

Why Are Dispositional Envious Not Satisfied With Their Lives? An Investigation of Intrapersonal and Interpersonal Pathways Among Adolescents and Young Adults

1 Introduction

One of the ultimate goals in positive psychology is to understand the nature of subjective well-being (SWB) and provide guidelines on proper regulation across different stages in life (Seligman & Csikszentmihalyi, 2000). SWB refers to the subjective experiences of frequent positive affect, infrequent negative affect, and a global sense of satisfaction with life (Diener, 1984). Positive and negative affects reflect the emotional aspects of SWB while life satisfaction represents a cognitive component, referring to an overall evaluation of one's life rather than a summation across specific domains (Diener, Emmons, Larsen, & Griffin, 1985). Positive and negative emotions exhibit momentary fluctuations, thus life satisfaction, which captures cognitive appraisals of one's life as a whole, is regarded as a more stable indicator of subjective well-being (Diener, Suh, Lucas, & Smith, 1999). Given its stability in tapping SWB, an increasing body of research in positive psychology has contributed to a fundamental inquiry into what contributes to a global sense of satisfaction with life (Diener & Diener, 1995; Schmuck & Sheldon, 2001).

Myers and Diener (1995) have reviewed numerous studies and concluded that demographic characteristics cannot reliably predict who is happy with their lives, while psychological variables such as one's dispositional traits can predict satisfaction more consistently. Diener and Lucas (1999) concurred with this conclusion and revealed that dispositional variables, such as personality traits, can strongly and consistently predict one's global sense of satisfaction with life. Moreover, it has been proposed that the stability of life satisfaction in SWB might be a result of stability in personality and its consistent prediction over time (Steel, Schmidt, & Shultz, 2008). Of the dispositional variables, the antecedent roles of the Big Five personality traits in predicting life satisfaction across different

developmental stages have been studied extensively (e.g., Joshanloo & Afshari, 2011; Suldo, Minch & Hearon, 2015). However, researchers have given less attention to another personality trait capturing a chronic tendency to experience envy – dispositional envy (Smith, Parrot, Diener, Hoyle, & Kim, 1999). Although this link has been documented in several studies (e.g., Briki, 2018; Smith et al., 1999), these findings are limited to young adult samples, and its underlying mechanism is still unclear at this point. Thus, in the present study, we aim at going beyond previous studies by revisiting the link between dispositional envy and life satisfaction among both adolescents and young adults, enhancing the generalizability of the findings. Furthermore, we aim at unpacking this linkage and comparing the intrapersonal and interpersonal pathways across adolescents and young adults.

2 Dispositional Envy and Life Satisfaction

Concerning the antecedents of life satisfaction, bottom-up (external situations) theories have proposed that life satisfaction is largely due to the experience of life events (Diener 1984; Ho, Cheung & Cheung, 2008). On the evaluation of life experiences, individuals tend to compare their current situation with that of others to determine whether they are satisfied with their lives (Boyce, Brown, & Moore, 2010; Diener et al., 1985). Thus, satisfaction or happiness with life can vary considerably depending on the comparison targets (Schimmack & Oishi, 2005; Strack, Schwarz, & Gschneidinger, 1985). When making social comparisons, one can draw on the experiences of those who are worse off (downward comparison) or those who are better off (upward comparison). Research has indicated that downward comparison fosters life satisfaction (Collins, 1996), while upward comparison leads to a poor sense of satisfaction with life (Mussweiler, Rüter, & Epstude, 2004; Stapel & Koomen, 2001). Moreover, this tendency to compare with others in evaluating life satisfaction is found among both adolescents (Suldo et al., 2014) and young adults (Emmons & Diener, 1985). Drawing upon these findings, an interesting question is who compares more, thereby affecting

judgments of life satisfaction. In this research, we focus on dispositional enviers.

Envy typically occurs between two related persons (i.e., the envier and the envied). The envier lacks a desired object that is possessed by the envied person; the object could be a superior quality, an achievement or a tangible thing (Cohen-Charash, 2009). In essence, the envier performs an upward social comparison with the envied person on the desired object, experiencing the feeling of envy. The experience of envy refers to the mixed emotional reactions, such as anger, shame, and sadness, that result from the comparison. It is generally agreed that there are two major components underlying the experience of envy, namely feelings of inferiority and hostility (Lange et al., 2016). When one initiates upward social comparison, any inadequacy relative to the desired object will be highlighted. This process typically involves self-evaluation (Gerber, Wheeler, & Suls, 2018), resulting in a sense of inferiority. Empirical work supports the role of inferiority in envy; the experience of envy diminishes one's self-esteem (Vrabel et al., 2018). Moreover, it has been demonstrated that envy does not have significant associations with grandiose narcissism, which bolsters one's self-concept with high levels of agency or extraversion, but is positively associated with vulnerable narcissism, which provides no such protection of self-concept (Neufeld & Johnson, 2016). Another major component in envy is the feeling of hostility. The target object in upward comparison is typically considered as unattainable, representing a frustrated desire. This comparison-inspired frustration has been shown to create a sense of hostility (Smith et al., 1999). Apart from regarding the object as unattainable, an envious person also regards the envied person's superiority as a sign of injustice, which breeds a sense of hostility (De Clercq, Haq & Azeem, 2018).

Lange and Crusius (2015) considered this conventional conceptualization of envy to be a malicious form of envy and argued for the existence of another form of envy – benign envy – to refer to envy that lacks this ill will, hostility and resentment. These two forms of envy

differ in the motivations elicited during upward comparison. Malicious envy motivates people to harm superior others, while benign envy encourages people to improve themselves (van de Ven, 2016). Nonetheless, given the overlap with other emotions, it has been proposed that the benign form of envy might be better labeled as admiration or unhappiness (Smith et al., 1999). Hence, consistent with the recent recommendations from Cohen-Charash and Larson (2017), we follow the malicious envy theory and conceptualize envy as a mixed emotional reaction with feelings of both inferiority and hostility.

Some individuals experience envy more often than others, and they habitually exhibit a chronic feeling of envy across various social situations (Cohen-Charash, 2009). This chronic characteristic has been termed dispositional envy, representing a stable personality trait on the tendency to experience envy in general. Individuals with high dispositional envy are expected to develop the chronic feelings of inferiority towards themselves and hostility towards others (Smith et al., 1999). These chronic feelings make people see others' gain as their pain and others' pain as their gain (Takeshi et al., 2009). Moreover, it was observed that dispositional enviers were very perceptive regarding the signs of inferiority and therefore were more likely to perceive situations as implying upward social comparison (Collins, 1996, Smith, Parrott, Ozer, & Moniz, 1994). Given its greater vulnerability to upward social comparison (Mussweiler et al., 2004), we expect that dispositional envy would dampen one's life satisfaction. Empirical findings support this conjecture and reveal that dispositional envy negatively predicts different psychological health indicators, such as life satisfaction and happiness (Briki, 2018). Nonetheless, few studies have examined *why* dispositional enviers have low levels of satisfaction with their lives.

The instrumental theory of personality posited that the effect of dispositional traits on one's satisfaction with life could be worked through an indirect link with one's experience of life events (Steel et al., 2008). Some personality traits are instrumental in creating conditions

that provide more or less intrapersonal or interpersonal resources, promoting or preventing happiness (Lucas & Diener, 2009). For instance, dispositional envy can color how people perceive life events, leading them to react to the same life events in different ways (Hill, DelPriore, & Vaughan, 2011). Thus, dispositional envious are more likely to perceive social situations as implying upward social comparison and experience envy more often (Smith et al., 1994). Since envy typically involves social others, it is expected that dispositional envy limits one's interpersonal resources. These resources, such as closeness in a relationship, are beneficial to one's satisfaction with life (Myers, 1999). Furthermore, envy occurs with a desired object that highlights one's inadequacy. Other than interpersonal resources, we expect that dispositional envy will limit one's intrapersonal resources which bring downstream consequences to life satisfaction. Consequently, in this research, we attempted to examine the link between dispositional envy and life satisfaction, and identify intrapersonal and interpersonal mechanisms underlying this linkage.

It is noteworthy that most of the research about the effect of dispositional envy on life satisfaction has sampled young adults, limiting the generalizability to individuals in different developmental stages. The social ecological framework of personality argues that the effects of dispositional traits on life satisfaction are contingent on the context in which they occur and on the values of those involved (Diener, Lucas, & Oishi, 2018). Other than young adults, adolescence has also been regarded as a critical developmental stage since it is marked by substantial identity formation and a reshaping of social relations (Masselink, Van Roekel, & Oldehinkel, 2018). Thus, it is possible that the ways in which dispositional envy affects life satisfaction through intrapersonal and interpersonal influences is differential across these two age groups. The present research aims at comparing these mediation effects across young adults and adolescents.

3 Self-Esteem as an Intrapersonal Influence of Dispositional Envy

The investigation of underlying mechanisms can fall into two broad domains: intrapersonal and interpersonal (Kong & You, 2013). In this research, we included self-esteem as one of the intrapersonal processes between dispositional envy and life satisfaction. Rosenberg (1965) defined self-esteem as a positive or negative evaluation of the self, which reflects one's sense of self-regard, self-worth, and self-acceptance (Skodol, 1998). It has been suggested that humans require a positive self-concept in order to feel satisfied with their lives (Diener, 1984).

Individuals who possess higher self-esteem are more able to realize their capacities and values, and therefore they tend to enjoy their lives more, maximizing their life satisfaction (Bailey & Miller, 1998). In the face of unfavorable life outcomes, self-esteem serves as a protective factor by providing psychological resources for positive coping strategies against such adverse life events (Orth et al., 2009). A large body of empirical research has been devoted to the link between self-esteem and life satisfaction. Among various psychological factors, self-esteem has been shown to consistently predict life satisfaction (Diener & Diener, 1995). This prediction has been well-validated across cultures (Kwan et al., 1997) and among people in different developmental stages, such as adolescents (Proctor, Linley, & Maltby, 2009) and young adults (Campbell, 1981).

While the link between self-esteem and life satisfaction has been well established, one's dispositional inclination to feel envy should also influence one's level of self-esteem. A core feature in dispositional envy is the feeling of inferiority (Parrott & Smith, 1993; Smith et al., 1999). Dispositional enviers often engage in upward social comparison, which highlights the desired attributes that they lack. Thus, they may develop a chronic sense of inferiority (Smith et al., 1994). Since self-esteem reflects one's sense of self-regard, self-worth, and self-acceptance, the constant feeling of inferiority in dispositional enviers leads to a negative view of the self. Hence, it is expected that dispositional envy decreases one's overall subjective

evaluation of the self and thereby, lowers self-esteem. Previous studies empirically supported this expectation (Cohen-Charash & Mueller, 2007; Krizan & Johar, 2012; Yu et al., 2018). It has been found that when an individual's performance was categorized as poor and self-induced in the upward social comparison, a sense of inferiority was experienced which then lowered self-esteem (Morse & Gergen, 1970; Smith et al., 1999).

In the literature, self-esteem has been regarded as a trait-like variable; an intriguing question was whether self-esteem could be a mediator predicted by dispositional envy. Much of the research considered self-esteem as a stable trait construct, but it is also evident that self-esteem fluctuates considerably across time (Okada, 2010). According to sociometer theory (Leary & Baumeister, 2000), self-esteem functions as a monitoring system on one's relational values. Thus, self-esteem fluctuates when people are devalued by others. Research on the instability of self-esteem indicated that the dispositional traits, such as Big Five personality, predicted the fluctuations of self-esteem over time (Zeigler-Hill et al., 2015). More importantly, Vrabel, Zeigler-Hill, and Southard (2018) found that dispositional envy was associated with the subsequent instability of self-esteem. Hence, by affecting the stability of self-esteem, it is possible that dispositional envy also affects the trait level of self-esteem. Indeed, Joshanloo and Afshari (2011) have demonstrated that the trait level of self-esteem could be a mediator between Big Five personality traits and life satisfaction.

Taken together, we attempt to examine the mediating effect of self-esteem as an intrapersonal factor on the relation between dispositional envy and life satisfaction. Specifically, we expect that dispositional envy will decrease one's sense of self-esteem, which will in turn contribute to a lower satisfaction with life. Given that self-esteem can be regarded as a trait-like variable which primarily exerts influences on other variables, it is possible for dispositional envy, rather than self-esteem, to be a mediator. To provide more robust conclusions in this article, we also test an alternative model in which self-esteem

affects dispositional envy.

4 Social Connectedness as an Interpersonal Influence of Dispositional Envy

Along with the intrapersonal domain, interpersonal factors also affect life satisfaction (Yarnell & Neff, 2013). In addition to self-esteem as an intrapersonal force, one's social relationships as an interpersonal force exert great impact on how people assess their lives (Heine et al., 1999). This phenomenon is especially salient among people in collectivistic cultures (Chang, Osman, Tong, & Tan, 2011; Chen, Chan, Bond, & Stewart, 2006). Myers (1999) noted that feeling closely connected in social relationships seemed to be most beneficial to one's psychological health. Kwan and colleagues (1997) found that relationship harmony with social others predicted one's life satisfaction over and above self-esteem. It is noteworthy that harmony in relationships does not necessarily imply a perception of social connectedness. Absence of interpersonal conflicts can contribute to a feeling of harmony but not to a feeling of social connectedness.

The perception of social connectedness reflects a subjective sense of closeness and togetherness with the social world (Lee & Robbins, 1995), indicating a global assessment of interpersonal connections from a social other to a larger society. The social connectedness with others (e.g., friends and family) provides sufficient social resources and support to buffer the physical responses and psychological reactions resulting from unfavorable life events (Lin et al., 1979; Sommer, 1990). Among adolescents, it has been demonstrated that the social connectedness with family, teachers and school contributed to greater life satisfaction and fewer depressive symptoms (Gilman & Huebner, 2006; Greenberger, Chen, Tally, & Dong, 2000). Hence, given its well-documented function in life satisfaction, we expect that social connectedness will serve as an interpersonal mechanism, channeling the effect of dispositional envy to one's overall evaluation of life.

The measurement of social connectedness can be on a specific target (e.g., friends and

family), but the target-specific social connectedness may not correctly reflect the social connectedness across different individuals (e.g., young adults and adolescents). For instance, young adults and adolescents may perceive the same level of social connectedness in general, but differ in targets; it is possible that young adults tend to connect more with a romantic partner, while adolescents connect more with friends. In this article, to facilitate the comparison between young adults and adolescents, we targeted a global sense of social connectedness with social others in general.

Although there are no empirical studies directly testing the link between dispositional envy and social connectedness, it can be implied from the theoretical conceptualization and previous findings. Another core feature among dispositional enviers is the feeling of resentment, hostility and ill will (Smith et al., 1994, 1999). This hostile aspect makes dispositional envy distinct from other individual difference variables, which are characterized merely by inferiority-based feelings of discontent (Smith et al., 1996). In upward social comparison, the feeling of frustration brought about by an unattainable desire and the feeling of injustice brought about by the violation of the “ought rule” are the natural results. These feelings of frustration and injustice can evoke anger, hostility, and ill will (Berkowitz, 1989, Brown, 1986). Thus, dispositional enviers develop a chronic sense of resentment, hostility and ill will from frequent upward social comparison.

The hostility of dispositional enviers takes away their enjoyment that can be felt at others’ good fortune, and can even result in the enjoyment of others’ misfortune (Takeshi et al., 2009). In an effort to prevent others from experiencing good fortune, dispositional enviers tend to perform fewer prosocial actions and are less cooperative with other people (Parks, Rumble, & Posey, 2002; Yu, Hao, & Shi, 2018). If others encounter misfortune, enviers exhibit *schadenfreude* (Cohen-Charash & Mueller, 2007) and express joy at another’s suffering (Leach, Spears, Branscombe, & Doosje, 2003). These behaviors performed by

enviers will not be seen as favorable by their interaction partners, bringing a detrimental effect to their social network or even the termination of relationships. Consequently, the poor quality and termination of social relationships may attenuate the feeling of being socially connected with others among dispositional enviers.

Overall, we attempt to investigate the mediating effect of social connectedness as an interpersonal factor on the relation between dispositional envy and life satisfaction. It is expected that dispositional envy will lower one's sense of feeling connected with their social environment, which will in turn lower one's satisfaction with life. As mentioned previously, it is possible that the effect of dispositional envy on life satisfaction is contingent on the context and values of those involved. The mediating effects of self-esteem and social connectedness between dispositional envy and life satisfaction are likely to vary as well. Since much of the research on dispositional envy has sampled young adults, the present research aims to extend beyond previous studies to include individuals in different developmental stages. Hence, we will examine the mediating roles of self-esteem and social connectedness in the two critical developmental stages of young adulthood and adolescence.

5 Intrapersonal Versus Interpersonal Pathways Among Adolescents and Young Adults

The social ecological framework of personality posits that the impact of the dispositional trait on happiness is context-dependent (Diener, Lucas, & Oishi, 2018). This framework is also termed the interactionalist perspective, in which one's goals, social norms and societal resources affect how dispositional traits manifest in life satisfaction (Ahuvia, Thin, Haybron, Biswas-Diener, Ricard, & Timsit, 2015). The goals, social norms, and attainable resources can change dramatically from children to older adults, which may associate with the impact of personality across one's lifespan (Lucas & Diener, 2000). Thus, from the interactionalist perspective, the effect of dispositional envy on life satisfaction may be contingent on one's developmental stages. In this research, we aim at testing whether self-esteem and social

connectedness constitute the intrapersonal and interpersonal pathways among young adults and adolescents. Both developmental stages of young adulthood and adolescence involve substantial identity formation and the reshaping of social relations (Masselink, Van Roekel, & Oldehinkel, 2018). The life course perspective suggests that although these two missions are comparably critical across stages, there are qualitative differences during the transition (Lee & Goldstein, 2016). For instance, the areas for identity exploration and the sources and forms of social support may vary; adolescents may be more concerned with academic issues and peers, whereas young adults focus more on work and romantic partners (Arnett, Žukauskienė, & Sugimura, 2014). Hence, it is tenable that self-esteem, which reflects one's view of self, and social connectedness, which reflects one's view of social relationships, mediate the effect of dispositional envy on life satisfaction differently across young adults and adolescents.

Previous studies have demonstrated the intrapersonal and interpersonal influences on life satisfaction across these two age groups. For instance, Yang (2016) found that life satisfaction was positively correlated with both intrapersonal (i.e., sense of self-enhancement, $r = .33$) and interpersonal factors (i.e., relationship harmony, $r = .36$) among young adults. Furthermore, through a stringent statistical comparison, Kwan and colleagues (1997) examined the relative importance of intrapersonal and interpersonal pathways. They demonstrated that intrapersonal (i.e., self-esteem, $\beta = .45$) and interpersonal (relationship harmony, $\beta = .37$) factors equally mediated the effect of personality traits on life satisfaction. Among adolescents, both self-competency perceptions ($r = .40$) and peer relatedness ($r = .40$) were also found to correlate with life satisfaction (Beiswenger & Grolnick, 2010). It is noteworthy that the relative importance between intrapersonal and interpersonal influences within each age group (viz., young adults and adolescents) does not necessarily imply a relative importance between groups. For instance, an intrapersonal factor can be more important than an interpersonal factor in each of the two age groups, but it does not mean the

intrapersonal factor between the two age groups is equally important. Overall, although the intrapersonal and interpersonal influences on life satisfaction are supported in young adults and adolescents, the magnitudes are not necessarily equivalent. Moreover, previous research conducted on the two age groups used different measures for intrapersonal and interpersonal factors, which made the comparison of magnitude difficult and unreliable. Consequently, we attempt to compare the intrapersonal and interpersonal pathways underlying the effect of dispositional envy on life satisfaction across young adults and adolescents with the same set of measurements.

6 The Present Research

To summarize, our objectives were four-fold. First, we aimed at testing whether self-esteem as an intrapersonal mediator would account for the relationship between dispositional envy and life satisfaction in both young adults and adolescents. Second, we tested whether social connectedness as an interpersonal mediator would account for the relationship between dispositional envy and life satisfaction in the two age groups. Third, we attempted to statistically compare the importance of the intrapersonal mediator and interpersonal mediator in each age group. Finally, we attempted to statistically compare whether the mediation effects are equivalent between the two age groups. Guided by these objectives, a comparative study was conducted in young adults and adolescents.

7 Method

7.1 Participants and Procedure

Data were collected from a total of 1,033 participants in Hong Kong. Among them, 359 adolescents (151 females) were recruited from five different grades in a secondary school (equivalent to Grade 7 to 11 in the American school system) with an age range of 11 to 16 ($M_{age} = 13.25$, $SD = 1.28$), and 674 undergraduate students were recruited from a university (502 females) with an age range of 17 to 31 ($M_{age} = 20.46$, $SD = 2.18$). Assuming a moderate

size of correlations ($\rho = 0.3$) among variables, a priori power analysis via the Monte Carlo simulation method was conducted to estimate the required sample size in testing a dual-mediator model. It was estimated that a sample of three hundred participants in each group would provide 90% of statistical power (Schoemann, Boulton, & Short, 2017). Thus, in the present study, we recruited a sample larger than the required sample size. Informed consent was obtained in advance from all participants, as well as the parents of the adolescents. Upon recruitment, participants were instructed to complete the questionnaire consisting of the following measures, and also to report demographic information, such as age and gender.

7.2 Measures

Dispositional Envy. The 8-item Dispositional Envy Scale (Smith et al., 1999) was used to assess a chronic tendency to feel envy as a stable trait. Respondents rated each item 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” ($\alpha = .92$ and $.87$ for adolescents and young adults, respectively).

Social Connectedness. The 5-item Social Connectedness Scale (Yoon, Lee, & Goh, 2008), a modified version based on Lee and Robbins’s (1995) study, was used to measure a global sense of connectedness with general others and the society.¹ Respondents rated each item on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). A sample item includes “I feel a sense of closeness with others” ($\alpha = .88$ and $.90$ for adolescents and young adults, respectively).

Self-Esteem. The 10-item Rosenberg Self-Esteem Scale (Rosenberg, 1965) was adopted to capture an overall evaluation of self-worth (e.g., “I have a number of good qualities”). The

¹Lee and Robbins (1995) developed the Social Connectedness Scale in Western culture, and their items were more likely to measure social disconnectedness than social connectedness. Yoon, Lee, and Goh (2008) modified the wording of items to measure social connectedness, rather than the social disconnectedness of the original scale. Their modified version was also validated among East Asians. Since we targeted East Asians (Hong Kong Chinese) as our participants, we adopted the modified version developed by Yoon, Lee, and Goh (2008) to enhance the applicability in the present research.

ten items were rated on a 4-point Likert scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*) ($\alpha = .83$ and $.87$ for adolescents and young adults, respectively).

Life Satisfaction. The 5-item Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985) was used to measure participants' overall evaluation of their life. The five items in the Satisfaction with Life Scale were anchored on 7-point scales ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). A sample item is "In most ways my life is close to my ideal" ($\alpha = .87$ and $.87$ for adolescents and young adults, respectively).

8 Results

8.1 Metric Equivalence Between Young Adults and Adolescents

Descriptive statistics and bivariate correlations in young adults and adolescents are summarized in Table 1. To meaningfully test and compare the intrapersonal and interpersonal influences of dispositional envy between young adults and adolescents, multiple-group confirmatory factor analysis was first performed to confirm both configural and factorial invariance in the measurements. The latent factor was fitted with parceling; two to four indicators were randomly combined into three parcels (Little, Cunningham, Shahar, & Widaman, 2002).

First, the configural models displayed a satisfactory fit to the data, $\chi^2(104) = 264.80, p < .001$, CFI = .978, NNFI = .973, RMSEA = .055, 90% CI for RMSEA [.046, .063], and SRMR = .042, indicating that the four-factor model had an equivalent factor structure in young adults and adolescents. Second, to test for factorial invariance, factor loadings were fixed to be equal across two age groups. The restricted model also fitted the data well, $\chi^2(112) = 304.41, p < .001$, CFI = .974, NNFI = .969, RMSEA = .058, 90% CI for RMSEA [.050, .065], and SRMR = .060. All factor loadings were statistically significant, ranging from .63 to .94 with an average of .82. A goodness of fit comparison was performed to check whether the model fit in the restricted model dropped significantly. Rather than depending on

the chi-square difference statistic, which is sensitive to sample size and violation of normality assumption (Chen, 2007; Cheung & Rensvold, 2002), we adopted the recommendation proposed by Chen (2007) in which ΔCFI less than .010 supplemented with $\Delta RMSEA$ less than .015 or $\Delta SRMR$ less than .030 indicate model invariance. Most critically, results showed that the factor loadings in the measurement model were equivalent between the two age groups, $\Delta CFI = -.004$, $\Delta RMSEA = .003$, $\Delta SRMR = .018$.

Taken together, the current results indicated not only configural invariance, but also the factorial invariance of instruments between the two age groups, thereby allowing meaningful comparison of the intrapersonal and interpersonal influences of dispositional envy across young adults and adolescents.

8.2 The Intrapersonal Influence of Dispositional Envy Through Self-Esteem

To test the dual-mediator model over the two age groups, multiple-group structural equation modeling was employed (Figure 1A). In each group, the latent factor of life satisfaction was regressed on the latent factors of self-esteem, social connectedness and dispositional envy, while two latent mediators were regressed on the latent factor of dispositional envy. In this dual-mediator model, the latent mediation effects of self-esteem and social connectedness can be uniquely quantified. The multiple-group structural equation model had an acceptable fit to the data, $\chi^2(114) = 402.64$, $p < .001$, $CFI = .961$, $NNFI = .955$, $RMSEA = .070$, 90% CI for $RMSEA$ [.063, .077], and $SRMR = .084$ (Figure 2).

Among young adults, dispositional envy was negatively associated with self-esteem, $b = -.46$, $\beta = -.65$, $p < .001$, which in turn positively linked to their life satisfaction, $b = .78$, $\beta = .33$, $p < .001$. To quantify and conduct an inferential test for the latent mediation effect, a 95% bias-corrected bootstrap confidence interval based on 10,000 bootstrap samples was computed. Results indicated that the latent mediation effect of dispositional envy on life satisfaction through self-esteem was significant, $b = -.36$, $\beta = -.22$, 95% bias-corrected

bootstrap CI [-.30, -.13] while the direct effect did not reach the significant level, $b = -.17$, $\beta = -.10$, $p = .060$ (Table 2). Among adolescents, dispositional envy was also negatively associated with self-esteem, $b = -.27$, $\beta = -.48$, $p < .001$, which in turn positively linked to their life satisfaction, $b = 1.08$, $\beta = .50$, $p < .001$. The latent mediation effect was also significant, $b = -.29$, $\beta = -.24$, 95% bias-corrected bootstrap CI [-.34, -.14], supplemented by a non-significant direct effect, $b = -.05$, $\beta = -.04$, $p = .453$ (Table 2). As a whole, the latent mediation analysis provided empirical support for the link between dispositional envy and how people evaluate their life through lowered self-worth. Moreover, this intrapersonal influence was evident among both young adults and adolescents.

8.3 The Interpersonal Influence of Dispositional Envy Through Social Connectedness

As well as exerting an intrapersonal influence, dispositional envy was also expected to create poor interpersonal dynamics, which affect how people evaluate their life. Among young adults, dispositional envy was negatively associated with social connectedness, $b = -.67$, $\beta = -.50$, $p < .001$, which in turn positively linked to their life satisfaction, $b = .47$, $\beta = .38$, $p < .001$. The latent mediation effect was found to be significant, $b = -.31$, $\beta = -.19$, 95% bias-corrected bootstrap CI [-.25, -.13] (Table 2). Adolescents also consistently showed a significant latent mediation effect of social connectedness, $b = -.09$, $\beta = -.07$, 95% bias-corrected bootstrap CI [-.12, -.02] (Table 2). Dispositional envy was negatively associated with adolescents' social connectedness, $b = -.29$, $\beta = -.26$, $p < .001$, which in turn positively linked to their life satisfaction, $b = .30$, $\beta = .27$, $p < .001$.

Taken together, it is evident that dispositional envy could affect one's life satisfaction through two distinct channels – the intrapersonal pathway, through lowered self-esteem, and the interpersonal pathway, through reduced social connectedness. These two mechanisms were evident among both young adults and adolescents. All the effects remained significant in the dual-mediator model in the two samples after controlling the covariates of age and

gender.

8.4 Within-Group Comparisons of Intrapersonal and Interpersonal Influences

As shown in the above analyses, both intrapersonal and interpersonal influences of dispositional envy were evident in each group. However, it is unclear whether the intrapersonal and interpersonal pathways account the same amount of covariance between dispositional envy and life satisfaction. Hence, for the third objective in this research, we compared the indirect effects of self-esteem and social connectedness in each group. Through imposing non-linear constraints in each sample, the within-group comparison indicated the indirect effects of self-esteem and social connectedness did not significantly differ from each other among young adults, $b = -.04$, $\beta = -.03$, $p = .588$. For adolescents, results showed that the indirect effect of self-esteem was statistically stronger than the indirect effect of social connectedness, $b = -.21$, $\beta = -.17$, $p < .001$. As a whole, the within-group comparison demonstrated that although dispositional envy can associate one's life satisfaction both intrapersonally and interpersonally, their relative importance in affecting life satisfaction varied across the two age groups. Thus, the intrapersonal effect through self-esteem was as important as the interpersonal effect through social connectedness among young adults, but more important than the interpersonal effect through social connectedness among adolescents.

8.5 Between-Group Comparisons of Intrapersonal and Interpersonal Influences

Although we found that the intrapersonal influence of dispositional envy on life satisfaction was stronger than the interpersonal influence among adolescents, the relative importance of the intrapersonal and interpersonal influences of dispositional envy on life satisfaction between the two groups was still unclear. Hence, to further ascertain the effect of dispositional envy on life satisfaction between the two groups, we compared the indirect effects of dispositional envy on life satisfaction via self-esteem and social connectedness.

Through imposing non-linear constraints across samples, the between-group comparison indicated the indirect effect via self-esteem did not significantly differ between young adults and adolescents, $b = -.06$, $\beta = -.02$, $p = .423$. This showed that the role of the intrapersonal influence from dispositional envy to life satisfaction was equally important among age groups. On the other hand, the indirect effect via social connectedness was significantly stronger for young adults than for adolescents, $b = -.23$, $\beta = -.11$, $p < .001$.

Taking all these findings together, it is clear that dispositional envy generally had an impact on the participants' evaluation of life both intrapersonally and interpersonally. We found that intrapersonal and interpersonal pathways can be distinct from each other and differentially influential depending on the surrounding contexts. The current empirical findings revealed that the mechanism of how one views the self, which underlies the negative association between envy and life satisfaction, was equally important among the two age groups, but the mechanism of how one is related to others was stronger in young adults than in adolescents.

8.6 Comparison to an Alternative Model: Does Dispositional Envy Mediate the Effects of Self-Esteem and Social Connectedness on Life Satisfaction?

As shown in the above analyses, the proposed model (Figure 1A) showed that self-esteem and social connectedness fully mediated the effect of dispositional envy on life satisfaction in the two groups (see Table 2, First model). To draw robust conclusions, we formulated and tested an alternative model in which dispositional envy was a mediator to account for the influences of self-esteem and social connectedness on life satisfaction (Figure 1B).

It is possible that people who have a chronic sense of inferiority about themselves, as reflected in their low self-esteem, are more sensitive to signs indicating their inadequacy, and are thereby more likely to engage in upward comparison (Collins, 1996). Moreover, poor

social connectedness can result in less social support being obtained from one's social network, granting individuals fewer social resources to regulate the negative emotions and hostile feelings arising from the upward comparison (Marroquín, 2011). Taken together, poor self-esteem and social disconnectedness can jointly explain a stable tendency to react negatively in the face of upward social comparison, as captured by dispositional envy. Therefore, in line with this rationale, it can be assumed that self-esteem and connectedness can negatively predict dispositional envy, which in turn dampens one's life satisfaction. To rule out this alternative model, we examined whether the mediation effects depicted in the alternative model receive empirical support in this research.

Results indicated that the four latent mediation effects were statistically non-significant, except for the effect on self-esteem among young adults, $b = .15$, $\beta = .06$, 95% bias-corrected bootstrap CI [.00, .12] (see Table 2, Second model). Thus, the second model received less empirical support than the first model, confirming the mediating roles of self-esteem and social connectedness.

9 Discussion

The present research examined the link between dispositional envy and life satisfaction in both adolescents and young adults. Previous studies have demonstrated that a chronic tendency to feel envy negatively associated with psychological health among young adults (Smith et al., 1999). The present research attempted to extend this association to adolescents. First, we found a negative association between dispositional envy and life satisfaction in these two age groups. Second, we studied how dispositional envy associated with life satisfaction by including self-esteem as an intrapersonal mediator and social connectedness as an interpersonal mediator. Our results indicated that the two variables uniquely mediated the negative association between dispositional envy and life satisfaction, revealing that this negative association could be disentangled into two distinct pathways. Both self-esteem and

social connectedness fully mediated the effect of dispositional envy in the two age groups. Interestingly, the relative importance of the two mediation effects varied across the two groups. In a relative sense, self-esteem and social connectedness equally mediated the effect of dispositional envy in young adults, while the mediation effect of self-esteem was stronger than that of social connectedness in adolescents. In an absolute sense, the mediation effects of self-esteem were comparable across the two age groups, while the mediation of social connectedness in adolescents was weaker than that in young adults. Finally, we ruled out the alternative model by inferring the direction of the influence from dispositional envy to self-esteem and social connectedness rather than the other way around. Taken together, these findings enriched our understanding of life satisfaction among dispositional enviers, identifying the underlying mechanisms, and shed light on how these mechanisms vary between the two developmental stages.

9.1 The Negative Association Between Dispositional Envy and Life Satisfaction in Adolescents and Young Adults

Dispositional envy has been found to negatively correlate with life satisfaction in both young adults and adolescents. Regardless of the different emphasis placed on values and goals by the two age groups, a chronic inclination to feel envy is psychologically detrimental. Envy arises from an upward comparison with an envied target on a desired object. The desired object is most likely in a self-relevant domain. The feeling of envy emerges when one perceives inadequacy, threatening his or her self-concept (Smith & Kim, 2007). Young adults and adolescents tend to focus on different domains when evaluating the self (e.g., career aspiration vs. academic performance) and therefore what threatens the self-concept may vary across the two age groups. Though the desired objects or threatening events may vary, members of both groups experience envy at some point in their lives. Furthermore, one prominent marker for envy-inducing social comparisons is the perceived similarity of an

envied target (Henniger & Harris, 2015). Although the envied target may vary across developmental stages since the perceived similarity of a person is contingent on the circumstances, similar others can still be identified and elicit certain envy-inducing upward comparisons. Hence, how young adults and adolescents evaluate their lives can still be affected by the chronic experience of envy. Our research indicates that the effect of dispositional envy is stronger in young adults than that in adolescents. It is possible that young adults may envy those younger than them (e.g., adolescents) and compare their younger selves with the adolescents, while adolescents may not envy the older version of themselves since there are still opportunities to achieve what the young adults have achieved. As a consequence, the young adults' evaluation of life is more affected by dispositional envy than that in adolescents.

The present research sheds light on the differential effect of experiencing envy across developmental stages. To further consolidate the results of the present study, examination of other form of envy across developmental stages may help. The present research focuses on the malicious form of envy. As previously mentioned, there is another form of envy – benign envy, which refers to envy without ill will, hostility and resentment (van de Ven, 2016). Benign envy encourages people to improve themselves and enhances life satisfaction and happiness (Briki, 2018). Thus, a positive, rather than negative, association between dispositional envy and life satisfaction is expected when a benign form of envy is examined. Additionally, if the differential association between the experience of envy and life satisfaction across developmental stages is reliable, the positive association between benign envy and life satisfaction may reveal variations across young adults and adolescents. Conceptually speaking, from a lifespan perspective of emotion regulation, as people accumulate experience through life, they may learn more optimal strategies to handle feelings of anger. Older people generally report they are less likely to experience anger (Zimprich &

Mascherek, 2012). Thus, feeling less anger may result in feeling less hostility towards the envied target in young adults than in adolescents. As such, young adults may be more likely to experience benign envy than adolescents and thus it has a stronger effect on life satisfaction than that in adolescents. Future studies can be conducted to examine the effect of benign envy across developmental stages, contributing to a more consolidated conclusion about the differential effect of experiencing envy across developmental stages.

9.2 The Roles of Self-Esteem and Social Connectedness in Adolescents and Young Adults

The present findings reveal that the mediating effect of social connectedness is stronger in young adults than that in adolescents. According to the life course perspective, the salience of a given relationship evolves across developmental stages (Umberson et al. 2010). The impact of or the support from that relationship also varies dynamically, depending on the social context. During the transition from adolescence to young adulthood, friends may outweigh parents as the major source of social support and intimacy in adolescents, whereas romantic relationships become more central to young adults, especially in emerging adulthood (Arnett, 2015). Given the different types of social relationship in the two age groups, social connectedness is likely to be perceived from different sources. The perceived closeness with friends and romantic partners can serve as social capital to buffer or mitigate the detrimental effect of stressful life events on one's life satisfaction (Lee & Goldstein, 2016). Nonetheless, the strength as a buffer varies across the types of relationship. Some stressful life events require more instrumental and informational support (e.g., money, knowledge, or guidance) than emotional support (e.g., comfort or time for disclosure). A romantic partner as a major social resource during young adulthood can provide more consultations and suggestions about life choices than can peers as a major social resource during adolescence. Thus, it is possible that the social connectedness perceived by young adults reflects the greater tangible resources received from social relationships than that

perceived by adolescents, and thus social connectedness exerts a stronger influence on life satisfaction.

Alternatively, the need for belongingness may differ in young adults and adolescents. It has been proposed that the environmental change from high school to college affects the developmental need for intimate friendships (Arnett, 2015). The transition to college in young adults often involves stepping away from certain long-standing peer relationships, likely weakening those relationships. This increases the discrepancy between desired and achieved social intimacy, triggering stronger loneliness in young adults (Qualter et al. 2015). Hence, social connectedness can be seen as more important in young adults than in adolescents, bringing a stronger mediating effect. Moreover, social connectedness can be a two-edged sword to adolescents. Peer relationships can also be a source of interpersonal stress which increases depressive symptoms during adolescence (Masselink et al., 2018). Being highly connected with peers can increase one's reliance on peers. This may intensify the adverse effects of interpersonal relationships when there are challenges and conflict, reducing the beneficial effect of social connectedness in adolescents.

The current findings indicate that the effect of self-esteem on life satisfaction is invariant in the two age groups, which is consistent with previous studies that found age does not moderate the influence of self-esteem (Moksnes & Espnes, 2013). In specific, Orth, Robins and Roberts (2008) found that the prospective effect of self-esteem on depression is comparable across adolescence and young adulthood. Overall, these findings revealed that the development of the self-concept is equally important during adolescence and young adulthood. Although adolescence is the developmental stage which is typically associated with identity formation, it has been proposed that the crisis of identity versus role confusion can extend beyond adolescence in industrialized societies (Erikson, 1968). This prolonged identity exploration takes place in the period of emerging adulthood from (roughly) ages 18

to 25 (Arnett, 2000), which matches with our current sample. The prolonged identity exploration concentrates on the areas of love, work, and worldviews. While these areas differ from those focused on during adolescence, the evaluation of self remains critical in the two age groups (Arnett, 2000). Thus, it is possible that the sense of self-worth is regarded as important in both groups, and contributes a comparable influence on life satisfaction.

9.3 Study Limitations and Directions for Future Research

This study has a number of limitations. First, the present research used a cross-sectional design in which psychological constructs are measured at the same time point. Causal relationships cannot be inferred by the current design since the temporal directions among the variables remains unclear (Maxwell, Cole, & Mitchell, 2011). Although researchers often assume that dispositional traits which are stable over time are more likely to influence the more transient evaluation of life satisfaction, the reverse causal direction can also be true (Lucas, 2008). Thus, it is possible that a persisting high level of life satisfaction offers more personal resources captured by self-esteem and more social resources captured by social connectedness, and thus leads to lower levels of envy. Longitudinal studies examining these constructs from adolescence to young adulthood should be conducted in order to determine the temporal directions.

Second, the present research was conducted in Hong Kong China, which has been regarded as a collectivistic culture in the literature (Chen, Ng, Buchtel, Guan, Deng & Bond, 2017). Building upon the central characteristics of collectivism (versus individualism), members of collectivistic cultures tend to put more emphases on the interdependent self. As such, the social relationships in members of collectivistic cultures generally have a greater influence on whether they fare well in life than the social relationships in members of individualistic cultures (Kwan et al., 1997). Thus, the present findings should be interpreted cautiously without over-generalization to the context of individualistic cultures. The present

research conducted in a collectivistic culture reveals that intrapersonal mechanism between dispositional envy and life satisfaction is more important than interpersonal mechanism among adolescents, and they are equally important among young adults. It is possible that in individualistic cultures, the differences in importance will become larger in which intrapersonal mechanism between dispositional envy and life satisfaction will become much more important than interpersonal mechanism among both adolescents and young adults. For instance, the experience of envy may diminish individualists' life satisfaction by reducing self-esteem rather than social connectedness since they value the autonomous self and perceived competence more. Future studies should be conducted in both cultures to ascertain these conjectures.

Finally, the present research regards the self-reported social connectedness as an interpersonal factor. Although this approach has been widely used to assess interpersonal judgements in the literature (Denissen, Penke, Schmitt, & Van Aken, 2008; Hutteman, Nestler, Wagner, Egloff, & Back, 2015), this approach is sometimes regarded as an intrapersonal perception of an interpersonal element (Wagner et al., 2017). The intrapersonal perception of social connectedness is able to capture a subjective sense of closeness and togetherness with the social world. However, this intrapersonal perception can be a biased measure of an objective interpersonal dynamic. One major source of bias is the assumed similarity (Kenny & Acitelli, 2001) with which individuals may base on how they socially connect with others to infer how others actually socially connect with themselves. Thus, the intrapersonal perception of social connectedness may not necessarily reflect an objective interpersonal judgement. For instance, one's intrapersonal perception of social connectedness may underestimate or overestimate instrumental and emotional support received from social others. Future studies can utilize the dyadic design to measure the interpersonal perception of social connectedness.

In conclusion, through examining the dual-process model, we identify an intrapersonal mechanism of self-esteem and an interpersonal mechanism of social connectedness to explain the negative association between dispositional envy and life satisfaction. The comparisons of mediation effects between adolescents and young adults shed light on the similarities and differences between these two age groups.

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