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Published in:

International Journal of Adolescent Medicine and Health

Document version:

Peer reviewed version

DOI:

[10.1515/ijamh-2017-0105](https://doi.org/10.1515/ijamh-2017-0105)

Publication date:

2019

[Link to publication](#)

Citation for published version (APA):

Leung, C. L. K., Bender, M., & Kwok, S. Y. C. L. (2019). A comparison of positive youth development against depression and suicidal ideation in youth from Hong Kong and the Netherlands. *International Journal of Adolescent Medicine and Health*. <https://doi.org/10.1515/ijamh-2017-0105>

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A Comparison of Protective Effects of Positive Youth Development against Depression and Suicidal Ideation in Youth from Hong Kong and the Netherlands

Introduction

Transitioning from adolescence into adulthood is a demanding process, that requires efforts in dealing with instability and exploration of identity (1). Youth with experiences of childhood maltreatment are particularly vulnerable to these stress in this developmental period (2). There is general consensus about the long lasting detrimental effects of such childhood adversity for mental health of adults as conceptualized by the cumulative stress hypothesis. Childhood maltreatment is a potent risk factor for depression in adulthood (3) and is strongly associated with both depression and suicidal ideation in early adulthood (4). In some studies, depression was a mediator of the relation between childhood maltreatment and suicidal ideation (e.g. ,5).

Therefore, identifying resources associated with positive developmental outcomes may provide much-needed access points for remediating interventions. Brown and colleagues (6) found in a longitudinal study on maltreated children that depression before age 17 was not necessary related to depression in adulthood, but that the relationship was moderated by various individual and family-related risk factors. Such interventions may not only be useful in the immediate aftermath of maltreatment; they also have an effect throughout the transition from adolescence into emerging adulthood (7). The current study sets out to examine the effect of positive youth development constructs as potential psychological resources to help youth cope with aversive childhood experiences.

What is Positive Youth Development?

Over the last two decades, the field of youth intervention has experienced a paradigm shift in response to the emergence of positive psychology. This shift represents a move towards strengths-based approaches and away from a deficit perspective and a pathological approach in both science and practice. Termed as the positive youth development (PYD) perspective, this holistic and strength-based approach reflects the shift from corrective and preventive measures towards a focus on the promotion of healthy youth development and an enhancement of potential in the youths (8). The assumption is that through understanding and cultivating the strengths and potentials in youths, youth can build up buffers against mental health risks, illnesses, and problem behavior (9).

While PYD is appealing, conceptualizations vary immensely, and there is no uniformly accepted framework or measurement of PYD (10). One of the prevalingly adopted models of PYD is the 15-construct model suggested by Catalano and colleagues (11). Based on this model, Shek and Ma (10) have developed the Chinese Positive Youth Development Scale (CPYDS). They uncovered four second-order constructs for the PYD model. The first three constructs are covered in other variations of PYD framework: *prosocial attributes* (e.g., Murphy and Ensher's (12) PYD framework), *positive identity* (e.g., Miami Youth Development Project ,13), and *cognitive-behavioral competence* (e.g., Five Cs framework of PYD ,14). The fourth second-order construct is *general positive youth development qualities*, which includes first-order constructs not covered in the aforementioned second-order constructs. Due to the heterogeneity of concepts bundled in this category (rendering it a 'miscellaneous' category), it does not provide clear theoretical or practical implications for interventions, and is therefore not considered in the current study.

In our study, participants come not only from Hong Kong, but also the Netherlands. The Netherlands represents a cultural context that prototypically values independence, while Hong Kong has been characterized as a cultural context that prototypically expresses stronger interdependence, which

also features individuated Western cultural elements due to its colonial history (15). Conceptualizations of what can be considered positive youth development may differ across the two cultural contexts (16), since definitions of ‘good’ and ‘bad’ may vary. There may also be ethnic differences in the buffering effect of protective factors against detrimental influence of stressful events (e.g., 17). We therefore set out to investigate (a) whether the instrument for measuring positive youth development constructs, the Chinese Positive Youth Development Scale (CPYDS), is structurally equivalent across the eastern and western groups of students (*Hypothesis 1*), and; (b) whether the three second-order PYD constructs, prosocial attributes, positive identity, and cognitive behavioral competencies, show a culturally universal buffering effect against depression and suicidal ideation in students with experiences of childhood maltreatment, as depicted in Figure 1 (*Hypothesis 2a, 2b, and 2c*, respectively, for depression; and *Hypothesis 3a, 3b, and 3c*, respectively, for suicidal ideation). In the following, we suggest how the first three second-order constructs may serve as protective factors against adverse effects associated with childhood maltreatment.

PYD as a Protective Factor against Depression and Suicidal Ideation in Youth with Experiences of Childhood Maltreatment

Prosocial attributes describe the tendency of internalizing and adopting social norms of social responsibility and engaging in behavior that benefits other people (18). For adolescents and emerging adults, engagement in prosocial behavior can help them to better fulfill their developmental needs in building good peer relationship, which is a vital source of social support and social learning for their transition from childhood to emerging adulthood (19). When engaging in prosocial behaviors, youths experience satisfaction and wellbeing, and an increased sense of self and self-efficacy (20). Prosocial

behaviors show consistent positive associations with various adaptive psychosocial correlates, such as emotional management, social and conflict resolution skills, and empathy (21). For victimized youth, engagement in prosocial behavior may be a protective factor against mental illnesses, as such prosocial behaviors are associated with maintaining a functional peer network which provides social support that is unavailable to youths not engaged in such activities (22). In sum, we expect prosocial attributes to serve as a protective factor against depression and suicidal ideation in the aftermath of childhood maltreatment (*Hypothesis 2a and 3a*).

The second-order construct of *positive identity* revolves around the development of an identity that can help youth utilize and develop their personal resources (23). From an Eriksonian perspective, the development of a positive identity provides an adolescent or emerging adult with a resource to master the transition into adulthood (13). A positive identity may not only help in reducing risky behaviors and maladaptive developmental outcomes (9), but may also solidify personal resources to help tackle critical life events. A large body of research documents that developing a positive identity is a protective factor for ethnic minority in coping with discrimination (24,25) and for youth experiencing adverse acculturation contexts (26,27). However, studies for youth with childhood maltreatment experience are limited (28). We predict that the development of a positive identity serves as a protective factor against depression and suicidal ideation in the aftermath of childhood maltreatment (*Hypothesis 2b and 3b*).

The last PYD second-order construct, *cognitive-behavioral competence*, comprises the competence elements of Catalano and colleagues' (11) framework, including cognitive and behavioral competence and self-determination. These competence elements generally refer to the efficacy in problem solving and goal setting, and specifically relate to creative and critical thinking styles (29), the competence to behave effectively in social interaction, and to set meaningful goals and make own

choices. Competence in these domains can help adolescents to successfully cope with developmental challenges (9), and thereby reduce the chance of negative developmental outcomes (30). Taussig (31) found that maltreated youth were less likely to engage in risky behaviors when they perceived their competences to be enhanced. We therefore expect that the enhancement of perceived cognitive-behavioral competences serves as a protective factor against depression and suicidal ideation in the aftermath of childhood maltreatment (*Hypothesis 2c and 3c*).

Method

Participants

Two samples were recruited, 306 undergraduates from the Netherlands and 259 undergraduates from Hong Kong. Two cases from Hong Kong were excluded for missing data, leaving 257 valid cases from Hong Kong. Both samples consist of social sciences majors. They filled out a paper-and-pencil questionnaire during class (for Hong Kong students) or a web-based survey (for Dutch students). Students provided informed consent by signing their names in the hard copy or by agreeing to the electronic consent forms. Participants were ensured that the study was conducted anonymously, and a refusal of participation would have no consequence for their academic evaluation.

Both samples were comparable across demographic factors (see Table 1). The samples did not differ in terms of age ($t = 1.61, p = .11$), gender composition ($\chi^2 = .64, p = .42$), and religious beliefs ($\chi^2 = .57, p = .45$).

Instruments

Hong Kong Chinese students filled out the questionnaire in Chinese, while Dutch students filled out the questionnaires in English, which is the language of instruction. Prior to the assessment, instruments were translated and back-translated (see ,32) from Chinese to English, in case an English version of the instrument was not available.

Childhood Maltreatment

We used the Physical Abuse and Emotional Abuse subscales of the Childhood Trauma Questionnaire (CTQ), a retrospective self-report instrument developed by Bernstein and Fink (33) to examine potential childhood maltreatment experiences of the participants. There are five items in each subscale. Students indicated frequencies on a 5-point scale for each statement about a physical or emotional abusive behavior. Higher scores (averaged across the items) indicate more maltreatment experiences in childhood. Both subscales exhibited very good psychometric properties, with Cronbach's alpha at .89 in Dutch and .88 in Hong Kong students.

Depression

We used the depression subscale from Zigmond and Snaith (34)'s Hospital Anxiety and Depression Scale (HADS) to measure depression level in the participants. The depression subscale in HADS comprises seven items (with three reversed score items), tapping into depression-related symptoms or experiences. Students rated the statements on a 4-point, with higher summated score indicating higher level of depression symptoms. Internal consistencies, Cronbach's alpha, were both .72 in Dutch and Hong Kong students.

Suicidal Ideation

We adopted the 13-item suicidal ideation sub-scale (C-SIS) of the Suicidal Risk Scale for Hong Kong students (35) to assess suicidal ideation of the participants. Ratings occurred on a 4-point Likert scale. A higher score was taken as suggesting a higher level of suicidal ideation. The reliability of the scale was very good for both Dutch ($\alpha = .89$) and Hong Kong students ($\alpha = .90$).

Positive Youth Development

We assessed three of the second order factors of the Chinese Positive Youth Development Scale (CPYDS ,16), namely prosocial attributes, positive identity, and cognitive-behavioral competence. The *prosocial attributes* subscale comprised six items, measuring the extent to which participants were internalizing prosocial norms and the extent to which they perceived themselves and the people around them as involved in prosocial behavior. The *positive identity* subscale also comprised six items, tapping into the development of a healthy identity and the ability to establish future goals. The *cognitive-behavioral competence* comprised nine items, measuring the respondents' perceived cognitive and behavioral skills. Participants responded on a 6-point Likert scale. Higher averaged score was taken as indicating a stronger perceived positive development in the respective domain. In the past, the CPYDS exhibited good validity by predicting life satisfaction and high-risk behavior (16). In the present study, one item of the positive identity subscale (i.e. "I am a person with self-confidence") and one item in the cognitive-behavioral competence subscale (i.e. "I can express views that are different from others") were deleted for their low item-scale correlation in the Hong Kong sample. The internal consistency of the three subscales was moderate to high, with an $\alpha = .65$ for prosocial attributes, $\alpha = .76$ for positive identity, and $\alpha = .76$ for cognitive-behavioral competence in the Dutch sample, and $\alpha = .85$, $.86$, and $.86$, respectively, in Hong Kong participants.

Data Analyses and Results

Negative Correlation between Positive Youth Development Constructs and Depression

The correlation matrix and descriptive statistics are shown in Table 2. Positive youth development constructs were positively correlated with one another, and negatively correlated with depression in both Dutch and Hong Kong students. These constructs were also negatively correlated with childhood maltreatment in both groups of students, except cognitive-behavioral competence, which was not correlated with childhood abuse in Hong Kong students.

Some of the demographic variables are related to the target variables. For instance, gender was significantly related to depression and suicidal ideation, such that Hong Kong male participants scored significantly higher in childhood maltreatment ($t = 2.14, p = .04$), depression ($t = 3.16, p = .002$), and suicidal ideation ($t = 2.87, p = 0.01$) than Hong Kong female participants. Female participants in both cultures scored significantly higher in prosocial attributes ($t = -2.13, p = .03$, for Hong Kong students; $t = -3.58, p < .001$, for Dutch students). In terms of age, older Dutch participants scored higher than their younger Dutch counterparts in childhood maltreatment ($r = .15, p = .008$), depression ($r = .13, p = .02$), and suicidal ideation ($r = .14, p = .02$), while lower in prosocial attributes ($r = -.17, p = .003$); older Hong Kong participants scored higher in positive identity ($r = .14, p = .03$) than their younger Hong Kong counterparts.

Metric Invariance of Positive Youth Development Subscales across Groups

Next, we performed a multi-group confirmatory factor analysis to investigate the factor structure and intercepts of the positive youth development subscales (*Hypothesis 1*) with maximum likelihood estimation using AMOS version 22 (36) across the two cultural samples. As suggested by Hu and Bentler (1999), a good model would have a comparative fit index (CFI) larger than .95, a root-mean square error of approximation (RMSEA) smaller than .06, and a standardized root mean square residual (SRMR) smaller than .08.

According to the guideline suggested by Vandenberg and Lance (38), we tested five levels of invariance models: Configural invariance, metric invariance, scalar invariance, structural covariances invariance, and measurement residuals invariance models.

The configural and metric invariance models of the subscales fit the data well, all model fit indexes fell within the acceptable range. The model fit of the metric invariance models for the three subscales were statistically indifferent from the configural invariance models of the subscales (for prosocial attributes, $\Delta df = 4$, $\Delta\chi^2 = 3.30$, $p = .51$; for positive identity, $\Delta df = 3$, $\Delta\chi^2 = 6.41$, $p = .09$; for cognitive-behavioral competence, $\Delta df = 5$, $\Delta\chi^2 = 10.12$, $p = .07$) (see Table 3). Thus, configural and metric invariance were achieved for the three subscales, implying that the same factor structure of the subscales was applicable across the two cultural groups, and that the factors loadings of the subscales were not different across groups – which highlights a culturally universal structure. There was scalar variance in all three subscales across samples, though.

Differences between the Dutch and Hong Kong Sample

Hong Kong students seemed to report more childhood maltreatment, $t(500.00) = 3.02$, $p = .003$, more depression, $t(561) = 6.20$, $p < .001$, more suicidal ideation, $t(502.42) = 1.43$, $p = .04$, and higher levels of prosocial engagement, $t(561) = 6.32$, $p < .001$ (see Table 2). We cannot interpret these differences between the Hong Kong and Dutch sample though, due to the absence of scalar invariance of the assessment instruments, which is a note of caution to studies comparing culturally diverse samples. More research on equivalence is needed to understand the validity of these differences.

Positive Youth Development as a Buffer against Depression in Dutch Students only

To investigate whether there is a buffering effect of the three second-order positive youth development factors against the detrimental impact of childhood maltreatment (*Hypothesis 2a to 2c, 3a to 3c*) we conducted

moderation analyses, controlling for the effect of gender on depression and suicidal ideation. Moderation analyses were carried out using AMOS version 22 (36). Variable scores were standardized before entering them into the path analysis model. Simple slope analyses were conducted using the PROCESS macro (39) to identify the direction of the interaction effects per group. In the path analysis models, depression and suicidal ideation were residualized and the effect of gender and age were partialled out. Three moderation models were tested, with different positive youth development factors put as the moderating variables, and the results are shown in Figure 2, 3, and 4.

Several effects were universal across cultural samples: All positive youth development factors negatively predicted depression and suicidal ideation (except for cognitive-behavioral competence in the Dutch sample), and childhood maltreatment positively predicted depression and suicidal ideation. This means that they had a direct protective effect against depression and suicidal ideation.

The mediating role of depression in the PYD-Suicidal Ideation relationship was tested using the bootstrapping method with bias-corrected confidence estimates and 5000 bootstrap resamples (40). Since childhood maltreatment, depression, and suicidal ideation were significantly correlated, we tested for an indirect effect of childhood maltreatment on suicidal ideation. The result confirmed a mediating role of depression in the PYD-Suicidal Ideation relationship (in the Hong Kong sample, $\beta = .16$, 95% CI = .10 to .23, $p < .001$, for Model 1; $\beta = .12$, 95% CI = .08 to .19, $p < .001$, for Model 2; with $\beta = .16$, 95% CI = .10 to .23, $p < .001$, for Model 3; in the Dutch sample, with $\beta = .05$, 95% CI = .01 to .11, $p = .04$, for Model 1; with $\beta = .03$, 95% CI = .00 to .07, $p = .05$, for Model 2; with $\beta = .07$, 95% CI = .02 to .13, $p = .002$, for Model 3).

Interaction effects qualify the main effects reported above. An inspection of the interactions between maltreatment and the three PYD factors revealed that there was a significant prediction of depression, except for the interaction between childhood maltreatment and positive identity in Model 2.

However, interaction patterns differed across the two cultural groups (see Figure 5). Since all of the path analysis models examined in this study are just-identified models (and hence $df = 0$), an assessment of model fit is not relevant.

First, the interaction between childhood maltreatment and *prosocial attributes* (MALTRE x PROSOC) on depression was significant in both the Hong Kong and the Dutch sample. The standardized coefficient was negative in the Dutch ($\beta = -.17, p = .003$) and positive in the Hong Kong sample, $\beta = .18, p = .003$. We inspected simple slopes per group regarding the interaction effects. For the Dutch sample, childhood maltreatment positively predicted depression in adulthood for low prosocial attributes (with scores 1 *SD* below the mean, $b = .30, SE = .06, p < .001$) and mid-level prosocial attributes (with scores at the mean range, $b = .16, SE = .06, p = .01$), in Dutch students (Figure 5). For high prosocial attributes, there was no relationship between childhood maltreatment and depression in adulthood, $b = .02, SE = .09, p = .82$. This pattern is in line with prosocial attributes buffering against adult depression when childhood maltreatment was experienced. In contrast, childhood maltreatment positively predicted adulthood depression in Hong Kong students for low levels, $b = .20, SE = .06, p = .001$, mid-levels, $b = .34, SE = .06, p < .001$, and high levels, $b = .48, SE = .09, p < .001$, of prosocial attributes. Unlike among Dutch participants, prosocial attributes did not seem to buffer against depression among Hong Kong participants. Prosocial attributes had a significant negative association with depression in both Dutch ($\beta = -.23, p < .001$) and Hong Kong participants ($\beta = -.34, p < .001$). In sum, the findings in the Dutch sample are in line with the buffering effect predicted in *Hypothesis 2a*, while the results from the Hong Kong sample are not. The direct protective effect of prosocial attributes was found in both samples.

For *positive identity* as the moderator, we observed a significant interaction effect of positive identity and childhood maltreatment on depression in Hong Kong students, $\beta = .11, p = .05$. There was

no significant interaction effect among Dutch students, $\beta = -.09, p = .17$. The result of the simple slope analysis revealed that childhood maltreatment positively predicted adulthood depression in Hong Kong students for low level, $b = .17, SE = .07, p = .02$, mid-level, $b = .29, SE = .06, p < .001$, and high level, $b = .40, SE = .09, p < .001$, of positive identity (Figure 5). The effect of childhood maltreatment was significant across all levels of positive identity, the effect of childhood maltreatment on adulthood depression was significantly stronger at higher levels of positive identity, as indicated by the larger b coefficients and the significant interaction of MALTRE x POSID. Regardless of its level, positive identity had a direct protective effect in both Hong Kong ($\beta = -.42, p < .001$) and Dutch ($\beta = -.31, p < .001$) samples. However, positive identity does not seem to work as a buffer, and, when pronounced, even seems to be exerting a weaker protective effect against depression, which is not in line with our prediction. In conjunction with the absence of an interaction effect in the Dutch sample, there is no support for *Hypothesis 2b*.

The interaction of *cognitive-behavioral competence* with childhood maltreatment (MALTRE x CBCOMP) was significant in both Dutch, $\beta = -.13, p = .03$; and Hong Kong students, $\beta = .13, p = .03$. To inspect the direction of the interaction effect, simple slopes were computed and revealed that childhood maltreatment positively predicted depression in adulthood for low cognitive-behavioral competence ($b = .30, SE = .06, p < .001$) and mid-level cognitive-behavioral competence ($b = .22, SE = .06, p < .001$), in Dutch students. For high cognitive-behavioral competence, there was no relationship between childhood maltreatment and depression in adulthood, $b = .13, SE = .07, p = .05$. This finding supports the prediction (*Hypothesis 2c*) that high cognitive-behavioral competence is a buffer, associated with a less pronounced relationship between childhood maltreatment and later depression. In Hong Kong students, childhood maltreatment was related to depression across all levels of cognitive-behavioral competence, ranging from low level, $b = .19, SE = .07, p = .005$, mid-level, $b = .32, SE = .06,$

$p < .001$, to high level, $b = .45$, $SE = .10$, $p < .001$. Although the effect of childhood maltreatment was significant across all levels of cognitive-behavioral competence, the effect of childhood maltreatment on adulthood depression was significantly stronger at higher levels of cognitive-behavioral competence, as indicated by the larger b coefficients and the significant interaction of MALTRE x CBCOMP. Thus, hypothesis 2c is supported in the Dutch sample but not in the Hong Kong sample. Nevertheless, a direct protective effect was observed in both Dutch ($\beta = -.20$, $p < .001$) and Hong Kong ($\beta = -.33$, $p < .001$) participants.

Positive Youth Development as a Direct Protective Factor against Suicidal Ideation

Childhood maltreatment x cognitive-behavioral competence negatively predicted suicidal ideation, $\beta = -.14$, $p = .008$, in Dutch participants. The effect of childhood maltreatment on suicidal ideation was significant in low levels, $b = .33$, $SE = .05$, $p < .001$, mid-levels, $b = .25$, $SE = .05$, $p < .001$, and high levels, $b = .17$, $SE = .06$, $p = .002$, of cognitive-behavioral competence; yet the effect was stronger at lower level of cognitive-behavioral competence, as indicated by the larger b coefficient. This suggests that the effect of childhood maltreatment on suicidal ideation is strongest for those low in cognitive behavioral competencies among Dutch participants, which supports hypothesis 3c. This holds only for the Dutch but not the Hong Kong sample. On the other hand, no direct protective effect was found for cognitive-behavioral competence against suicidal ideation in Dutch ($\beta = -.08$, $p = .13$), while there was a significant negative association between cognitive-behavioral competence and suicidal ideation in the Hong Kong sample ($\beta = -.13$, $p = .01$).

There was no interaction between positive youth development factors and childhood maltreatment on suicidal ideation. Hypothesis 3a and 3b are therefore not supported. Although no buffering effect was observed, both prosocial attributes and positive identity had direct protective effects

against suicidal ideation in Hong Kong ($\beta = -.19, p < .001$, for prosocial attributes; $\beta = -.20, p < .001$, for positive identity) and Dutch sample ($\beta = -.11, p = .03$, for prosocial attributes; $\beta = -.26, p < .001$, for positive identity).

Positive Youth Development as a Mediator

Additionally, we conducted mediation analyses to test if positive youth development factors mediate the relationships between childhood maltreatment and depression and between childhood maltreatment and suicidal ideation. All positive youth developmental factors are significantly correlated with childhood maltreatment¹, depression, and suicidal ideation (see Table 2), and are eligible to be tested for their mediation role (39). Significance of mediation effect was tested using bootstrapping procedures using PROCESS macro embedded in SPSS (39), and the 95% confidence interval was computed. In Hong Kong students, prosocial attributes (LL=.14, UL=.71), positive identity (LL=.07, UL=.59), cognitive-behavioral competence (LL=.02, UL=.46) were mediators in the relationship between childhood maltreatment and depression, and in the relationship between childhood maltreatment and suicidal ideation (for positive identity, LL=.07, UL=.59; for prosocial attributes, LL=.03, UL=.11; for cognitive-behavioral competence, LL=.01, UL=.06). In Dutch students, prosocial attributes (LL=.12, UL=.61), positive identity (LL=.34, UL=1.03), and cognitive-behavioral competence (LL=.08, UL=.69) were mediators in the relationship between childhood maltreatment and depression. Similarly, prosocial attributes (LL=.01, UL=.08), positive identity (LL=.05, UL=.16), and cognitive-behavioral competence (LL=.01, UL=.08) were mediators in the relationship between childhood maltreatment and suicidal ideation in Dutch students.

¹ Cognitive-behavioral competence was marginally correlated with childhood maltreatment ($r = -.12, p = .06$) in Hong Kong students. We are motivated to test its mediational role as well in sake of getting a clearer picture.

Discussion

Positive Youth Development Subscales are Structurally Comparable across Cultural Groups

Based on Catalano et al. (11)'s 15-construct model of positive youth development, Shek and Ma (10) developed the measurement of positive youth development for Chinese adolescents. They uncovered four second-order constructs that capture the essence of the 15 PYD constructs. We examined (*Hypothesis 1*) whether the three concrete second-order constructs among them (prosocial attributes, positive identity, and cognitive-behavioral competence) are related in a structurally universal manner to the outcome variables across two culturally different samples (the Netherlands, Hong Kong). We found that the structure of relationships is similar across the two cultural contexts. In addition, our study is the first to replicate the factorial structure of CPYSD in a non-Chinese sample. We interpret this as a first step in expanding the conceptualization of positive youth development to further cultural contexts. However, we do not find evidence for scalar invariance, which keeps us from interpreting the mean differences between the samples, and for the first time clarifies that there is a limited cultural applicability of the instruments.

Differential Protective Effects of Positive Youth Development in Western and Non-Western Contexts

In line with our hypotheses (*2a and 2c*), we find that prosocial attributes and cognitive-behavioral competence (but not positive identity) moderate the relationship between childhood maltreatment and depression in the Dutch sample – but we do not find evidence for these buffering effects in the Hong Kong sample. This highlights that there seem to be sample-specific protective effects of prosocial attributes and cognitive-behavioral competence against depression. While the protective effects of these two PYD factors are more pronounced in reducing depression in Dutch students with a high level of perceived childhood maltreatment, in marked contrast, protection via prosocial attributes and cognitive-behavioral competence is stronger in Hong Kong students reporting low levels of perceived childhood

maltreatment. In general, however, all three PYD factors are beneficial in students from both cultures: Students high in these PYD factors report less depression. We also find that all PYD factors mediate the relationship between childhood maltreatment and the mental health indicators (depression and suicidal ideation) in our study.

Different protective effects against suicidal ideation are observed across Hong Kong and Dutch sample. Only hypothesis 3c is supported, but only in the Dutch sample: cognitive-behavioral competence has a stronger protective effect against suicidal ideation in Dutch students with high level of perceived childhood maltreatment. Prosocial attributes and positive identity do not moderate the relationship between childhood maltreatment and suicidal ideation in either sample, but they exert direct protective effects against suicidal ideation across both samples. Interestingly, a direct protective effect of cognitive-behavioral competence against suicidal ideation is found only in Hong Kong sample, but not in the Dutch sample. The result highlights the importance of differentiating between protective factors and considering whether effects are direct or in interaction with other factors, to better understand the predictors of suicidal ideation (41)

Our study joins prior studies originating in Western contexts documenting the role of prosocial attributes and cognitive-behavioral competence as protective factors against adversity or victimization (21). Griese and Buhs (22) suggested that prosocial attributes are associated with a wide range of positive psychological skills, including perspective taking, social interaction skills, conflict resolution, and emotion regulation. Adolescents with stronger prosocial attributes are less self-focused and less vulnerable to the detrimental impact of adverse experience in childhood (21). The competency-based model suggests three elements in particular. First, building competences constitutes a major developmental task in adolescence (42). Second, inadequacies in self-evaluated competence are strongly

linked to the development of depression. And third, for maltreated adolescents, developing self-competence is a protective factor against the risky behavior (43).

Very few studies have investigated the buffering effect of positive identity development against detrimental effect of childhood adversity. Among those, Wexler and colleagues (44) examined the effectiveness of digital storytelling in promoting positive identity development among native youth in Alaska, finding that the formation of a positive identity serves as a protective factor against suicidal behavior. Other studies document that identity is an important resource against adverse effects of discrimination among ethnic minority youth (24,26).

The interaction effects of positive youth development factors with childhood maltreatment on suicidal ideation were often mediated by depression, which is congruent with findings from previous studies (5).

Limitations and Perspective

The effects we find in the Hong Kong contrast with the Dutch sample. Hong Kong participants' link between childhood maltreatment and depression was stronger the more they endorsed a positive identity, and the higher they self-reported their cognitive behavioral competencies. Although positive youth development factors are negatively associated with childhood maltreatment, depression and suicidal ideation, their interaction with childhood maltreatment seemed to *contribute* to depression. The positive youth development factors seem to amplify, not buffer, the negative effects on depression and suicidal ideation (45).

Several avenues present themselves to understand the results as a whole. First, it is possible that there are important sample differences and confounds that were not assessed in the demographics, meaning that the samples are not as comparable as originally assumed. Such factors could include the

degree to which participants are seeking professional help in dealing with personal issues and the like, which could mean that those that seek help in the Hong Kong sample actually experience themselves to be less competent and positive, but in actual fact do better because they seek help. Second, it is possible that there are different response styles when self-relevant information is reported. Hong Kong participants might be differently inclined from the Dutch participants to provide positive self-relevant information (like positive identity and competencies) or may seek to provide socially desirable answers (46). Third, it is noteworthy that the main effects found are generally in line with predictions, and that effects counter to our predictions emerge only in interactions. Interaction effects across diverse cultural samples have been described as infamous for their instability (32). It is possible that in a replication of the study, these interaction effects will not replicate. Last but not least, and connected with the previous points, it is possible that the differences between the samples reveal cultural differences. But we do not have individual indicators of sociocultural orientation (self-construal or values) – which represents a clear limitation of the study design. Possible avenues to explain the differences could lie in the individual and relational orientation of how to deal with adversity. Drawing attention to the self and capitalizing on individual skills (e.g., one's prosocial attributes) might be more acceptable in prototypically independent settings (47). It could also be that the role of positive emotions and positive identity is not as unambiguously positive in Hong Kong as it is understood in a Western setting (48,49). This might explain to some extent why a positive identity was not associated with more positive outcomes in the Hong Kong sample (although it does not clarify why the Dutch sample did not exhibit a relationship). A further investigation on how individual-level cultural factors may moderate the buffering effect of positive youth development factors is therefore needed to understand differences between the samples.

The use of university students as samples limits the generalizability of our findings, as it is not necessarily a foregone conclusion that university students are representative of emerging adults as a whole in the two cultural contexts we have investigated. A final limitation concerns the selection of the positive youth development constructs in the current study. We picked all of the second order constructs of Chinese Positive Youth Development Scale (10) except the general positive youth development qualities, given that all other second order constructs are known to be the main elements in the positive youth development program. This provides a common ground in examining the buffering effect of these shared positive youth development constructs in both cultural context. However, other facets of positive youth development that are captured by the second order construct of general positive youth development qualities are being neglected. The first order factors of CPYDS, although they can also be an interesting level of positive youth development to investigate, are not considered in the current paper, as the current sample size is unfortunately insufficient to compare first order factor structure of CPYDS across the two cultures.

Conclusion

Overall, the current study reveals differences in the way that the second order factors of the Chinese Positive Youth Development Scale (CPYDS) operate in two different cultural contexts, Hong Kong and the Netherlands. The role of positive youth development factors as buffering factors against the detrimental effect of childhood maltreatment on mental health was revealed in students in the Netherlands while they acted as direct protective factors in Hong Kong, and their interaction effects with childhood maltreatment are contrasting with predictions in Hong Kong students. Despite the limitations of the current study, the results for the first time clarify the need to examine in a psychometrically and culturally appropriate fashion the effects of prosocial attributes, positive identity, and cognitive-behavioral competence in positive youth development to foster resilience of youth and adolescent

against adverse experience in different cultural contexts. We want to stress the need to test for scalar invariance prior to comparing samples, as comparing mean differences may not be appropriate. This highlights a potential danger: Without demonstrating the level at which comparisons (structural and mean comparisons) can be made across countries, conclusions based on such comparisons are at best ambiguous and at worst erroneous (50,51). Further studies are needed to examine the cultural factors that may moderate the buffering effect of positive youth development factors on detrimental experiences.

Declaration of conflicting interests: The authors declare that they have no competing interests.

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