

Stress Appraisals of School Transition in Early Adolescence: Longitudinal Trends and Gender Differences

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Abstract

School transition has been viewed as a significant stressful event that may affect the mental health of schoolchildren. This study examined stress appraisals in relation to the transition from primary to secondary school in early adolescence through the lens of the cognitive-relational theory of stress, with the study foci on longitudinal trends and gender differences. A total of 608 10–15-year-old schoolchildren, divided into either the school-transition group ($n = 208$) or the non-transition groups ($n = 400$), completed a stress appraisal measure at three time points (i.e., pre-transition, transition, and post-transition) over a 9-month-period. Analyses of the longitudinal trends of stress appraisals suggest transitioning to secondary school is a stressful period for adolescents. The results further illustrate gender-linked changing patterns of stress appraisals: whereas both boys and girls appraised their school life as more stressful immediately after the transition to secondary school, five months after this transition, however, girls exhibited prolonged perceived stress but boys demonstrated a recovery. Specifically, gender differences in stress appraisals emerged at 12–13 years of age. This study illustrates interesting findings regarding the gender-linked immediate and long-term changes of stress appraisals. Such findings have implications for school-based preventions and interventions.

Keywords: school transition, stress appraisal, longitudinal trend, gender difference, adolescence

1. Introduction

The transition from primary to secondary school has been viewed as a significant shift in early adolescent development that is often suggested to be related to stress (Coelho, Marchante, & Jimerson, 2016; Simmons & Blyth, 1987/2009; van Rooyen, Naude, Nel, & Esterhuyse, 2014). Past studies on school transition stress have usually focused on stressful environmental conditions (e.g., Midgley, Anderman, & Hicks, 1995) or stress responses (e.g., Lohaus, Elben, Ball, & Klein-Hessling, 2004). Extending this line of research, the present study examined school transition stress through the lens of the cognitive-relational theory of stress (Lazarus, 1990, 1999; Lazarus & Folkman, 1984), with the aim to understand schoolchildren's cognitive appraisals of stress in relation to school transition.

1.1 Perspective of the cognitive-relational theory of stress

The cognitive-relational theory of stress conceptualizes stress as “a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being” (Lazarus & Folkman, 1984, p.19). This definition highlights the role of cognitive appraisals in mediating the effects of environments on stress responses. An individual’s cognitive appraisal of a situation determines the degree of stressfulness experienced, in the case that the situation is perceived as stressful (Lazarus, 1990 & 1999; Lazarus & Folkman, 1984). This theoretical notion is useful in explaining individual differences in terms of the quality, intensity, and duration of elicited responses in environments (Lazarus, 1990,1999; Lazarus & Folkman, 1984).

Cognitive appraisals include two components: primary and secondary appraisals. The primary appraisal is concerned with the potential harm or benefit of a potential stressful situation (e.g., school transition). The primary appraisal is further subdivided into three categories: harm/loss (i.e., perceptions of damages that have already occurred), threat (i.e., anticipated harm/loss that has not yet taken place), and challenge (i.e., expectations of the potential opportunity of gain or growth inherent in an encounter). The secondary appraisal is concerned with one’s capability to cope with the stressor and the availability of resources to cope with the situational demands (e.g., individual competence, social support, and material or other resources). Furthermore, the secondary appraisal of available coping options involves an evaluation of the likelihood that a particular strategy or set of strategies can be applied and the likelihood that certain consequences would occur after applying these strategies of dealing with the demands. In essence, a positive secondary appraisal means a higher sense of controllability. The perceived stressfulness is the outcome of the interplay between the primary appraisal of situational demands and the secondary appraisal of the coping options (Lazarus & Folkman, 1984).

1.2 Existing studies on stress appraisals in relation to school transition

Among the studies of stress during the transition to secondary school, only a few have assessed stress appraisals. Sirsch (2003) studied schoolchildren’s appraisals of the impending transition to secondary school in terms of challenge and threat and identified individual differences in patterns of stress appraisals. Among the 856 participants, 43.6% and 63.4% of them perceived the transition as a higher challenge but a lower threat in the achievement and the social domains, respectively. Moreover, 45.7% and 35.4% of the sample perceived a co-occurrence of challenge and threat in the achievement and social domains, respectively. Instead of focusing on primary appraisals, Rudolph, Lambert, Clark, and Kurlakowsky (2001) examined students’ secondary appraisals (i.e., perceived control) of the transition to middle school. They found that perceived academic control was a strong predictor of school-related stress and depressive symptoms. Although Sirsch (2003) and Rudolph et al. (2001) focused solely on primary and secondary appraisals, respectively, their research underscores the importance of studying appraisals of school transition stress. Studying stress appraisals could be a promising way of explaining why the transition causes positive or negative changes for some individuals but not for others (Sirsch, 2003).

1.3 The present study

The present study aimed to extend the research on stress appraisals in relation to school transition in two ways. First, we aimed to extend the work of Sirsch (2003) and Rudolph et al. (2001) and to attain a more comprehensive understanding of how stress appraisals change during school transitions by adopting the framework of the cognitive-relational theory of stress. We aimed to specifically uncover both the primary (i.e., threat and challenge) and secondary (i.e., controllability) appraisals, as well as the overall perceived stress, associated with school transition. To achieve this study aim, we adopted a sequential design to capture the changes of stress appraisals across the school transition in a more refined way. The sequential design includes both longitudinal (i.e., before, during, and after the school transition) and a cross-sectional (school-transition vs. non-transition groups) components, enabling the examination of immediate and prolonged changes in stress appraisals of school transition in both the school-transition and comparison groups. The second aim of this study concerned the possibility of gender differences in stress appraisals. Although many studies suggest that adolescent girls present more stressful responses during the transition to middle school, such as increased psychological symptoms (e.g., Hirsch & Rapkin, 1987), higher role strain (e.g., Fenzel, 2000), increased vulnerability to transition worries (Anderson, et al., 2000), and lower academic performance (e.g., Crockett, Petersen, Graber, Schulenberg, & Ebata, 1989).

There has been little research documenting a gendered pattern of stress appraisals in relation to the primary-secondary school transition. According to the cognitive-relational theory of stress, gender is conceptualized as a distal variable in the proximal-distal dimension. This dimension represents the ordering of various events according to their personal relevance or psychological closeness (i.e., their meaning to a person). While a proximal variable refers to the psychological meaning of an environmental event for a person that may imply a higher ranking in personal relevance, a distal variable such as gender represents the membership in a broad social category that may imply a lower ranking in personal relevance. Although membership in a social category does not convey exactly the same personal significance or meaning for every person, it has been suggested that there is likely an increased probability of shared meaning within a social category (Lazarus, 1999). Thus, we expected that gender differences in stress appraisals during school transition exist to a certain extent.

In summary, the present study adopted the framework of the cognitive-relational theory of stress to assess stress appraisals during school transitions in a sample of Hong Kong Chinese adolescent boys and girls. In particular, we used a sequential design and examined the gendered pattern of longitudinal changes in stress appraisals at three time points over a 9-month period: baseline (Time 1/T1), immediately after the entry into secondary school (Time 2/T2), and 5 months after the school transition (Time 3/T3).

1.4 Hypotheses

We formulated two hypotheses based on the cognitive-relational theory of stress and other previous research. Hypothesis 1 predicts that the school-transition group experiences a significant T1-T2 increase followed by a significant T2-T3 decrease on the negative appraisal subscales (i.e., Overall Perceived Stressfulness and Threat), and the reverse trend (i.e., a significant T1-T2 decrease followed by a significant T2-T3 increase) on the positive appraisal subscales (i.e., Challenge and Controllability). Hypothesis 2 predicts that gender differences exist in stress appraisals and their changes during school transition, with girls reporting more negative stress appraisals but less positive stress appraisals than boys.

2. Method

2.1 Design and procedures

This study was a subcomponent of a larger project that aimed to investigate the effect of school transition stress on creativity. The study employed a sequential design that includes both a cross-sectional component (school transition group vs. non-transition groups) and a longitudinal component with a 9-month follow-up (three time points: pre-, during, and post-school transition or grade promotion). Ethical approval was sought and gained for the research prior to the study. Subsequent to obtaining both parental and student consent, the student volunteers were invited to take part in the study during scheduled class time. An adapted measure of stress appraisals, among other instruments, were administered to classroom groups of 20 to 30 students at the following time points: approximately 4 months prior to the school transition or the grade promotion (T1), as a measure of baseline performance; approximately 3 to 4 weeks after the start of the new school year (T2), as a measure of school transition effects; and approximately 5 months after grade promotion (T3), as a follow-up measure. These time points were based on the designs of past studies that investigated the effects of school transition on stress; in these studies, the school transition effects were usually assessed 3 to 4 weeks after entry into middle school, in late September (e.g., Elias, Gara, & Ubriaco, 1985; Fenzel, 2000), while follow-up measures were administered 4 to 5 months later, in late January or February (e.g., Fenzel, 2000).

2.2 Participants

A total of 608 5–8th graders between the ages of 10–15 years were recruited from either the primary or secondary sectors of four co-educational schools in various districts of Hong Kong. Each of the four schools is subsidized by the Hong Kong government and admits students from diverse backgrounds. However, most of the students come from middle- to lower-middle-class socioeconomic backgrounds. The participants were classified into one of three groups: the transition group ($n = 208$, 48% boys), the primary non-transition group ($n = 204$, 49% boys), and the secondary non-transition group ($n = 196$, 51% boys). In the new school year (i.e., Time 2), the transition group experienced a school transition from the highest level of the primary school (i.e., Grade 6) to the lowest level of the secondary school (i.e., Grade 7). The two non-transition groups that served as comparison groups made a grade promotion, rather than a school transition, within the school that they attended in the previous school year.

The primary and the secondary non-transition groups were promoted from Grade 5 to 6 and from Grade 7 to 8, respectively. All of the participants were ethnic Chinese. The mean ages at baseline (i.e., Time 1) were 10.78 years (SD = 0.36), 11.85 years (SD = 0.42), and 12.82 years (SD = 0.49) for the primary non-transition, transition, and secondary non-transition groups, respectively. In each group, the boys and girls did not differ significantly in age (t values ≤ 0.74 , n.s.) or in gender proportion (χ^2 values ≤ 0.08 , n.s.).

2.3 Instrument

The Stress Appraisal Measure (SAM, Peacock & Wong, 1990) was constructed to assess the cognitive appraisals of stress based on the cognitive-relational theory of stress (Lazarus & Folkman, 1984). The evidence that support the reliability and the validities of the SAM has been established (e.g., Durak & Senol-Durak, 2013; Peacock & Wong, 1990; Roesch & Rowley, 2005). The Chinese SAM was adapted for Hong Kong schoolchildren by him and Wong (2015), which has also been shown to be a reliable and valid measure of stress appraisals in Hong Kong school settings. In the present study, the following subscales of the Chinese SAM were included to assess the primary and secondary stress appraisals: Threat (e.g., “School life is threatening right now”; α scores were .85, .88, and .87 at Times 1, 2, and 3, respectively), Challenge (e.g., “I am excited thinking about the outcome of my current school life”; α scores were .81, .90, and .87 at Times 1, 2, and 3, respectively), and Controllability (e.g., “I have the ability to do well in my current school life”; α scores were .91, .89, and .88 at Times 1, 2, and 3, respectively). In addition, the general subscale of Overall Perceived Stress (e.g., “Demands in my current school life tax or exceed my coping resources”; α scores were .82, .89, and .83 at Times 1, 2, and 3, respectively) was also employed to assess the perception of stress. The respondents were asked to rate each statement according to how much they felt that the statement applied to them on a 6-point Likert-scale that ranged from 1 (do not agree at all) to 6 (extremely agree). Among the four stress appraisal subscales, Overall Perceived Stress and Threat assessed negative appraisals, with higher scores indicating higher stress levels. Whereas Challenge and Controllability assessed positive appraisals, with higher scores indicating lower stress levels.

3. Results

Table 1 summarizes the means and standard deviations of the stress appraisal scores over time in the three groups and in both genders.

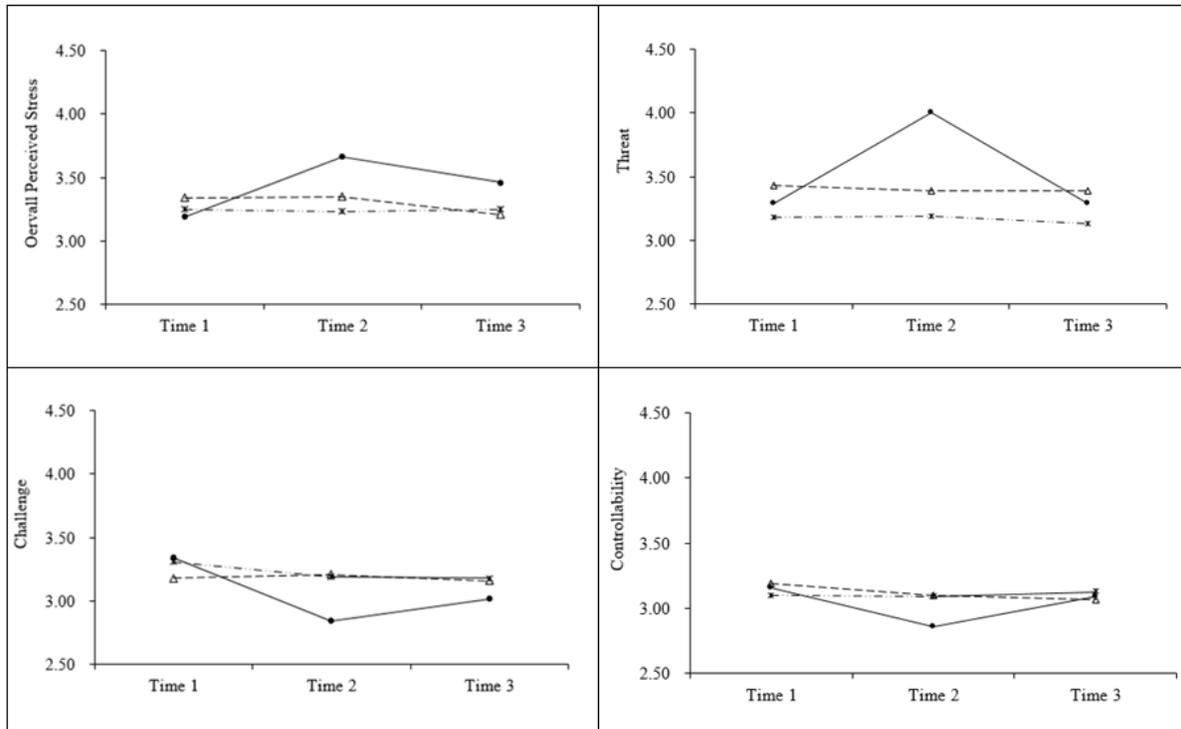
Stress Appraisals	Gender	Time 1	Time 2	Time 3
<i>Primary non-transition group (n = 204, 49% boys)</i>				
Overall Perceived Stressfulness	Total	3.25 (1.15)	3.23 (1.15)	3.25 (1.16)
	Boys	3.27 (1.10)	3.23 (1.11)	3.30 (1.15)
	Girls	3.24 (1.21)	3.23 (1.19)	3.20 (1.17)
Threat	Total	3.18 (1.16)	3.19 (1.14)	3.13 (1.21)
	Boys	3.20 (1.11)	3.17 (1.11)	3.13 (1.09)
	Girls	3.15 (1.22)	3.21 (1.17)	3.13 (1.32)
Challenge	Total	3.31 (1.12)	3.19 (1.11)	3.18 (1.12)
	Boys	3.18 (1.09)	3.16 (1.08)	3.15 (1.09)
	Girls	3.24 (1.16)	3.22 (1.14)	3.22 (1.16)
Controllability	Total	3.10 (1.13)	3.09 (1.11)	3.12 (1.14)
	Boys	3.13 (1.09)	3.08 (1.08)	3.15 (1.09)
	Girls	3.07 (1.18)	3.10 (1.14)	3.09 (1.19)
<i>Transition group (n = 212, 48% boys)</i>				
Overall Perceived Stressfulness	Total	3.19 (1.08)	3.66 (1.04)	3.46 (1.09)
	Boys	3.12 (1.00)	3.53 (0.97)	3.18 (1.05)
	Girls	3.26 (1.14)	3.78 (1.10)	3.72 (1.08)
Threat	Total	3.29 (1.21)	4.02 (1.23)	3.92 (1.20)
	Boys	3.28 (0.87)	3.83 (0.74)	3.44 (0.97)
	Girls	3.30 (1.46)	4.18 (1.53)	4.37 (1.23)
Challenge	Total	3.34 (1.05)	2.84 (1.04)	3.02 (0.96)
	Boys	3.44 (0.97)	2.96 (1.02)	3.31 (0.74)
	Girls	3.25 (1.11)	2.74 (1.06)	2.75 (1.05)
Controllability	Total	3.16 (1.06)	2.86 (0.97)	3.09 (1.02)
	Boys	3.19 (1.05)	2.92 (0.96)	3.35 (0.96)
	Girls	3.13 (1.07)	2.80 (0.98)	2.84 (1.02)
<i>Secondary non-transition group (n = 198, 51% boys)</i>				
Overall Perceived Stressfulness	Total	3.34 (1.13)	3.35 (1.19)	3.21 (1.15)
	Boys	3.10 (1.09)	2.81 (0.99)	2.84 (0.98)
	Girls	3.60 (1.11)	3.70 (1.23)	3.63 (1.17)
Threat	Total	3.43 (1.29)	3.39 (1.30)	3.39 (1.33)
	Boys	3.13 (1.35)	3.14 (1.40)	3.09 (1.42)
	Girls	3.73 (1.16)	3.66 (1.14)	3.70 (1.15)
Challenge	Total	3.18 (1.44)	3.21 (1.47)	3.16 (1.33)
	Boys	3.53 (1.59)	3.51 (1.70)	3.46 (1.46)
	Girls	2.82 (1.17)	2.91 (1.10)	2.85 (1.11)
Controllability	Total	3.19 (1.05)	3.10 (1.02)	3.07 (1.04)
	Boys	3.39 (0.96)	3.40 (0.96)	3.33 (1.04)
	Girls	2.99 (1.09)	2.79 (0.99)	2.80 (0.99)

Table1. Means (Standard Deviations) of the SAM across three time points in the primary non-transition, transition, and secondary non-transition groups

3.1 The effect of school transition on stress appraisals

With respect to the effect of school transition on stress appraisals, Hypothesis 1 predicts that the school-transition group experiences a significant T1-T2 increase followed by a significant T2-T3 decrease on the negative appraisal subscales (i.e., Overall Perceived Stressfulness and Threat), and the reverse trend (i.e., a significant T1-T2 decrease followed by a significant T2-T3 increase) on the positive appraisal subscales (i.e., Challenge and Controllability). To test this hypothesis, a 3 groups x 3 time points two-way Analysis Of Variance (ANOVA) with repeated measures was employed to examine whether the changing trends of the stress appraisal scores differed in the three groups (primary non-transition vs. transition vs. secondary non-transition). Figure 1 depicts the changes in the stress subscale scores across the three time points in the three groups.

Figure 1. Changes in stress appraisal scores across three time points in the three groups



Note:

- *— Primary non-transition group (n = 204)
- Transition group (n = 212)
- ▲— Secondary non-transition group (n = 198)

The results of the Group x Time interaction effects were significant for all of the four SAM subscales (all Wilks's Lambdas $\geq .97$, $F_s[4, 1208] \geq 5.33$, $p_s < .05$, and η^2 values $\geq .02$), suggesting that the changes in stress appraisals across the three time points differ in the three groups. Thus, the longitudinal trends of changes in stress appraisals across the three time points were analyzed in the three groups separately.

In line with Hypothesis 1, the results of the repeated-measures ANOVA demonstrate that the effect of Time was statistically significant for the school transition group in all of the four stress appraisal subscales (all Wilks's Lambdas $\geq .68$, $F_s[2, 206] \geq 12.0$, $p_s < .01$, and η^2 values $\geq .10$). The results of subsequent pairwise comparisons further demonstrated that the predicted trends of Hypothesis 1 were observed in all of four stress subscale scores. With regard to negative appraisals, Overall Perceived Stress and the Threat scores significantly increased from Time 1 to Time 2 (all t values ≥ 0.47 ; p values $\leq .01$), followed by a significant drop from Time 2 to Time 3 (all t values ≥ 0.20 ; p values $\leq .05$; see Figures 1a and 1b). In contrast, a reverse pattern in which the stress appraisal scores generally declined from Time 1 to Time 2 (all t values ≥ 0.30 ; p values $\leq .01$) and subsequently increased from Time 2 to Time 3 (all t values ≥ 0.18 ; p values $\leq .05$; see Figures 1c and 1d).

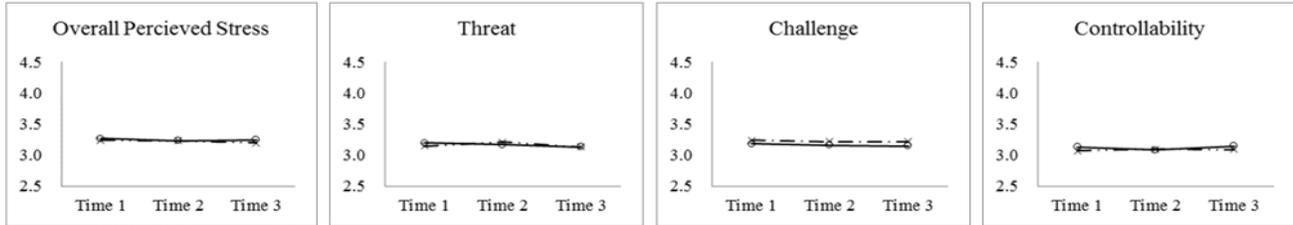
However, in the two non-transition or comparison groups, the main effect of Time were not significant in any of the stress subscales (all F values ≤ 0.35 , n.s.).

3.2 The Gender effect

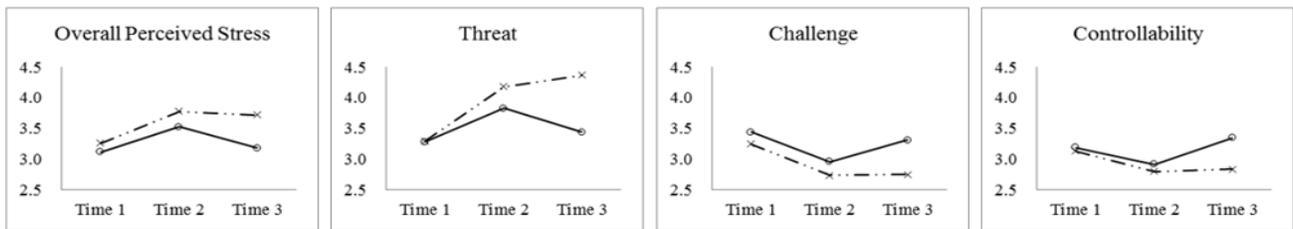
Hypothesis 2 concerns the gender effect, which predicts that gender differences exist in stress appraisals and their changing trends across a school transition, with girls reporting more negative but less positive stress appraisals than boys. To test this hypothesis, a 2 genders x 3 time points two-way repeated measures ANOVA was conducted in the transition and the two non-transition groups separately. Figure 2 depicts the changes in stress appraisal scores across three time points by gender in the three groups.

Figure 2. Changes in stress appraisal scores across three time points by gender in the three groups

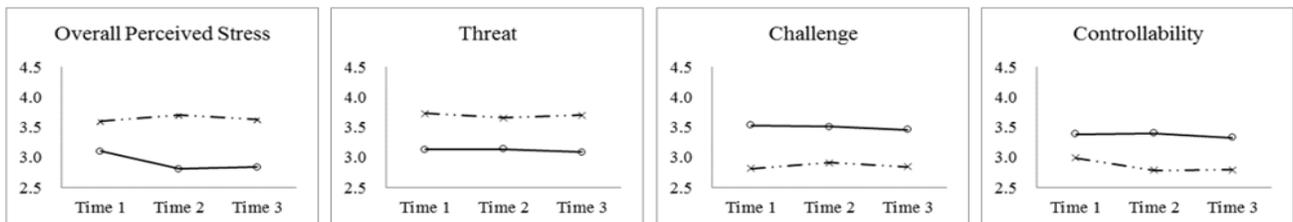
Primary non-transition group ($n = 204$, 49% boys)



Transition group ($n = 212$, 48% boys)



Secondary non-transition group ($n = 198$, 51% boys)



Note: —○— Boy; —*— Girl

The results illustrate that Hypothesis 2 was supported in the school transition group, in which the Gender x Time interaction effect was significant in all of the four stress appraisal scales (all Wilks's Lambdas $\geq .91$, $F_s[2, 205] \geq 4.31$, $p_s < .01$, and η^2 values $\geq .04$). The results of subsequent pairwise comparisons further suggest that boys showed a significant T1-T2 increase followed by a significant T2-T3 decrease in the negative stress appraisal scores (all t values ≥ 0.27 ; $p_s < .01$), and a significant T1-T2 decrease followed by a significant T2-T3 increase in the positive stress appraisal scores (all t values ≥ 0.31 ; $p_s < .01$). However, although girls showed a significant T1-T2 increase and decrease in the negative and positive stress appraisal scores, respectively (all t values ≥ 0.33 ; $p_s < .01$), they showed no significant T2-T3 change (all t values ≤ 0.19 ; n.s.). This result suggests a higher stress level for girls over a longer period of time.

In the two non-transition groups, however, different patterns of results were found with respect to gender. The results of the repeated-measures ANOVAs showed that neither main gender effects nor Gender x Time interaction effects were found in any of the stress subscale scores in the primary non-transition group (all $F_s[2, 201] \leq 2.09$, n.s.).

In the secondary non-transition group, a significant gender effect was found all of the four stress appraisal subscales (all $F_s[1, 194] \geq 13.1$, $ps < .001$, and η^2 values $\geq .06$). The results of a subsequent Multivariate Analysis Of Variance (MANOVA) illustrate that girls reported significantly higher negative stress appraisal scores but lower positive stress appraisal scores than boys at each of the three time points (all $F_s[1, 194] \geq 7.34$, $ps < .01$, and η^2 values $\geq .04$).

In short, these results generally support the gender effects on the changing patterns of stress appraisals across school transition. However, no such gender effects were evident in the comparison groups. In one of the comparison groups (i.e., the secondary non-transition group), gender differences were found in stress appraisal scores at all of the three time points.

4. Discussion

Stress is gaining more and more attention as an important subject of research in student samples (Hamaideh, Al-Omari, & Al-Modallal, 2016). The present study assessed the change of stress appraisals during the transition to secondary school in Chinese adolescents from Hong Kong. Early adolescents appraised their current school life as more stressful when transitioning to secondary school. This increase in the appraised stress level was followed by a decline approximately 5 months after the entry to a secondary school. Previous research using either a stimulus- or a response-based approach found that the transition to secondary school is associated with more stressors and stress reactions. The present study has extended this line of research to show that young adolescents' cognitive appraisals of stress also change in response to the school transition. Our study further revealed a gender difference in the changing patterns of stress appraisals in response to school transition. This finding could serve as evidence that boys differ from girls in their recovery from perceived stress in their school life.

While the cognitive-relational theory of stress suggests that gender may predict stress to a certain degree (Lazarus, 1999), our study reveals mixed findings regarding gender differences in the three groups. In the youngest group (i.e., the primary non-transition group), which had a mean age of 10.78 years, no gender differences were found in any of the stress subscales. However, the findings were different in the two older groups, in which significant gender differences were found in the transition group (Mage = 11.85) and the secondary non-transition group (Mage = 12.82). The mixed findings for gender differences in the stress appraisals for the three groups may reflect the effects of age or developmental stage. Based on a meta-analysis of gender differences in stressful life events, Davis, Matthew, and Twamley (1999) suggest that gender differences in the perception of stress exposure were not observed in childhood; rather, they emerged in early adolescence. Past studies that revealed a gender difference in stress appraisals were conducted with 16- to 17-year-olds (Mak, Blewitt, & Heaven, 2004) and college students (Eaton, 2008). Because our study involved younger age groups, our findings appear to lend support to the argument presented by Davis et al. (1999), who suggested that gender differences in stress appraisals emerge in early adolescence. Specifically, the age at which these differences emerge is in 12- to 13-year-olds based on the results of the present study.

With respect to the age-pattern of gender differences, the results could be explained by the gender intensification hypothesis, which postulates that beginning in adolescence, girls and boys become more differentiated in their gender-role identities in the face of increasing pressure to conform to culturally sanctioned gender roles (Hill & Lynch, 1983).

Gender intensification has been used to explain many phenomena in which gender differences emerge or intensify during early adolescence, such as depressive symptoms (e.g., Ge, Conger, & Elder, 2001). An alternative possible explanation of the results could be the focal theory of change, which posits that the accumulation of life changes at one point in time is relevant to the psycho-social adjustment of transitioning into adolescence (see Simmons & Blyth, 1987/2009). It is easier to cope with major life changes one at a time rather than simultaneously with multiple stressors, for instance, environmental changes (e.g., school transition), physiological changes (e.g., onset of puberty), and role changes (e.g., initiation of dating). Simmons and Blyth (1987/2009) showed that the timing of pubertal development and dating are additional stressors that combine with school transitions to challenge the adaptations of adolescents, particularly for girls.

Some limitations of this study should be noted. First, although our findings of a gender-linked longitudinal trend have provided evidence that girls perceived prolonged stress while boys demonstrated a recovery five months after the transition to secondary school, it remains unknown whether girls would recover from such perceived stress at a later stage.

Further studies involving a longer time span and more waves of follow-up measures are called for in order to obtain a more adequate understanding regarding the gender-linked trajectories of stress appraisals. Second, although our findings on emerging gender differences in stress appraisals during early adolescence provided some initial support for the gender intensification hypothesis, we should note that only three age groups were involved in the present study. It is unknown how the gender differences (e.g., the effect size) change with age. Would the size of the gender differences increase, decrease, or remain unchanged as students age? In different age groups, would the direction of the gender differences change or remain constant? The answers to these questions would be valuable for further attempts to substantiate and extend the gender intensification hypothesis and to uncover developmental patterns in gender-linked stress appraisals.

The findings of the present study have important implications. Prevention and intervention efforts have been made to enhance adolescents' stress management in school settings. Effective school-based programs emphasize the role of coping strategies, social support, and self-efficacy (e.g., Clarke, 2006; Hampel, Meier, & Kümmel, 2008; Kraag, Van Breukelen, Kok, & Hosman, 2009). The results from the present study corroborate previous works that have highlighted the role of effective cognitive appraisals (e.g., Vierhaus, Maass, Fridrici, & Lohaus, 2010). Our findings provide insight into possible preventions and interventions of school transition stress through the facilitation of positive stress appraisals and the regulation of negative stress appraisals. For instance, challenge and controllability appraisals could be facilitated, whereas threat appraisals could be regulated. Based on the cognitive-relational theory of stress (Lazarus, 1999; Lazarus & Folkman, 1984) and relevant research findings (e.g., Hirsch & Rapkin, 1987; Rudolph, et al., 2001; Wigfield, et al., 1991), the appraisal of controllability could be enhanced by the following: (1) augmenting self-efficacy/competence, (2) fostering social support among schoolchildren, and (3) providing material resources. Enhancing controllability could mean perceiving school life as more challenging and less threatening, and in turn, overall perceived stressfulness could be reduced.

Drawing from the finding of gender differences, gender should be taken into account at different critical points of the transition from primary to secondary school for effective preventions and interventions. For example, prevention programs could be launched in orientation programs during the summer before the formal start of secondary school, with a focus on enhancing challenge and controllability appraisals. Intervention programs for both boys and girls are needed immediately after the academic year begins at secondary school, whereas continuing intervention programs would benefit adolescent girls in the subsequent months.

5. Conclusions

Using a sequential design of 3 time points (pre-transition, transition, and post-transition) x 3 groups (1 school-transition group and 2 comparison groups), the present study illustrates the changes in stress appraisals during school transition through the lens of the cognitive-relational theory of stress and a theory-based measurement (i.e., the SAM). Our findings indicate that transitioning to secondary school is a stressful period for young adolescents. The sequential design further enables us to reveal a prolonged perceived stress level among girls, although both genders experienced increased perceived stress immediately after the school transition. Furthermore, our findings lend empirical support to the argument that gender differences in stress appraisals emerge in early adolescence. These findings could inform prevention and intervention programs for male and female entrants to secondary schools.

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