Curr Psychol (2018) 37:188–197
DOI 10.1007/s12144-016-9502-7

Asian Adults' Hypercompetitiveness and Distress: the Mediating Role of a Negative Problem-Solving Orientation

Jacob Yuichung Chan[1] · **Lawrence H. Gerstein**[1] · **Rebecca Kinsey**[1] · **Annis L. Fung**[2]

Published online: 20 September 2016

Abstract One hundred and thirty one parents/guardians of primary school students in Hong Kong participated in the current study designed to assess whether a negative problem solving orientation (NPO) mediates the relationship between hypercompetitiveness and distress. Individuals high in hypercompetitiveness were expected to experience more distress, and this experience was thought to occur through the utilization of a NPO. Participants completed the Hypercompetitive Attitude Scale, the Social Problem Solving Inventory-Revised, and the K10. Results of a mediation regression analysis supported the hypotheses. Specifically, individuals high as compared to low in hypercompetitiveness endorsed more distress. Further, consistent with previous research, a partial mediational role of a NPO on the relationship between hypercompetitiveness and distress was discovered. As predicted, the relationship between hypercompetitiveness and distress, though still significant, was weakened after entering responses to the NPO subscale into the mediational model. The type of social problem solving orientation (e.g., NPO) the hypercompetitive participants identified with contributed to their level of distress. The findings suggest psychologists may help hypercompetitive clients identify more adaptive ways to problem solve to reduce their distress.

Keywords Hypercompetitiveness · Distress

✉ Jacob Yuichung Chan
ychan@bsu.edu

[1] Ball State University, Department of Counseling Psychology, Social Psychology, and Counseling, Muncie, IN 47306, USA

[2] Department of Applied Social Sciences, City University of Hong Kong, Kowloon Tong, Hong Kong

Hypercompetitiveness has been discussed since the 1930s when Karen Horney wrote about the neurotic individual (Horney 1937), although it has only been empirically measured since the 1990s after the development of the Hypercompetitive Attitude Scale (HCA) (Ryckman et al. 1990). According to Horney (1937), characteristics of a hypercompetitive individual include wanting to win at any cost in order to maintain his or her feelings of superiority. However, underneath these competitive attitudes tends to be a lack of self-esteem. Thus, hypercompetitive individuals may fear that if they lose a competition, others may discover they lack ability and are therefore inferior (Horney 1937). The characteristics of hypercompetitive persons may lead them to experience a substantial amount of psychological distress. However, to our knowledge, no research has assessed the link between hypercompetitiveness and distress, nor how specific problem solving abilities could play a role in this relationship. Because we were interested in the negative emotional affects of hypercompetitiveness, we utilized the K10 to measure this construct, as it is a valid, reliable, and commonly used instrument across disciplines that specifically measures psychological distress. Further, it has been translated into Chinese; the language of the participants in this study.

Hypercompetitiveness, to date, primarily has been a Western construct and has not been investigated in Eastern, specifically Asian, cultures. Drawing from previous research about the hypercompetitive individual, we hypothesized that hypercompetitive individuals experience psychological distress, but this happens through a possible utilization of a negative social problem solving orientation. Thus, the current study aimed to elucidate the relationship among hypercompetitiveness, distress, and social problem solving ability. Additionally, previous research has only focused on hypercompetitiveness within the Western culture. Consequently, we were interested in addressing the gap in

the literature by sampling adults in an Eastern culture, specifically Hong Kong.

Hypercompetitiveness

Horney (1937) first discussed the concept of hypercompetitiveness in her exploration of the neurotic individual. She reported that the hypercompetitive individual constantly compares his/her self to others and hopes to achieve more than others in order to be seen as successful, as well as "unique and exceptional" (Horney 1937, p. 189). These individuals will do anything to achieve recognition. If they do not achieve recognition, they tend to give up trying to achieve their goals, which can result in depression (Ryckman et al. 1990). Thornton et al. (2011a), b) found that hypercompetitiveness was associated with the Impatient-Irritability factor of Type A behavior. This facet of type A behavior is related to maladaptive characteristics such as anger and hostility as well as health concerns, especially cardiovascular problems. Hypercompetitiveness was not related, however, to the Achievement Striving facet of Type A behavior, which is characterized by a hard working mentality to achieve goals. Additionally, Thornton et al. discovered that endorsement of hypercompetitive attitudes did not relate to individuals' actual achievement as measured by cumulative grade point average. Thus, even though hypercompetitive individuals want to win to prove they are worthy, they are not endorsing attitudes that will lead them to actually achieving those goals. Rather, their attitudes and behaviors are related to hostility, which supports Horney's (1937) original conceptualization of hypercompetitiveness.

Hypercompetitiveness has also shown to be related to higher levels of neuroticism, dogmatism, mistrust, and authoritarianism (Dru 2003; Ryckman et al. 1990). Individuals high in hypercompetitiveness tend to have less concern for others (Ryckman et al. 1997), forgive less (Collier et al. 2010), and be lower in agreeableness (Ross et al. 2003) compared to those low in hypercompetitiveness. In addition, the hypercompetitive person hopes to gain prestige, power, and possession (Horney 1937). Ryckman et al. (1997) found participants had a desire to gain social power including control over others. According to Horney (1937), these quests, especially power, stem from the person experiencing anxiety, hatred, and inferiority. Perhaps this need for power and control is related to narcissism. In fact, Ryckman, Thornton, and Butler (1994) found that individuals high in hypercompetitiveness were also high in narcissism. Additionally, Watson et al. (1997) discovered hypercompetitiveness was positively correlated with all factors of narcissism (Exploitative/Entitlement, Leadership/Authority, Superiority/Arrogance, and Self-Absorption/Self-Admiration), although it was most strongly associated with the Exploitative/Entitlement factor. More recently, Luchner et al. (2011) found that hypercompetitiveness predicted overt and covert narcissism, which has been found to be related to distress (Weikel et al. 2010). Specifically, overt narcissism positively predicted the depression and anxiety factor of emotional distress in men and the depression component of emotional distress in women. Moreover, covert narcissism positively predicted both factors of emotional distress in men, but only the anxiety factor in women (Weikel et al. 2010). Narcissism also has been linked to self-esteem. Zeigler-Hill and Besser (2013) discovered that individuals with higher scores on the Entitlement/Exploitative factor of narcissism and higher narcissistic vulnerability (defined as "conscious experience of helplessness, emptiness, low self-esteem, and shame" [Pincus et al. 2009, p. 367]) had lower self-esteem. Not surprisingly, because hypercompetitive persons seem to have narcissistic traits, they also appear to have lower self-esteem. For instance, Ryckman et al. (1994) claimed that after partialing out narcissism, there was a significant negative relationship between hypercompetitiveness and self-esteem. Watson et al. (1997) and Ryckman et al. (1990) also found hypercompetitiveness to predict lower self-esteem. Thus, it seems as though hypercompetitive individuals may initially present themselves in a way that indicates they think highly of themselves, but underneath this facade may be a lack of self-worth and emotional distress.

Before continuing, it is important to distinguish the difference between hypercompetitiveness and competitiveness. As delineated in the previous paragraphs, hypercompetitiveness has generally been related to negative characteristics (e.g., Impatient- Irritability factor of Type A behavior, dogmatism, and narcissism) and is seen as maladaptive; whereas competitiveness has not been linked with those same negative characteristics. For instance, Ryckman et al., (1996) discovered hypercompetitiveness was significantly positively related to aggression, dominance, and exhibition scales of the Edwards Personal Preferences Schedule (Edwards 1959) whereas competitiveness was not related to these scales. In fact, competitiveness but not hypercompetitiveness was significantly positively correlated with achievement. Additionally, Luchner et al. (2011) found competitiveness to be negatively associated with covert forms of narcissism and hypercompetitiveness to be positively associated with covert narcissism. Recently, Houston et al., (2015) found hypercompetitiveness to be positively associated with Machiavellianism and competitiveness, but competitiveness was not also found to be associated with Machiavellianism. Overall, hypercompetitiveness appears to fall on the more severe end of the "competitiveness" continuum as it is described as more dysfunctional and negative compared to the traditional sense of competitiveness.

Although competitiveness has not been found to be linked to the same maladaptive constructs using samples in the United States, competitiveness measured in samples from China has been linked to conflict and productivity issues

within groups but this depended on whether the participants had individualistic or collectivist values. The Chinese culture is considered collectivistic, which tends to be associated with putting harmony among individuals as a priority (Morris et al. 1998). Tjosvold et al. (2003) found that Chinese participants with individualistic values tended to have competitive goals and are less likely to engage in constructive controversy (ability to cooperatively problem solve with others to reach a goal). Because these participants with individualistic attitudes wanted to win, they were not as likely to value others' opinion in groups compared to participants with collectivistic values whom were more likely to engage in constructive controversy (Tjosvold et al. 2003). Tjosvold et al. (2008) also found that individualism was positively related to competitiveness in a sample of Chinese employees. They also discovered that competitiveness was negatively related to the following variables: cooperation, engagement in constructive controversy, effectiveness in performing one's role, quality of contributions to team, quality of relationships with colleagues, coworker task support, and coworker personal support. Thus, it appears the individualism combined with competitive attitudes leads to issues within groups. However, researchers have not assessed the level of hypercompetitiveness within Asian cultures. Thus, it is possible that hypercompetitive attitudes would lead to even more distress in Asian cultures because it would be incongruent with collectivist values, especially because researchers have found hypercompetitive individuals in the United States (an individualistic culture) already experience interpersonal problems.

As mentioned, hypercompetitive persons experience intrapersonal and interpersonal problems (Ryckman et al. 2002; Thornton et al. 2011a). Ryckman et al. (2002) found that individuals who endorse more hypercompetitive attitudes do not communicate honestly with their partners and do not have a strong ability to take their partners' perspective. Further, hypercompetitive adults have a strong desire to control and inflict pain on their partners. Additionally, they seem to have possessive, jealous, and mistrustful feelings towards their partners.

Surprisingly, hypercompetitive persons are not less satisfied or committed to their relationships compared to non-hypercompetitive individuals when assessing satisfaction and general commitment (Ryckman et al. 2002; Thornton et al. 2011a). Thornton et al. found differences, however, in *types* of commitment: personal dedication commitment and constraint commitment. According to Stanley and Markman (1992), personal dedication commitment refers to individuals being invested in making a relationship work and putting a partner's needs before one's own. Constraint commitment refers to people who are motivated to stay in relationships to gain personal, psychological, social, cultural, or economic gains. Thornton et al. discovered that hypercompetitiveness was positively correlated to constraint commitment and negatively correlated to dedication commitment. In other words, hypercompetitive individuals are motivated to stay in relationships due to the potential gains they may receive (i.e., constraint commitment) rather than meeting their partner's needs and fostering a quality long-term relationship (i.e., personal dedication commitment). This makes conceptual sense with the idea that hypercompetitive persons also appear to have extreme individualistic attitudes (Ryckman et al. 1990). Thus, hypercompetitive people seem to put their needs ahead of others, which leads to problematic relationships. Hypercompetitive individuals also have difficulties in platonic relationships (Thornton et al. 2011a). Specifically, as individuals' hypercompetitive attitudes increased, the severity of relationship problems with peers and family members also increased. Additionally, if hypercompetitive persons had problems with relationships in their family, they were more likely to have problems with their peer relationships (Thornton et al. 2011a). Overall, it appears hypercompetitive people have maladaptive interpersonal experiences.

Given that previous literature has found hypercompetitiveness to be related to a number of negative constructs (e.g., narcissism, mistrust, interpersonal relationship problems, low self-esteem), it seems likely hypercompetitive individuals would experience a high degree of distress. However, to our knowledge, no researchers have investigated the potential direct relationship between hypercompetitiveness and distress.

Social Problem Solving

One contributing factor to distress in hypercompetitive individuals may be how they problem solve. Social problem solving involves an individual's ability to solve impersonal, interpersonal, intrapersonal, and/or societal problems (D'Zurilla et al. 2004). Social problem solving is a broad concept that consists of problem solving, a problem, and a solution (D'Zurilla et al. 2004). The act of problem solving requires a degree of cognitive skill to develop a resolution to a predicament. It is the process of evaluating various ways to resolve a problem, and some individuals may be better at this process compared to others. A problem is a "life situation or task (present or anticipated) that demands a response for adaptive functioning" (D'Zurilla et al. 2004, p. 12). However, obstacles such as a lack of skills or resources thwart an appropriate response. For example, a problem could be an individual suffers from a chronic illness, and the person not having adequate health insurance hinders taking care of him/herself. Problems also can be interpersonal. In other words, there are conflicts between two or more individuals. In these cases, the solution to the problem aims to satisfy all people involved in the conflict. A solution is defined as "a situation-specific coping response or response pattern (cognitive or behavioral) that is the product or outcome of the problem solving process when it is

applied to a specific problematic situation" (D'Zurilla et al. 2004, p. 13). To relate this to the previous example, a solution to a chronic illness may be for the person to change his/her health insurance plan to cover more medical costs.

D'Zurilla et al. (2002) developed and revised the Social Problem Solving Inventory (SPSR-R) to capture the construct of social problem solving ability. The SPSI-R consists of five subscales, although the focus of the current research will be on the negative problem solving orientation (NPO) subscale. Individuals who utilize a NPO tend to "view a problem as a threat to well-being…and become frustrated when faced with problems"(Bell and D'Zurilla 2009, p. 441) rather than seeing a problem as a challenge that they can solve after adequate efforts (i.e., positive problem solving orientation) (D'Zurilla et al. 2004).

Personality characteristics and affectivity have been linked to problem solving orientation. To elaborate, persons high in a NPO have high levels of neuroticism and negative affect and low levels of extraversion, conscientiousness, and positive affect (D'Zurilla et al. 2011). Researchers discovered that individuals experiencing positive affect use creative, flexible strategies to solve their problems (Aspinwall 1998; Isen 2000) perhaps because positive affect enriches one's thought-action repertoire (see Frederickson 2001 for a review of the broaden-and-build theory). Therefore, it seems as though negative affect (i.e., lack of positive affect) could lead to poor problem solving ability such as a NPO.

A NPO also has been shown to be related to distress. For instance, Chang and D'Zurilla (1996) found that endorsing a NPO predicted distress above and beyond negative affect and pessimistic beliefs. Further, NPO strongly predicted depression and anxiety in clinical and nonclinical samples (D'Zurilla et al. 1998; D'Zurilla et al. 2004; Kant et al. 1997). More specifically, researchers found that individuals high in a NPO had higher scores on measures of hopelessness and suicidality (D'Zurilla et al. 1998), and neuroticism (McMurran et al., 2001). Further, Bell and D'Zurilla (2009) discovered a NPO was significantly positively associated with measures of daily stress, internalizing behaviors, and externalizing behaviors. They reported that a NPO mediated the relationship between stress and internalizing behaviors. In another study, Chang et al. (2009) assessed perceived stress, social problem solving, and psychological well-being in a sample of adults and found NPO to be related to a number of these constructs. NPO was positively correlated with perceived stress, and negatively predicted five out of the six factors of psychological well-being. Specifically, a NPO negatively predicted self-acceptance, autonomy, environmental mastery, purpose in life, and personal growth (Chang et al. 2009). Thus, it appears a NPO seems to be generally related to distress.

The present study investigated the effect a NPO would have on distress in hypercompetitive individuals in Asia – specifically in Hong Kong. As delineated above, previous research has found hypercompetitiveness to be related to a number of factors associated with distress, although the relationship between hypercompetitiveness and distress has never been empirically analyzed nor has hypercompetitiveness been assessed in an Asian sample. As discussed previously, Luchner et al. (2011) found hypercompetitiveness was positively associated with overt and covert narcissism. Overt narcissism manifests itself through externalizing behaviors and covert narcissism manifests itself through internalizing behaviors. Further, Bell and D'Zurilla (2009) discovered a relationship between the type of coping strategy used, distress, and internalizing and externalizing behaviors. Further, because a NPO has been linked to characteristics that are commonly seen in hypercompetitive individuals (e.g., neuroticism, negative affect), it is likely these two constructs are related. Based on previous research and existing literature, it is possible that hypercompetitive persons use a NPO and thus exacerbate their experienced distress. These individuals may see problems as another challenge where they have to prove they are better than others, which could affect their well-being (i.e., increase distress). In other words, it is hypothesized a NPO would mediate the relationship between hypercompetitiveness (predictor) and psychological distress (criterion).

Method

Participants and Procedures

An a priori power analysis with G*Power 3 (Faul et al. 2007) suggested that, to achieve 80 % power in an independent groups F-test (two-tailed) with an alpha level of .05, the required sample size to detect a medium effect would be 68. One hundred and thirty one adults in Hong Kong (male =25; female =101; Did not respond =5) were included in this study. In terms of education, most of the participants had high school or less than high school education (n = 84), while the same number of respondents had some college experience (n = 16) or were college graduates (n = 16). Data on participants' age and ethnicity was not collected in this study. Participants were parents or guardians of primary school students involved in a larger project.

Invitations were sent to all schools in Hong Kong after a public seminar introducing a larger project, resulting in responses from 62 primary schools. Ten of 62 primary schools were selected for participation based on their representativeness to the general population in Hong Kong. Parents/guardians filled out the survey after consent forms were received. A paper version of the survey was given by schools to the parents/guardians in order for them to fill out the survey at home. Scales used in the survey were translated into Chinese and back-translated into English by individuals proficient in

both languages and checked for accuracy by an English speaking individual. Prior to beginning the study, the project was approved by the Research Committee of the City University of Hong Kong. Approval was also obtained from all participating school administrators.

Measures

Hypercompetitive Attitude Scale (HCA; Ryckman et al. 1990). The HCA is a 26-item self-report scale used to measure individual differences in hypercompetitive attitudes. It has been found to be a reliable and valid instrument (Ryckman et al. 1990). Participants respond to items on a 5-point scale ranging from 1 "never true of me" to 5 "always true of me." Higher scores indicate greater endorsement of hypercompetitive attitudes. Sample items include "I compete with others even if they are not competing with me" and "Losing in competition has little effect on me" (reversed). The HCA has yielded good construct validity as evidenced by significant correlations among responses to the HCA and the Neuroticism scale, Self-Esteem scale, Win-at-any-Cost Sports Competition Scale, the Competitive-Cooperative Attitudes Scale, subscales of the Interpersonal Trust Scale, and the Dogmatism Scale (Ryckman et al. 1990). The HCA also has been found to have a test-retest reliability estimate of .81 (Ryckman et al. 1990). Internal consistency reliability estimate for the HCA in this study was .76.

Social Problem Solving Inventory-Revised (SPSI-R; D'Zurilla et al. 2002). The SPSI-R is a 52-item self-report measure of cognitive, affective, and behavioral components of social problem solving. The measure consists of five subscales: Positive Problem Orientation, Negative Problem Orientation, Rational Problem Solving, Impulsivity/Carelessness Style, and the Avoidance Style. A positive problem orientation is characterized by people's ability to see problems as obstacles they can overcome when they can commit enough time and effort. A negative problem orientation, in contrast, is defined by individuals seeing problems as a threat to their psychological, social, or economic well-being in which they do not have the skills to overcome the problem. Rational problem solving is "defined as the rational, deliberate, and systematic application of effective problem-solving skills" (D'Zurilla et al. 2004, p. 15). In comparison, the impulsivity-carelessness style is categorized as a maladaptive problem-solving style in which individuals hastily try to solve problems without assessing alternative solutions. The avoidance style is another maladaptive problem-solving style in which individuals tend to avoid attempts to overcome their problems (i.e., procrastinating) in hopes that the problem will fix itself or another person will take responsibility. Exploratory and confirmatory factor analyses supported a five-factor solution for the SPSI (Maydeu-Olivares and D'Zurilla 1995; Maydeu-Olivares and D'Zurilla 1996). Respondents answer items on a 5-point Likert scale ranging from "not at all true of me" to "extremely true of me." Higher scores indicate better problem solving ability when assessing the Positive Problem Orientation and the Rational Problem Solving scale and worse problem solving ability when assessing the Negative Problem Orientation scale, Impulsivity/Carelessness Style scale, and the Avoidance Style scale. A global score indicates the participants' overall problem solving ability, but it is recommended that researchers also look at the subscale scores. The current study focused on the Negative Problem Orientation (NPO) scale. A NPO represents a maladaptive social problem solving ability. Individuals with a NPO tend to experience frustration when they have to problem solve, which can affect their psychological health. The SPSI-R has evidence for strong validity and reliability (Bell and D'Zurilla 2009). The internal consistency reliability estimate for the NPO subscale in this study was .91.

K10 (Kessler et al. 2003). The K10 is a 10-item self-report questionnaire that assesses psychological distress (e.g., nervousness, fatigue, depression) over the past 4 weeks. The measure has strong psychometric properties (Kessler et al. 2003). Participants answer items on a 5-point scale ranging from 1 "none of the time" to 5 "all of the time." Higher scores indicate higher levels of psychological distress. Sample items include "In the past 4 weeks, about how often did you feel nervous?" and "In the past 4 weeks about how often did you feel that everything was an effort?" The K10 has adequate internal reliability (α = .93). A Chinese version of the K10 was found to have lower, but sufficient reliability (α = .80; Zhou et al. 2008). The internal consistency reliability estimate for the K10 in this study was .90.

Results

A mediation regression analysis was performed to examine the relationships between hypercompetitiveness and psychological distress in Asian adults. In this analysis, negative problem orientation was hypothesized to be a mediator between the predictor variable, hypercompetitiveness, and the criterion variable, psychological distress. Table 1 presents the means and standard deviations as well as the correlations between responses to the variables of interest.

Following the mediation analysis procedure suggested by Baron and Kenny (1986), we first regressed the mediator onto the predictor (hypercompetitiveness). We found the relationship between NPO and hypercompetitiveness to be significant, R^2 = .16, $F(1, 129) = 25.15$, $p < .01$, with $\beta = .40$, $t(129) = 5.02$, $p < .01$. This fulfills the first condition of the model. To test the second condition of mediation, we regressed the criterion (distress) onto the predictor

Table 1 Descriptive statistics and correlations of hypercompetitiveness, negative problem solving orientation, and distress

Measure	*1*	*2*	*3*
1. HCA	–	.40**	-.43**
2. NPO		–	-.58**
3. K10			–
M	63.84	21.56	39.78
SD	9.78	7.29	6.93

** $p < .01$. HCA = Hypercompetitive Attitude Scale; NPO = Social Problem Solving Inventory-Revised – Negative Problem Solving Orientation subscale; K10 = Kessler Psychological Distress Scale

(hypercompetitiveness). We examined the association between distress and hypercompetitiveness, and distress was found to be significantly related to hypercompetitiveness, $R^2 = .18$, $F(1, 129) = 28.88$, $p < .001$, with $\beta = .43$, $t(129) = 5.4$, $p < .01$. Lastly, to test the third condition of the meditational model, we regressed distress simultaneously onto hypercompetitiveness and NPO. The relationship between NPO and distress was significant, $\beta = .49$, $t(128) = 6.44$, $p < .01$, while controlling for the effects of HCA. The strength of the association between HCA and K-10 was significant $\beta = .23$, $t(128) = 3.04$, $p < .01$, while controlling the NPO. However, the strength of this relationship dropped from $\beta = .43$ to $\beta = .23$. Thus, the effect of hypercompetitiveness on distress was partially mediated by NPO (Table 2).

The significance of the indirect effect was examined by the bootstrapping procedure (Shrout and Bolger 2002). Across the bootstrapped samples, the average indirect effect from hypercompetitiveness, through NPO, to distress was .14, with the 95 % CI = .07 to .23, indicating that the indirect effect was significant ($p < .05$.).

Table 2 Steps in testing the mediating effect of negative problem orientation on hypercompetitiveness and distress ($N = 131$)

Conditions for the Mediator Model	*B*	*SE*	95%CI	β
Condition 1				
Outcome: NPO				
Predictor: HCA	.30	.06	.18, .42	.40**
Condition 2				
Outcome: K10				
Predictor: HCA	.30	.06	.19, .42	.43***
Condition 3				
Outcome: K10				
Mediator: NPO	.47	.07	.32, .61	.49***
Predictor: HCA	.16	.05	.06, .27	.23**

**$p \leq .01$, ***$p \leq .001$. HCA = Hypercompetitive Attitude Scale; NPO = Social Problem Solving Inventory-Revised – Negative Problem Solving Orientation subscale; K10 = Kessler Psychological Distress Scale

Discussion

Rooted in Horney's explanation of individuals that display neurotic behaviors, research on hypercompetitiveness has mainly focused on its detrimental associations between intrapersonal distress (e.g., internalizing behaviors, low self-esteem) and interpersonal distress (e.g., control and jealousy in relationships) in Americans. However, no research has assessed how hypercompetitiveness is linked to overall distress or hypercompetitive beliefs in an Asian sample. Our goal was to gain a better understanding of Horney's conceptualization of the hypercompetitive individual. Specifically, the purpose of the current study was to examine the meditational role of a NPO on the relationship between hypercompetitiveness and distress and fill a gap in the literature by sampling an Asian population.

Prior to a discussion of the main findings, we will first discuss the scores found for the HCA, NPO subscale, and K10 in our sample. Participants in our study had lower scores on the HCA ($M = 63.84$, $SD = 9.78$) compared to Ryckman et al. (1990) sample ($M = 72.07$, $SD = 14.12$) and Thornton et al. (2011a) sample (M males =79.98, $SD = 13.99$; M females =73.53, SD =14.19. This difference in mean scores may be due to cultural differences as our sample consisted of parents/guardians in Asia with a child in school while the previous studies consisted of college students at universities in the United States. In the past, the means and standard deviations for the NPO subscale have varied depending on the sample studied. In a sample of middle-aged adults in the United States, NPO scores were lower ($M = 15.24$, $SD = 6.29$) (Chang et al. 2009) than in our sample ($M = 21.56$, $SD = 7.29$). Interestingly, the NPO scores in our sample tended to be similar to NPO scores in a sample of patients at a psychiatric hospital in the United States ($M = 21.38$, $SD = 10.89$) (D'Zurilla et al. 1998). Finally, the mean score in our sample for the K10 was 39.79 ($SD = 6.93$). Although researchers have not determined universal cutoff scores for the K10, investigators in Australia have used two alternative methods for scoring the K10 in Australian samples. According to the Australian Bureau of Statistics (ABS) (ABS 2001), scores between 10 and 15 indicate mild distress, scores between 16 and 21 indicate moderate distress, scores between 22 and 29 indicate high distress, and scores 30 and above indicate very high distress. Another interpretation of scores on the K10 in the Australian population is as follows: scores between 10 and 19 indicate the respondent is likely to be well, scores between 20 and 24 indicate the respondent is likely to have a mild mental disorder, scores between 25 and 29 indicate respondents are likely to have a moderate mental disorder, and scores between 30 and 50 indicate the respondent is likely to have a severe mental disorder (ABS 2001). Although the interpretations just presented provide an explanation for the Australian population, if we cautiously apply

such interpretations to our sample, it suggests our participants were under a very high degree of distress. This could be a result of cultural differences. As mentioned previously, competitive goals were linked to poor performance in groups in Chinese samples (Tjosvold et al. 2003) and others rated competitive individuals as not contributing to or supporting the team, less effective in their role, and less likely to engage in constructive controversy (Tjosvold et al. 2008). Thus, it seems like competitive goal orientation leads to distress within the workplace. Therefore, if individuals have hypercompetitive attitudes, it would lead to even higher distress than what we would see in non-Asian cultures where group cooperation may not be valued as highly, and this could be why we see such high scores on the K10. Future research could specifically assess the influence of collectivistic and individualistic values on hypercompetitiveness attitudes.

Turning to our analyses, consistent with our hypothesis, the results revealed that there was a positive and significant relationship between hypercompetitiveness and distress ($r = .43$, $p < .01$). Specifically, participants in our study who scored higher in hypercompetitiveness also endorsed more nervousness and motor agitation such as restlessness and fidgetiness compared to participants who scored lower in hypercompetitiveness. As hypercompetitive individuals exhibit anger and hostility that stems from the persons' anxiety, hatred, and sense of inferiority, it is not surprising that they show more distress. Hypercompetitive individuals have low levels of self-esteem while at the same time try to succeed over others in competition to continue to be perceived as competent (Horney 1937). Feeling anxious, angry, and inferior coupled with competitive and controlling behaviors can lead to hypercompetitive persons experiencing interpersonal problems, which include using people in their relationships to make their own gains (Ryckman et al. 2002; Thornton et al. 2011a). All of the aforementioned factors seem to generally be related to hypercompetitive individuals' level of distress.

In order to determine if there was an effect of hypercompetitiveness on distress as a function of participants' utilization of a negative problem solving orientation, we conducted a mediation analysis. Consistent with our hypothesis, we found that the relationship between hypercompetitiveness and distress was mediated by a negative problem solving orientation, such that greater hypercompetitiveness was associated with respondents' higher endorsement of negative problem solving orientation and consequently, more distress. To put it another way, we discovered a potential partial mediational role of a negative problem solving orientation on the relationship between hypercompetitiveness and distress, which is congruent with previous research (Chang and D'Zurilla 1996). As discussed earlier, because hypercompetitive individuals are likely to experience negative affect (e.g., anger, anxiety, sense of inferiority), this in turn may lead to applying a NPO to solve their problems resulting in increased amounts of distress. This effect could be explained by Frederickson's (2001) broaden-and-build theory of positive emotions. This theory states that people who experience positive emotions have an increase in creativity and discovery rather than being limited by the narrow-minded nature of negative emotions. In other words, negative affect restricts one's ability to generate creative problem solving skills (Frederickson 2001). Further, Rich and Bonner (2004) reviewed the importance of positive affect and other positive traits such as optimism and hope on one's ability to use more appropriate and adaptive coping strategies (i.e., positive problem solving, rational problem solving). The research suggested that positive affect tended to be an important contributor to problem solving ability. On the other hand, when people experience negative affect, it may limit a person's problem solving ability, as discussed in the broaden-and-build theory. As previous findings suggest (e.g., Ryckman et al. 1990), hypercompetitive individuals tend to display a number of negative qualities, which may, in turn, be associated with negative affect. Previous research coupled with the findings from the present study suggest that hypercompetitive individuals may use a more constricting social problem solving orientation (e.g., NPO), which then leads them to experience substantial distress.

As expected, we also found that the relationship between hypercompetitiveness and distress, though still significant, was weakened after entering responses to the NPO subscale into the mediational model. The type of social problem solving orientation (e.g., NPO) our hypercompetitive participants identified with contributed to their level of distress. A NPO is characterized as a dysfunctional problem solving ability and is associated with individuals lacking the sense of self-efficacy to actually develop successful problem solving solutions (i.e., successful problem solving would be characterized as the ability to generate various solutions, then deciding which solution to implement) (D'Zurilla et al. 2004). Additionally, individuals with a NPO become frustrated when they are faced with challenges that inhibit their ability to actually solve the challenge presented in front of them. Thus, hypercompetitive individuals may be using this type of social problem solving orientation because underneath their presentation of superiority, they are lacking confidence and experiencing negative affect. In other words, they do not have the sense that they can overcome certain problems, especially if such an attempt could lead to their true self being exposed (i.e., if they fail, people will discover they are actually incompetent). Additionally, following the logic of the broaden-and-build theory (Frederickson 2001), because hypercompetitive persons seem to experience more negative affect (e.g., hostility, anxiety), they could be limiting their ability to generate appropriate, creative solutions to their intrapersonal and interpersonal problems.

Limitations

The current study has several limitations. First, a convenience sample was employed, which restricts the generalizability of the results. Second, despite the use of psychometrically sound measures (i.e., SPSI-R-NPO and K10), the cross-cultural validity of the HCA can be a potential problem with its limited use outside of the U.S. Third, we recognized that there might be other potential mediators in the relationship between hypercompetitiveness and distress. For instance, Jordan et al. (2003) found that individuals with high explicit self-esteem and low implicit self-esteem had more narcissistic and defensive attitudes compared to individuals with high explicit and high implicit self-esteem. As mentioned, individuals high in hypercompetitiveness also have high levels of narcissism. It is possible that high explicit self-esteem could be influencing the relationship among our variables. Future researchers should investigate the role of explicit self-esteem in hypercompetitive individuals to address this limitation. Additionally, we did not specifically investigate the role of education, employment, cultural norms, or gender and our hypothesized variables. The majority of research available on hypercompetitiveness utilizes undergraduate samples, and thus, it is difficult to ascertain whether hypercompetitiveness varies depending on educational attainment or type of employment. However, in one study (Lee et al. 2015) addressing distress in individuals in Hong Kong, the researchers found that participants with a university level education or higher had the greatest odds of being classified into the psychologically distressed group compared to individuals with a secondary or post-secondary education. It is possible, therefore, that in the current study these variables influenced the relationship among hypercompetitiveness, problem solving orientation, and psychological distress. Researchers should investigate these demographic variables to better understand their potential influence on hypercompetitiveness. Despite not including these demographic variables in our study, the rationale of our study was based on existing literature and previous empirical research on hypercompetitiveness. Finally, this study was cross-sectional in nature, which did not allow us to determine causality.

Implications and Conclusion

Notwithstanding the limitations, the present findings offer implications for psychological practice. Knowing that hypercompetitiveness is related to distress can help psychotherapists conceptualize their clients' presenting problems. A therapist can assess for hypercompetitive attitudes and how these may be influencing maladaptive behaviors and relationship patterns. More importantly, knowing that a NPO influences the distress experienced by hypercompetitive individuals, psychotherapists can help the client identify more adaptive ways to problem solve (e.g., move from a NPO to a rational problem solving orientation), especially if they can increase the client's positive affect. A rational problem solving orientation is characterized by a person being able to adequately define a problem and then develop solutions, choose an appropriate solution, and implement that solution (D'Zurilla et al. 2004). Individuals utilizing a rational problem solving orientation compared to other problem solving styles have higher rates of life satisfaction, self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth (Chang et al. 2004). Thus, if a therapist is able to help hypercompetitive individuals change their problem solving orientation, the therapist could lower clients' distress and increase their life satisfaction as well as other facets of wellbeing. Future research can test this hypothesis.

While there is a growing interest in personality traits such as hypercompetitiveness and its relationship to clinical outcomes, this was the first study to explore how hypercompetitiveness is related to distress (i.e., partially through a NPO). The results, in general, are consistent with the existing literature and contribute to the body of scholarship supporting the negative correlates of hypercompetitiveness (Ryckman et al. 1994, 1997). Importantly, to our knowledge, this is the first time the HCA has been administered to a sample outside of the United States, which helps researchers understand hypercompetitive attitudes cross-culturally. In addition, our results show the meditational role of a NPO on the relationship between hypercompetitiveness and distress. Social problem solving orientation may play a critical part in this relationship and adopting a more positive problem solving approach could be a viable way to reduce distress for hypercompetitive individuals.

Compliance with Ethical Standards

Potential Conflicts of Interest To the best of our knowledge, there are no potential conflicts of interest among all of the co-authors.

Human Rights Our research involves human participants.

Funding The project was approved by the Research Committee of the City University of Hong Kong.

Human Studies All procedures performed in studies involving human participants were in accordance with the ethical standards of the City University of Hong Kong.

Informed Consent Informed consent was obtained from all individual participants included in the study.

References

Aspinwall, L. G. (1998). Rethinking the role of positive affect in self regulation. *Motivation and Emotion, 22*, 31–32. doi:10.1023/A:1023080224401.

Australian Bureau of Statistics [ABS], 2001. Information paper: use of the Kessler Psychological Distress scale in ABS health surveys. (ABS cat. no. 44817.0.55.001) Australian Bureau of Statistics, Canberra, ACT. Available at: (http://www.abs.gov.au/ausstats/abs@.nsf/papersbyReleaseDate/4D5BD324FE8B415FCA2579D500161D57?OpenDocument) (accessed June 29, 2015).

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173–1182. doi:10.1037/0022–3514.51.6.1173.

Bell, A. C., & D'Zurilla, T. J. (2009). The influence of social problem-solving ability on the relationship between daily stress and adjustment. *Cognitive Therapy and Research, 33*, 439–448. doi:10.1007/s10608-009-9256-8.

Chang, E. C., & D'Zurilla, T. J. (1996). Relations between problem orientations and optimism, pessimism, and trait affectivity: A construct validation study. *Behaviour Research and Therapy, 34*, 185–194. doi:10.1016/0005-7967(95)00046-1.

Chang, E. C., Downey, C. A., & Salata, J. L. (2004). Social problem solving and positive psychological functioning: Looking at the positive side of problem solving. In E. C. Chang, T. J. D'Zurilla, & L. J. Sanna (Eds.), *Social Problem Solving: Theory, research, and training* (pp. 99–116). Washington, DC: American Psychological Association.

Chang, E. C., D'Zurilla, T. J., & Sanna, L. J. (2009). Social problem solving as a mediator of the link between stress and psychological well-being in middle-adulthood. *Cognitive Therapy and Research, 33*, 33–49. doi:10.1007/s10608-007-9155-9.

Collier, S. A., Ryckman, R. M., Thornton, B., & Gold, J. (2010). Competitive personality attitudes and forgiveness of others. *The Journal of Psychology: Interdisciplinary and Applied, 144*, 535–543. doi:10.1080/00223980.2010.511305.

D'Zurilla, T. J., Chang, E. C., Nottingham, E. I., & Faccini, L. (1998). Social problem-solving deficits and hopelessness, depression, and suicidal risk in college students and psychiatric inpatients. *Journal of Clinical Psychology, 54*, 1091–1107. doi:10.1002/(SICI)1097-4679(199812)54:8<1091::AID-JCLP9>3.0.CO;2-J.

D'Zurilla, T. J., Nezu, A. M., & Maydeu-Olivares, A. (2002). *Manual for the social problem-solving inventory-revised* (3rd ed.). North Tonawanda, NY: Mental-Health Systems.

D'Zurilla, T. J., Nezu, A. M., & Maydeu-Olivares, A. (2004). Social problem solving: Theory and assessment. In E. C. Chang, T. J. D'Zurilla, & L. J. Sanna (Eds.), *Social Problem Solving: Theory, research, and training* (pp. 11–27). Washington, DC: American Psychological Association.

D'Zurilla, T. J., Maydeu-Olivares, A., & Gallardo-Pujol, D. (2011). Predicting social problem solving using personality traits. *Personality and Individual Differences, 50*, 142–147. doi:10.1016/j.paid.2010.09.015.

Dru, V. (2003). Relationships between an ego orientation scale and a hypercompetitive scale: their correlates with dogmatism and authoritarianism factors. *Personality and Individual Differences, 35*, 1509–1524. doi:10.1016/S0191-8869(02)00366-5.

Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*, 175–191.

Frederickson, B. (2001). The role of positive emotions in positive psychology: the broaden-and-build theory of positive emotions. *American Psychologist, 56*, 218–226. doi:10.1037/0003-066X.56.3.218.

Horney, K. (1937). *The neurotic personality of our time*. New York: Norton.

Houston, J. M., Queen, J. S., Cruz, N., Vlahov, R., & Gosnell, M. (2015). Personality traits and winning: Competitiveness, hypercompetitiveness, and Machiavellianism. *North American Journal of Psychology, 17*, 105–112.

Isen, A. M. (2000). Positive affect and decision making. In M. Lewis & J. M. Haviland-Jones (Eds.), *Handbook of emotions* (2nd ed., pp. 417–435). New York: Guilford Press.

Jordan, C. H., Spencer, S. J., Zanna, M. P., Hoshino-Browne, E., & Correll, J. (2003). Secure and defensive high self-esteem. *Journal of Personality and Social Psychology, 85*, 969–978.

Kant, G. L., D'Zurilla, T. J., & Maydeu-Olivares, A. (1997). Social problem solving as a mediator of stress-related depression and anxiety in middle-aged and elderly community residents. *Cognitive Therapy and Research, 21*, 73–96. doi:10.1023/A:1021820326754.

Kessler, R. C., Barker, P. R., Colpe, L. J., Epstein, J. F., Gfroerer, J. C., Hiripi, E., & Zaslavsky, A. M. (2003). Screening for serious mental illness in the general population. *Achieve of General Psychiatry., 60*, 184–189.

Lee, S., Leung, C. M., Kwok, K. P., & Ng, K. L. (2015). A community-based study of the relationship between somatic and psychological distress in Hong Kong. *Transcultural Psychiatry, 52*, 594–615.

Luchner, A. F., Houston, J. M., Walker, C., & Houston, M. A. (2011). Exploring the relationship between two forms of narcissism and competitiveness. *Personality and Individual Differences, 51*, 779–782. doi:10.1016/j.paid.2011.06.033.

Maydeu-Olivares, A., & D'Zurilla, T. J. (1995). A factor analysis of the Social Problem-Solving Inventory using polychoric correlations. *European Journal of Psychological Assessment, 11*, 98–107. doi:10.1027/1015-5759.11.2.98.

Maydeu-Olivares, A., & D'Zurilla, T. J. (1996). A factor-analytic study of the Social Problem-Solving Inventory: An integration of theory and data. *Cognitive Therapy and Research, 20*, 115–133. doi:10.1007/BF02228030.

Morris, M. W., Williams, K. Y., Leung, K., Larrick, R., Mendoza, M. T., Bhatnagar, D., Li, J., Kondo, M., Luo, J. L., & Hu, J. C. (1998). Conflict management style: Accounting for cross-national differences. *Journal of International Business Studies, 29*, 729–748.

Pincus, A. L., Ansell, E. B., Pimentel, C. A., Cain, N. M., Wright, A. G., & Levy, K. N. (2009). Initial construction and validation of the Pathological Narcissism Inventory. *Psychological Assessment, 21*, 365–379. doi:10.1037/a0016530.

Rich, A. R., & Bonner, R. L. (2004). Mediators and Moderators of Social Problem Solving. In E. C. Chang, T. J. D'Zurilla, & L. J. Sanna (Eds.), *Social Problem Solving: Theory, research, and training* (pp. 29–45). Washington, DC: American Psychological Association.

Ross, S. R., Rausch, M. K., & Canada, K. E. (2003). Competition and cooperation in the five-factor model: Individual differences in achievement orientation. *The Journal of Psychology: Interdisciplinary and Applied, 137*, 323–337. doi:10.1080/00223980309600617.

Ryckman, R. M., Hammer, M., Kaczor, L. M., & Gold, J. A. (1990). Construction of the Hypercompetitive Attitude Scale. *Journal of Personality Assessment, 55*, 630–639. doi:10.1207/s15327752jpa5503and4_19.

Ryckman, R. M., Thornton, B., & Butler, J. C. (1994). Personality correlates of the hypercompetitive attitude scale: Validity tests of Horney's theory of neurosis. *Journal of Personality Assessment, 62*, 84–94. doi:10.1207/s15327752jpa6201_8

Ryckman, R. M., Hammer, M., Kaczor, L. M., & Gold, J. A. (1996). Construction of a personal development competitive attitude scale. *Journal of Personality Assessment, 66*, 374–385.

Ryckman, R. M., Libby, C. R., van den Borne, B., Gold, J. A., & Lindner, M. A. (1997). Values of hypercompetitive and personal

development competitive individuals. *Journal of Personality Assessment, 69*, 271–283. doi:10.1207/s15327752jpa6902_2.

Ryckman, R. M., Thornton, B., Gold, J. A., & Burckle, M. A. (2002). Romantic relationships of hypercompetitive individuals. *Journal of Social and Clinical Psychology, 21*, 517–530. doi:10.1521/jscp.21.5.517.22619.

Shrout, P. E., & Bolger, N. (2002). Mediation in experimental and non-experimental studies: New procedures and recommendations. *Psychological Methods, 7*, 422–445. doi:10.1037//1082-989X.7.4.422.

Stanley, S. M., & Markman, H. J. (1992). Assessing commitment in personal relationships. *Journal of Marriage and the Family, 54*, 595–608.

Thornton, B., Ryckman, R. M., & Gold, J. A. (2011a). Competitive orientations and the type A behavior pattern. *Psychology, 2*, 411–415.

Thornton, B., Ryckman, R. M., & Gold, J. A. (2011b). Hypercompetitiveness and relationships: Further implications for romantic, family, and peer relationships. *Psychology, 2*, 269–274.

Tjosvold, D., Law, K. S., & Sun, H. F. (2003). Collectivistic and individualistic values: Their effects on group dynamics and productivity in China. *Group Decision and Negotiation, 12*, 243–263. doi:10.1023/A:102338200180.

Tjosvold, D., XueHuang, Y., Johnson, D. W., & Johnson, R. T. (2008). Social interdependence and orientation toward life and work. *Journal of Applied Social Psychology, 38*, 409–435. doi:10.1111/j.1559–1816.2007.00311.x.

Watson, P. J., Morris, R. J., & Miller, L. (1997). Narcissism and the self as continuum: Correlations with assertiveness and hypercompetitiveness. *Imagination, Cognition and Personality, 17*, 249–259.

Weikel, K. A., Avara, R. M., Hanson, C. A., & Kater, H. (2010). College adjustment difficulties and the overt and covert forms of narcissism. *Journal of College Counseling, 13*, 100–110.

Zeigler-Hill, V., & Besser, A. (2013). A glimpse behind the mask: Facets of narcissism and feelings of self-worth. *Journal of Personality Assessment, 95*, 249–260. doi:10.1080/00223891.2012.717150.

Zhou, C. C., Chu, J., & Wang, T. (2008). Reliability and validity of 10-item Kessler Scale (K10) Chinese version in evaluation of mental health status of Chinese population. *Chinese Journal of Clinical Psychology, 16*, 627–629.