. The current instrument of subjective happiness reflects the hedonic conceptualization of psychological well-being. To compare two kinds of conceptualizations, future research should be conducted to test the current hypotheses on the eudaimonic component. For instance, future studies can examine whether self-esteem also exacerbates the effect of dispositional envy on human flourishing, which highlights the “eudaimonic happiness” (Diener et al., 2010). Since human flourishing involves positive functioning on self-esteem, it is possible that self-esteem may moderate the effect of dispositional envy on human flourishing in a larger extent.

Third, the present study examined the dynamics between the general tendency to experience envy and the global self-esteem. The domain-specificity on envy (Henniger & Harris, 2015) and self-esteem (Gentile et al., 2009) cannot be fully captured. Thus, it is not able to examine the cross-domain or same-domain interaction between envy and self-esteem. For instance, it is possible that high self-esteem on

appearance domain may exacerbate the effect of envy on the same appearance domain, whereas it may buffer the effect of envy on a different domain, such as academic domain. Future studies can utilize the experience sampling or diary sampling methods to capture the domain-specificity on momentary envy and self-esteem.

In conclusion, this study attempts to address an uninvestigated question of why the association between dispositional envy and happiness differs across adolescents and young adults. Through examining the mediated moderation role of self-esteem, we reveal that self-esteem can be one of the mechanisms underlying the differential associations.

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