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RESEARCH ARTICLE

Positive Thinking, School Adjustment and Psychological Well-being among Chinese College Students

Raymond C.F. Chui^{1,*} and Chi-K. Chan²

¹*Social Work Research and Development Centre, Hong Kong Shue Yan University, Hong Kong*

²*Department of Counseling and Psychology, Hong Kong Shue Yan University, Hong Kong*

Abstract:

Background:

Previous studies have found that traditional positive Chinese beliefs contribute to the maintenance of the quality of life. It is interesting to explore the functions of positive thinking on stress in the Chinese context in order to test whether positive thinking influences the psychological well-being of college students.

Objective:

This study aims to examine the associations between positive thinking, school adjustment, and the psychological well-being of Chinese college-going students. It investigates the moderating role of positive thinking in the effects of poor school adjustment on stress and well-being.

Methods:

A cross-sectional survey was administered to 299 male and 396 female college students aged 17-28 years across eight universities of Hong Kong.

Results:

Results confirmed that school adjustment was negatively related to stress ($\beta = -.194$) and positively related to life satisfaction ($\beta = .074$). It was also indirectly related to psychological distress via stress ($\beta = -.194$; $\beta = .620$). Moreover, positive thinking was a moderator to the relationships between school adjustment and stress ($\beta = .011$) and to the relationships between school adjustment and life satisfaction ($\beta = -.009$). School adjustment was more related to stress at higher levels of positive thinking while it was more related to life satisfaction at lower levels of positive thinking.

Conclusion:

These results suggested that enhancing positive thinking is beneficial to Chinese college-going students' psychological well-being. Therefore, student services at universities can consider organizing workshops to educate and promote the appropriate use of positive thinking for students to alleviate their stress and enhance their psychological well-being.

Keywords: Positive thinking, School adjustment, Stress, Life satisfaction, Psychological distress, Chinese college students.

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1. INTRODUCTION

Many previous studies have indicated that positive thinking or related constructs are associated with individual well-being [1, 2]. Positive thinking can be conceptualized as proactive thinking of an individual to look forward to in the future [1]. Positive thinking is quite similar to the concept of

“being optimistic towards the future” in positive psychology [3]. Optimism, positivity and positive affect are other related concepts. Positive thinking includes self-enhancement and self-affirmation [4]. This study considers positive thinking as a cognitive resource, which is important to the prevention and protection from psychological disorders. Individuals who have more positive thinking tend to appreciate and have an optimistic orientation to life, a positive feeling and perception of the life event and a generalized expectancy for positive outcomes in the future.

* Address correspondence to this author at the Department of Social Work, Hong Kong Shue Yan University, 10 Wai Tsui Crescent, Braemar Hill, Hong Kong; Tel: (852) 2570 7110; Fax: (852) 2804 8558; E-mail: cfchui@hksyu.edu

The traditional positive beliefs of Chinese about life, such as having a positive outlook on life, are similar to the Western construct of positive thinking. The Chinese cultural beliefs that shaped by Confucian thoughts emphasized perseverance and tolerance. In these beliefs, individuals are considered as the master of their own fate and overcoming hardship can increase their stature [5]. People with a high level of endorsement of the positive Chinese cultural beliefs view adversity as a chance for personal development and beneficial to their well-being [6]. Children with stronger Chinese life beliefs have more favorable habits and less behavioral problems [7]. These beliefs also moderate the negative effect of adversity on the quality of life of children [7] and help to lessen the negative impact of economic hardship on perceived stress among low-income Hong Kong families [8]. The properties of positive Chinese life beliefs are consistent with the Western construct of positive thinking, as mentioned in these aspects. However, Chinese culture emphasizes interdependence and collectivist values, which make individual perception, cognition, and structure of personality different from the Western ones [9]. Therefore, it is interesting to explore the functions of positive thinking on stress in the Chinese context in order to test whether positive thinking has the same influence on the psychological well-being of Chinese college-going students. This study adopts Lazarus and Folkman's [10] stress process theory to examine the relationship between positive thinking, stress, school adjustment and psychological well-being of college students in Hong Kong. It investigates the moderating role of positive thinking in the effects of poor school adjustment on stress and well-being among Hong Kong Chinese college students. Positive thinking is considered as one of the individual resources and internal protective factors that can moderate the impact of stress on the well-being of college students. It is important to explore the implication of positive thinking on Chinese societies and how it can help individuals to tackle difficulties.

1.1. School Adjustment, Stress and Well-Being

School adjustment can be conceptualized as students' adjustment to learning and their relationships with teachers and peers. It is a dynamic process which relates to the integration of students with the school environment [11]. Psycho-social development of adolescents is strongly affected by human interactions in this school environment [12]. Studies with college students revealed that poor school adjustment is negatively related to psychological well-being [11]. The overall adjustment to college is significantly related to students' level of stress. Students who are able to adjust better at school tend to have a lower level of stress and have a higher level of psychological well-being [13], while students with poor adjustment feel difficult to manage stress and have lower levels of psychological well-being [14]. Reduction in stress levels can alleviate mental distress [15]. Therefore, we anticipate that (H₁) students who can adjust better have lower stress levels and a higher level of psychological well-being [16]; and (H₂) stress is a mediator to the relationship between school adjustment and psychological well-being.

1.2. Positive Thinking as a Stress Buffer

Positive thinking is important to individual well-being [2] because people who think positively have more positive emotions and better well-being [17]. When facing stress, judging the event with a positive perspective and have generalized positive expectancies for outcomes can improve well-being. Positive thinking seems to play an important role in the stress process. It is an important psychological resource for coping and can help students to adjust better at school. According to the stress process model, Lazarus and Folkman (1984) emphasize that individuals constantly appraise and adapt to stressors. People viewing themselves in a more positive way are less affected by stress [4]. When people appraise stress as exceeding individual resources, their psychological well-being will be endangered [10]. Sources of stress among college students include academic struggles, adolescent transitions, and peer relationships. A study on a group of American undergraduates indicated that positive thinking could buffer individual stress levels [18]. We anticipate that positive thinking is a moderator to the relationship between stress and psychological well-being (H₃).

Previous Western studies suggested that the relevant constructs related to positive thinking have a positive function on the individual well-being, although only a limited number of studies focus on positive thinking directly. Positive emotion is one of the constructs related to positive thinking. Many relevant Western studies have suggested the protective functions of positive effects or emotions [19]. Positive emotions broaden the scopes of attention, cognition and action as well as facilitating flexible, novel and positive thinking that deal with stress and adversity [20, 21]. These enable individuals to build personal resources, and in turn, improve their well-being. A study of British college students found that positive cognitions can lead to positive affects if individuals' experiences are consistent with positive thoughts and meaning in life [22]. In addition, studies revealed that the use of positive emotion regulatory strategies could enhance American's life satisfaction and their psychological functioning [23, 24]. Therefore, cultivating positive emotions is important for building resilience to stressful events [25]. However, there is a lack of empirical study to investigate the relationship between positive thinking and individual well-being in the Chinese context. Only a few related studies have been found. While Palmer [26] concluded that positive thinking is one of the important elements of mental health for Malaysian Chinese, it can be a coping strategy negatively related to the psychological distress of HIV-infected persons in Hong Kong [27]. Facilitating positive thinking was also found to help to enhance Chinese patients' post-radiation adjustment [28]. These studies were either using qualitative methods or had a narrow focus on a specific group of patients.

Optimism is another construct that is related to positive thinking and has been found to be positively associated with individual well-being. Positive thinking involves holding positive expectancies for one's future, such as having an optimistic orientation to life and believe positive things will occur [29]. Optimism is one of the positive personal properties that can promote resilience [30]. A few studies have indicated

that optimism is significantly associated with individual well-being [31, 32]. Optimists are more resistant to negative feedbacks and have higher life satisfaction [33]. Moreover, optimists are healthier than pessimists. Optimism delivered in the existence of positive thoughts can increase positive affect and subsequently decrease depressive symptoms [34].

There are some empirical evidences that optimism is a human strength that can act as a buffer against mental problems among Chinese people. Optimism can buffer the negative effect of stress on subjective well-being [29]. Optimism plays a moderating role in affecting the association between stress and life satisfaction [35]. There were several medical studies indicated the negative relationships between stress and optimism [29, 36, 37]. Optimistic patients had a higher quality of life than pessimistic patients. The effects of optimism also apply in the school setting. Optimism has a negative effects on depression, anxiety, and irritation of Chinese college students [38]. A study on secondary school students in Hong Kong found that optimism was positively associated with meaning in life and life satisfaction [31]. Positive reframing skill was one of the key factors to improve the well-being of students. Those who viewed hassles from a positive perspective can enhance their overall well-being [32].

1.3. Present Study

All of the above studies show that both Western and Chinese studies confirmed the positive role of optimism. However, positive thinking is a broader concept that is beyond optimism. Having an optimistic orientation to life is only one of the attributes of positive thinking. Apart from expecting good and favorable results in the future as emphasized in optimism, positive thinking is a mental attitude with hope and confidence, and relates to personal growth and expansion [22, 39]. It is also a practice of feeling good about oneself, the environment and people around as well as a positive mind enjoying past times and happiness [1]. Therefore, an exclusive study is important to examine whether positive thinking has a positive effect on individual well-being too. Rather than focusing on relevant constructs, this study is based on a unique construct of positive thinking and discovered its association with stress, school adjustment and psychological well-being. In the stress appraisal process, college students with positive thinking may consider difficulties encountered in the study as a challenge, controllable, and expect that it can lead to better achievement and personal growth. On the other hand, those with less positive thinking may consider the stressor as a threat and unable to handle it to create harm. We anticipate that positive thinking is a moderator to the relationship between school adjustment and stress (H_4) as well as to the relationship between school adjustment and psychological well-being (H_5). Those who have more positive thinking buffer the negative effects of poor school adjustment on stress and well-being. In summary, the following hypotheses were formulated for the present study:

H_1 school adjustment has a negative relationship with stress and positive relationship with psychological well-being;

H_2 stress mediates the relationship between school adjustment and psychological well-being;

H_3 positive thinking moderates the relationship between stress and psychological well-being;

H_4 positive thinking moderates the relationship between school adjustment and stress;

H_5 positive thinking moderates the relationship between school adjustment and psychological well-being.

2. METHODS

2.1. Participants

The target group of this study was full-time Chinese college-going students in Hong Kong. Hong Kong is one of the major cities in China, with about 92% of the total population is Chinese (40). There is a total of 200,280 college students in Hong Kong in 2016 (41). One thousand college students from ten universities in Hong Kong were invited to participate in the study with a response rate of 70%. In total, 700 undergraduate students aged from 17-28 ($M = 20.93$, $SD = 1.66$) participated in this study. The sample of this study covered 0.35% of the total population of college students in Hong Kong. Almost three-fifths (57%) of the respondents were female students and 43% were males, these percentages closely represented the sex distribution of college students in Hong Kong. For the year of study, 29.6% were freshmen; 36.4% were sophomores; 24.7% were juniors and 9.3% were seniors.

2.2. Measures

2.2.1. Positive Thinking

Positive thinking was measured by the Positive Thinking Scale (PTS: 42). PTS consists of 22 brief statements, in which there are 11 positive and 11 negative statements. Higher scores represent a higher tendency of positive thinking, suggesting that an individual tend to be positive in viewing themselves, other people or even the world. The Cronbach's alpha of the PTS for the present study was 0.745, indicating an acceptable internal consistency.

2.2.2. School Adjustment

School adjustment of college students was assessed by a Chinese version scale developed by Wu & Tsai (2009). The scale contains 25 items to measure students' adjustment in school work and their relationships with teachers and peers. The scale has been confirmed by a previous study as a valid and reliable measure for Chinese college students [11]. Higher total scores represent higher levels of school adjustment. In this study, this scale yielded a good internal consistency index with a Cronbach's alpha of 0.866.

2.2.3. Stress

The level of stress was measured by the Perceived Stress Scale (PSS-10: 43). This scale comprises of 10 items that measure the extent to which situations in current life were perceived as stressful within a month. The scale has been validated by a previous study for Chinese college students [11]. Higher scores indicate a higher stress level. In the present study, the ten items yielded a Cronbach's alpha of 0.805, suggesting a good internal consistency.

2.2.4. Psychological Well-Being

In this study, psychological well-being consists of two main components, mental health and life satisfaction [2]. Thus, two scales were used to measure psychological well-being. The mental health of respondents was measured by a Chinese version of the 12-item General Health Questionnaire (GHQ-12), which reflects the presence of psychological distress and symptoms [40 - 44]. The scale is widely used as a measure for mental disorder among young Chinese and has been confirmed with good reliability and validity [45]. This scale includes six items, higher total scores indicating more mental distress. Furthermore, the Satisfaction with Life Scale (SWLS) [46] was used to measure the life satisfaction of the respondents. The scale has been confirmed as a valid and reliable measure to study the life satisfaction of Chinese college students [47]. The SWLS comprises of five statements about respondents' perceptions of their life, higher total scores associated with higher life satisfaction. In this study, both GHQ and SWLS had good internal consistency, with a Cronbach's alpha of 0.846 and 0.891, respectively.

2.3. Procedures

A cross-sectional survey study was conducted. Respondents were sampled from all eight universities in Hong Kong with students from the faculty of social sciences (26.8%), the faculty of business (18.9%), the faculty of arts (17.2%), the

faculty of science (16.4%), the faculty of health and medicine (10.0%) and other faculties (10.7%). Self-administrated questionnaires were distributed by student research assistants in common areas, such as the canteen at different universities in Hong Kong. The research assistants introduced the purpose of the study and invited potential respondents to participate.

3. RESULTS

The macro 'PROCESS' for SPSS with 10000 bootstrapped was used to test the hypothesized moderated mediation model (Fig. 1). It generated 95% bias-corrected bootstrap confidence intervals for all indirect effects in the two study models that involved a mediation component (Hayes, 2013). Bootstrapping was employed instead of the normal theory-based Sobel test for inference about mediation effects because it does not rely on the assumption of normality. Since the researchers do not have a theoretical mechanism for handling non-random missing data, cases with missing data were excluded from the execution of PROCESS. Two models were conducted because we have two variables to reflect psychological well-being. In the first model, GHQ was the dependent variable, school adjustment was the independent variable, stress was the mediating variable, and positive thinking was the moderator. In the second model, life satisfaction was the dependent variable, school adjustment was the independent variable, stress is the mediating variable, and positive thinking was the moderator.

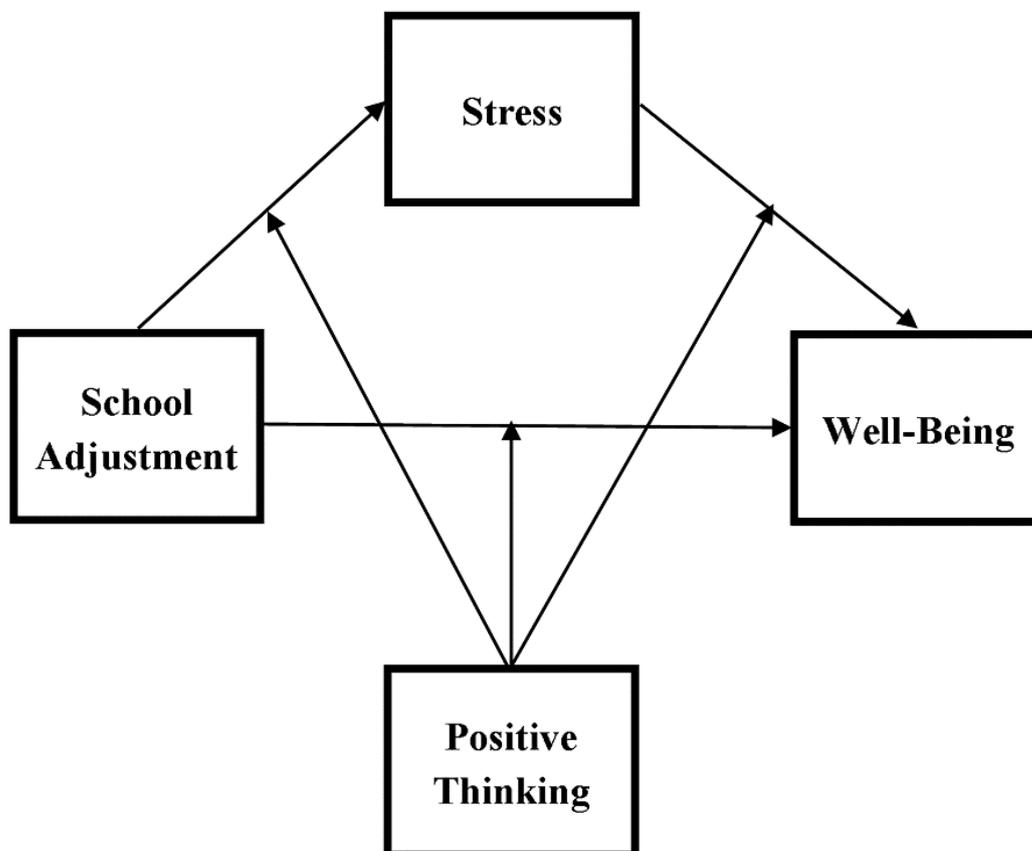


Fig. (1). Hypothesized moderated mediation model.

Results indicated that H_1 was partially confirmed. School adjustment was negatively related with levels of stress ($\beta = -.194$, $SE = .018$, $p < .001$). Moreover, poor school adjustment was related with lower levels of life satisfaction ($\beta = .189$, $SE = .058$, $p = .001$) but did not have a significant direct relationship with GHQ ($\beta = -.085$, $SE = .056$, $p = .127$).

H_2 predicted a positive indirect relationship between school adjustment and psychological well-being through stress. Results showed that stress was positively related with more psychological distress in terms of GHQ ($\beta = .620$, $SE = .039$, $p < .001$) and negatively related with life satisfaction ($\beta = -.427$, $SE = .040$, $p < .001$). As shown in the above correlational analysis, school adjustment was related to life satisfaction and GHQ. After controlling for stress in the multivariate analysis, school adjustment was positively related with life satisfaction ($\beta = .074$, $SE = .020$, $p < .001$) but it was not significantly related with GHQ ($\beta = -.031$, $SE = .019$, $p = .101$). Results showed that stress was a significant mediator in the relationship between school adjustment and life satisfaction as well as between school adjustment and GHQ. The relationship between school adjustment and GHQ was fully mediated by stress, and the relationship between school adjustment and life satisfaction was partially mediated by stress.

In line with H_3 , the interaction term between school adjustment and positive thinking was significantly and negatively related with stress ($\beta = -.011$, $SE = .004$, $p = .006$). School adjustment was more related with stress at higher levels of positive thinking (*i.e.* at one standard deviation above the mean, $\beta = -.166$, $SE = .025$, $p < .001$) than at average levels of positive thinking (*i.e.*, at the mean, $\beta = -.124$, $SE = .018$, $p < .001$) and lower levels of positive thinking (*i.e.*, at one standard deviation below the mean, $\beta = -.082$, $SE = .023$, $p < .001$).

H_4 and H_5 predicted that positive thinking was a moderator to the relationship between school adjustment and psychological well-being as well as a moderator to the relationship between stress and psychological well-being. The interaction term between school adjustment and positive thinking was significantly and negatively related with life satisfaction ($\beta = -.009$, $SE = .004$, $p = .044$), but it was not significantly related with GHQ ($\beta = .004$, $SE = .004$, $p = .325$). School adjustment was more related with life satisfaction at lower levels of positive thinking (*i.e.*, at one standard deviation below the mean, $\beta = .108$, $SE = .024$, $p < .001$) than at average levels of positive thinking (*i.e.*, at the mean, $\beta = .074$, $SE = .020$, $p < .001$) and higher levels of positive thinking (*i.e.*, at one standard deviation above the mean, $\beta = .040$, $SE = .027$, $p = .144$). These results indicated that the indirect effect of school adjustment on life satisfaction was a function of positive thinking. The con-

ditional indirect effect when positive thinking equals higher value was statistically different from the conditional indirect effect when positive thinking equals lower and average values. However, in contrast to H_5 , the interaction term between stress and positive thinking was not significantly related with GHQ ($\beta = .005$, $SE = .008$, $p = .558$) and not related with life satisfaction ($\beta = -.003$, $SE = .008$, $p = .742$).

4. DISCUSSION

The findings partially supported the hypothesis that school adjustment was not only positively related to psychological well-being, but it was negatively associated with stress levels. Consistent with findings from previous research findings, we also found significant positive direct relationships of school adjustment with life satisfaction [16, 48] and significant negative direct relationships with stress [13]. College students with a higher level of school adjustment, compared with those with lower levels, tended to have a lower level of stress, and higher life satisfaction. However, there was no significant direct relationship between school adjustment and GHQ was found. Poor school adjustment can reduce students' life satisfaction, but it may not cause psychological distress if it does not increase stress.

The mediating role of stress in the relationship between school adjustment and psychological well-being was also confirmed. In line with previous studies, stress was positively linked with GHQ [49] and was negatively associated with life satisfaction [35]. School adjustment was indirectly related to GHQ and life satisfaction through stress. However, the effect of stress on GHQ and life satisfaction was different. Stress partially mediated the relationship between school adjustment and life satisfaction, but it fully mediated the relationship between school adjustment and GHQ.

Positive thinking was a moderator to the relationship between school adjustment and stress as well as a moderator to the relationship between school adjustment and life satisfaction. The effect of better school adjustment on lower levels of stress was greater for those with higher levels of positive thinking than those with lower and average levels of positive thinking. Nevertheless, the positive relationship between school adjustment and life satisfaction only existed for those with lower and average levels of positive thinking. For students with higher levels of positive thinking, the relationship was not significant. In other words, poor school adjustment will not affect the life satisfaction of students with high levels of positive thinking. Figs. (2 and 3) indicate the relationships between positive thinking, school adjustment, stress and life satisfaction, as well as the relationships between positive thinking, school adjustment, stress and GHQ.

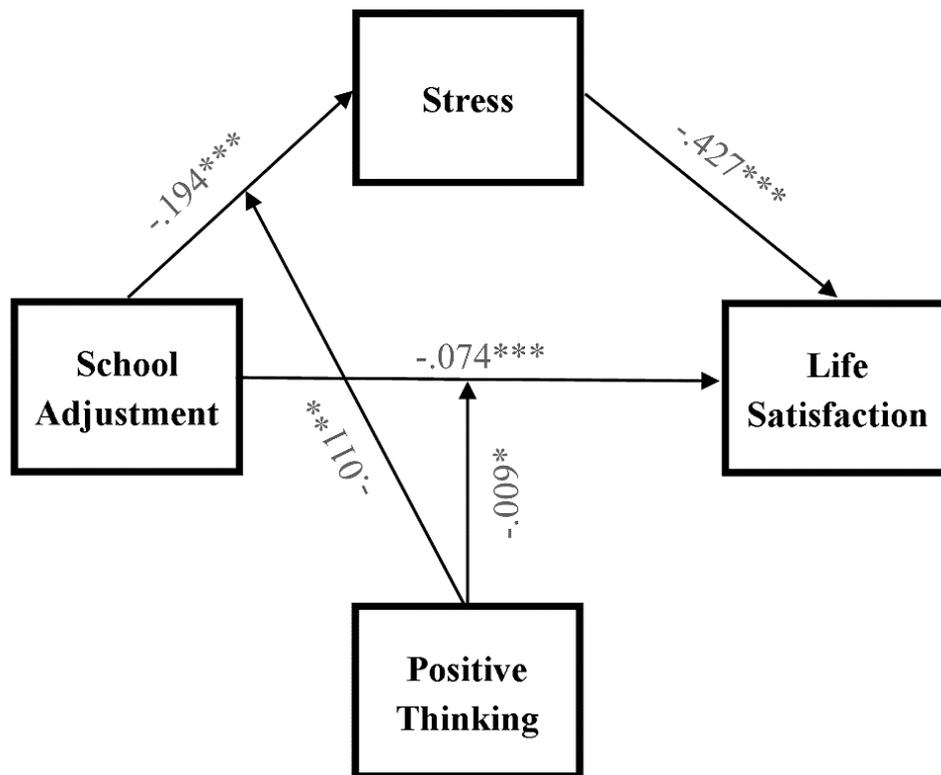


Fig. (2) . The relationships between positive thinking, school adjustment, stress and life satisfaction.
 Note: *p<.05; **p<.01; ***p<.001 School adjustment is directly related with life satisfaction and indirectly related with life satisfaction via stress. Positive thinking is a moderator to the relationship between school adjustment and life satisfaction as well as to the relationship between school adjustment and stress.

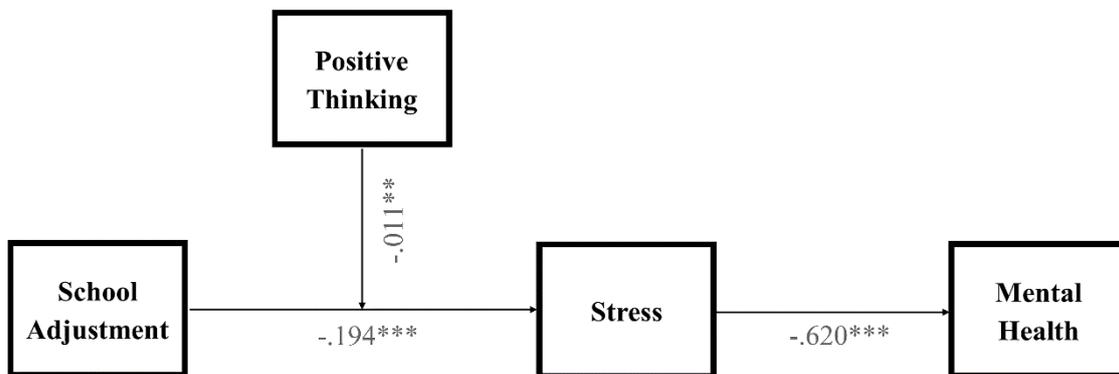


Fig. (3) . The relationships between positive thinking, school adjustment, stress and mental health.
 Note: *p<.05; **p<.01; ***p<.001
 School adjustment is indirectly related with mental health via stress. Positive thinking is a moderator to the relationship between school adjustment and stress.

One of the possible explanations is that positive thinking has a protective function, and therefore, it interacts with school adjustment and affects stress level and life satisfaction. School adjustment, as a contextual factor, tends to have a positive effect on life satisfaction. College students who think positively are able to pursue their academic and life goals, therefore increasing their overall life satisfaction [50]. In addition,

college students who have a positive expectation about the future are more likely to find meanings in their life and have higher levels of subjective well-being. Ho et al. (2010) found significant relationships of meaning in life with optimism and well-being.

People with a higher level of positive thinking and better

school adjustment tend to have a lower stress level, which in turn have better life satisfaction. However, school adjustment cannot directly decrease psychological distress. Moreover, for those students with lower and average levels of positive thinking, school adjustment is positively and directly related to life satisfaction. This implies that the negative effect of poor school adjustment on life satisfaction will not affect students with higher levels of positive thinking. Further studies should examine the different effects of positive thinking on life satisfaction and mental distress, and especially to explore why positive thinking has a positive relationship with mental distress.

Many studies examined the impact of contextual factors and other stressors on psychological well-being in adolescence [51, 52]. The findings of the present study were consistent with the previous findings and found the interaction of positive thinking and school adjustment had a significant influence on psychological well-being directly or *via* stress indirectly (Fischer, 2003; Schmuck & Sheldon, 2001). Therefore, it is predictable that those who have lower levels of positive thinking, higher stress levels and poor school adjustment tend to be at risk in psychological well-being. As a result, one of the important implications of this study is that the improvement of the psychological well-being of college students is desirable. Based on our findings, it is important to enhance positive thinking and school adjustment as well as reduce the stress level in order to improve the psychological well-being of college students [35, 48].

CONCLUSION

One of the objectives of this study is to investigate the relationships of positive thinking with school adjustment, stress and life satisfaction. Positive thinking moderates the negative association between school adjustment and stress, and moderates the association between school adjustment and life satisfaction. Furthermore, stress has also been found to relate negatively to mental health. Positive thinking is beneficial to the life satisfaction and psychological well-being of college students. Positive development programs have been organized for primary and secondary school students, but lack of concern on the well-being of university students. Therefore, colleges and universities can take account of organizing workshops on positive thinking. Through enhancing an individual optimistic level, it is possible to render students have a good school adjustment comprising of teacher, peer and learning aspects. Furthermore, positive thinking can be one of the alternatives in enhancing adolescents' stress management and, in turn, improving psychological well-being. Therefore, groups and programs about positive thinking can be introduced in most colleges and universities in Hong Kong that help students adjust well, cope with stress and improve psychological well-being.

The college academic planning can consider integrating positive psychology content into curriculum and instruction. Previous research has proved that students can learn skills for more positive ways of thinking to improve their resilience in the formal education [53]. Positive thinking can be promoted through a positive psychology curriculum by teaching students

to think realistically and flexibly about the problems and difficulties they encounter in daily life [53]. Holding challenging beliefs, avoiding thinking traps and excessive worry, claiming and focusing, putting things in perspective and rumination, and replaying specific positive experiences are certain skills that can be learned and have been found to be effective in overcoming challenges [22, 30, 53].

There are several limitations to this study. First, this is a cross-sectional study and we cannot draw causal inferences on the relationships among the key variables. A longitudinal study should be conducted to fully examine the dynamic relationships among the key variables. An alternative model of relationships among the variables can also be tested in future studies. For example, mental health and life satisfaction can be considered as antecedents, stress as a mediator and school adjustment as an outcome. Besides, we used convenient sampling that reduces the representativeness of the sample. This study focused only on Chinese college students in Hong Kong. The results may not be able to generalize to college students in other regions of China and Chinese people in general due to Hong Kong's unique cultural and economic environment. In order to improve the generalizability of study and confirming the effect of positive thinking on individual well-being in Chinese societies, probability and random sampling approach should be employed to study various backgrounds in future studies. Lastly, the conditional process analysis adopted to examine the moderated mediation model of this study incorporated only observed variables but failed to consider the latent construct of different variables. The result may lead to biased regression estimates. Future studies can consider to incorporate the latent constructs and their respective measurement subscales in the analysis.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This study was approved by the Human Research Ethics Committee of the Hong Kong Shue Yan University, Hong Kong under approval no. (reference no. HREC-12-096525).

HUMAN AND ANIMAL RIGHTS

No animals were used in this research. All human research procedures followed were in accordance with the ethical standards of the institutional committee and with the Declaration of Helsinki.

CONSENT FOR PUBLICATION

Informed consent was obtained from all the study participants.

AVAILABILITY OF DATA AND MATERIALS

The data supporting the findings of this study are available from the corresponding author, [R.C] upon request.

FUNDING

None.

CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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Declared none.

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