Psychosocial Factors Influencing Individual Well-being in Chinese Adolescents in Hong Kong

2015 ISQOLS

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This work and the Project P.A.T.H.S. were financially supported by The Hong Kong Jockey Club Charities Trust
(website: http://www.paths.hk)
Life satisfaction: global evaluation of life; stable and essential indicator of personal well-being and psychological development in adolescence[1-4]

Hopelessness: one’s expectation that highly desirable outcomes will not occur. Hopelessness theory - high correlation between hopelessness and symptoms of depression[5]

Adolescents’ perception and realization of hope in life is critical in shaping physical and emotional well-being, goal orientation, and avoidance of risk behaviors[6]
Few longitudinal studies done on adolescent’s life satisfaction or hopelessness in Chinese contexts

Mixed results regarding life satisfaction in adolescents:
1. McCullough et al. [7]: majority of adolescents had moderately high levels of life satisfaction
2. Some researchers indicated that adolescents’ life satisfaction decreased over time in the global context[8-10]
Findings of adolescents' change in hopelessness:
1. Some studies found that adolescents experienced higher level of hopelessness during transitional period [10-13]
2. Lester [14] suggested that hopelessness level of adolescents did not increase in recent years

Generalizability issue: small sample size or homogenous sub-sample in existing studies [15]

Insufficient research on assessing the predictors of adolescent life satisfaction and hopelessness
# Summary of Review on Predictors of Adolescents’ Life Satisfaction and Hopelessness

| Factors                        | Life Satisfaction                                      | Hopelessness                               |
|-------------------------------|--------------------------------------------------------|--------------------------------------------|
| **Socio-demographic Factors** |                                                        |                                            |
| Age                           | √ No difference[16]                                    | Elder adolescent>Younger adolescent[6]     |
| Gender                        | ⬠ Male>Female[2]                                        | Male>Female[14,45]                         |
|                               | ⬠ Female>Male[16-20]                                   | Female>Male[6]                             |
| **Family Attributes**         |                                                        |                                            |
| Family Intactness             | √ Intact family>Non-intact family[16,21-24]            | √ Non-intact family>Intact family[15,6]    |
| Economic Disadvantage         | ⬠ No difference[25]                                    |                                            |
|                               | ⬠ Non-poor family>Poor family[26]                      |                                            |
|                               | ⬠ Mixed findings[27-29]                                |                                            |
| **Positive Youth Development Attributes** |                                                        |                                            |
| Resilience                    | √ High level of resilience>Low level of resilience[30-32] | √ Low level of resilience>High level of resilience[46-49] |
| Psychosocial Competence       | √ High social competence>Low competence[32-33]         | ⬠ Low social competence>High competence[50] (Existing research only focuses on adults, not adolescents) |
| Positive Identity             | √ High level of positive identity>Low level of positive identity[31-32] | √ Low level of positive identity>High level of positive identity[46] |
| Spirituality                  | √ High level of spirituality>Low level of spirituality[18,32,34-36] | √ Low level of spirituality>High level of spirituality[51-52] |
| **Family Processes**          |                                                        |                                            |
| Family Functioning            | √ Good functioning>Poor functioning[26,32,37-38]       | √ Poor functioning>Good functioning[53]    |
| Parent-child Relational Qualities | √ Good relation>Poor relation[27,32,38-44]        | √ Poor relation>Good relation[15,54]       |

**Note:** "√"=consistent findings; "✗"=inconsistent findings; "X"=little research evidence
Research Questions

1. What is the development trend of adolescent life satisfaction in the high school years?

2. What is the development trend of adolescent hopelessness in the high school years?

3. How socio-demographic factors (age & gender), family attributes (family intactness & economic disadvantage), positive youth development attributes (resilience, psychosocial competence, positive identity & spirituality) and family processes (family functioning & parent-child relational qualities) impact on the initial level and change of life satisfaction in adolescents?
4. How socio-demographic factors (age & gender), family attributes (family intactness & economic disadvantage), positive youth development attributes (resilience, psychosocial competence, positive identity & spirituality) and family processes (family functioning & parent-child relational qualities) impact on the initial level and change of hopelessness in adolescents?
Methodology

- **Six-year longitudinal** data set (part of a positive youth development program in Hong Kong)
- **Number of school**: 28
- **Data collection period**: 2009-2015
- **Data analysis**: utilization of linear mixed method in SPSS 23

### Table 3 Number of Participants at Each Measurement Occasion

|                        | Wave 1 | %   | Wave 2<sup>a</sup> | %   | Wave 3<sup>a</sup> | %   | Wave 4<sup>a</sup> | %   | Wave 5<sup>a</sup> | %   | Wave 6<sup>a</sup> | %   |
|------------------------|--------|-----|---------------------|-----|---------------------|-----|---------------------|-----|---------------------|-----|---------------------|-----|
| **N (Participants)**   | 3,328  |     | 2,905               |     | 2,860               |     | 2,684               |     | 2,474               |     | 2,385               |     |
| **Gender**             |        |     |                     |     |                     |     |                     |     |                     |     |                     |     |
| Male                   | 1,719  | 51.7 | 1,445               | 49.7 | 1,433               | 50.1 | 1,336               | 49.8 | 1,200               | 48.5 | 1,161               | 48.7 |
| Female                 | 1,572  | 47.2 | 1,419               | 48.8 | 1,407               | 49.2 | 1,338               | 49.9 | 1,265               | 51.1 | 1,218               | 51.1 |
| **Economic disadvantage** |      |     |                     |     |                     |     |                     |     |                     |     |                     |     |
| NOT receiving CSSA     | 2,606  | 78.3 | 2377                | 81.8 | 2,341               | 81.9 | 2,269               | 84.5 | 2,131               | 86.1 | 2,063               | 86.5 |
| Receiving CSSA         | 225    | 6.8  | 160                 | 5.5  | 147                 | 5.1  | 132                 | 4.9  | 114                 | 4.6  | 110                 | 4.6  |
| **Family intactness**  |        |     |                     |     |                     |     |                     |     |                     |     |                     |     |
| Intact families        | 2,781  | 83.6 | 2,415               | 83.1 | 2,397               | 83.8 | 2,213               | 82.5 | 2,027               | 81.9 | 1,948               | 81.7 |
| Non-intact families    | 515    | 15.5 | 469                 | 16.1 | 455                 | 15.9 | 466                 | 17.4 | 441                 | 17.8 | 432                 | 18.1 |

*Note: a The numbers were based on the participants who ever participated in Wave 1 assessment, as only those joining Wave 1 assessment were included in LMM. The numbers of the students who did not report the corresponding information are not presented.*
| Variable                                | Name of Instrument                                      | IV                                                                 | Chinese Positive Youth Development Scale (CPYDS)[55] |
|-----------------------------------------|----------------------------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------|
| Resilience (RE)                         | Resilience Subscale (6 Items)                           |                                                                   |                                                     |
| Psychosocial Competence (SC)            | Social Competence Subscale (7 Items)                    |                                                                   |                                                     |
| Positive Identity (PI)                  | Clear and Positive Identity Subscale (7 Items)          |                                                                   |                                                     |
| Spirituality (SP)                       | Spirituality Subscale (7 Items)                         |                                                                   |                                                     |
| **Family Functioning**                  |                                                          |                                                                   |                                                     |
| **Parent-child Relational Qualities**   |                                                          |                                                                   |                                                     |
| Age                                     |                                                          |                                                                   |                                                     |
| Gender                                  |                                                          |                                                                   |                                                     |
| Economic Disadvantage                   |                                                          |                                                                   |                                                     |
| Family Intactness                       |                                                          |                                                                   |                                                     |
| **DV**                                  |                                                          |                                                                   |                                                     |
| Life Satisfaction                       | Life Satisfaction Scale (5 Items)[58-59]                |                                                                   |                                                     |
| Hopelessness                            | Hopelessness Scale (5 Items)[60-61]                     |                                                                   |                                                     |
Results (Life Satisfaction:1)

- **Correlations**: Socio-demographic factors, family attributes, positive youth development attributes, and family process were associated with life satisfaction (Table 5)
| Variables         | 1.  | 2.  | 3.  | 4.  | 5.  | 6.  | 7.  | 8.  | 9.  | 10.| 11.| 12.| 13.| 14.| 15.| 16.| 17. |
|-------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|
| LS                | 1   |     |     |     |     |     |     |     |     |    |    |    |    |    |    |    |    |    |
| SLS               | .552|     |     |     |     |     |     |     |     |    |    |    |    |    |    |    |    |    |
| TLS               | .483| .581|     |     |     |     |     |     |     |    |    |    |    |    |    |    |    |    |
| FLS               | .425| .491| .591|     |     |     |     |     |     |    |    |    |    |    |    |    |    |    |
| GLS               | .416| .476| .561| .636|     |     |     |     |     |    |    |    |    |    |    |    |    |    |
| QLS               | .375| .436| .517| .571| .663|     |     |     |     |    |    |    |    |    |    |    |    |    |
| Age               | .061| .042| .046| -.009| .019| .016|     |     |     |    |    |    |    |    |    |    |    |    |
| Gender            | -.007| -.030| -.025| .052| .042| .045| -.030|     |     |    |    |    |    |    |    |    |    |    |
| Family Intactness | .096| .090| .049| .054| .051| .052| -.064| -.008|     |    |    |    |    |    |    |    |    |    |
| Economic Disadvantage | .047| .082| .072| .067| .084| -.068| -.020| .067| -.125|     |    |    |    |    |    |    |    |    |
| RE                | .450| .315| .273| .260| .244| .216| .013| -.020| .048| -.002|     |    |    |    |    |    |    |    |
| SC                | .384| .274| .243| .235| .200| .178| .000| .067| .062| .017| .479|     |    |    |    |    |    |    |
| PI                | .460| .308| .257| .243| .222| .213| -.011| .079| .063| .013| .495| .510|     |    |    |    |    |    |
| SP                | .608| .436| .373| .323| .316| .277| .038| -.041| .086| -.004| .533| .454| .514|     |    |    |    |
| Family Functioning | .538| .420| .348| .289| .300| .265| -.078| -.049| .184| -.003| .384| .347| .387| .499|     |    |    |
| Father-child Relationship Qualities | .450| .349| .299| .261| .264| .238| -.053| .015| .196| -.033| .322| .286| .354| .413| .611|     |    |
| Mother-child Relationship Qualities | .417| .306| .247| .191| .195| .169|      | .083| .070| .110| .032| .337| .281| .334| .410| .600| .484| 1  |
Results (Life Satisfaction: 2)

- **Model fit:**
  - **Unconditional model:** Quadratic model (Model 3) fitted the data better than the linear model.
  - **Conditional model:** Model 4 had the best model fit (Table 7 & 8)

- **Development trend:** Life satisfaction decreased across six waves and the decline rate gradually slowed down (Fig. 1)
Table 7 Results of Unconditional Growth Models (Life Satisfaction)

|                  | Model 1       | SE  | Model 2       | SE  | Model 3       | SE  |
|------------------|---------------|-----|---------------|-----|---------------|-----|
| **Fixed effects**|               |     |               |     |               |     |
| Intercept        |               |     |               |     |               |     |
| Intercept        | $\beta_{0j}$  |     |               |     |               |     |
| $\gamma_{00}$    | 3.713***      | .012| 3.896***      | .016| 3.929***      | .018|
| Linear Slope     | $\beta_{1j}$  |     |               |     |               |     |
| Time             | $\gamma_{10}$ | -.075***| .004| -.120***      | .012|
| Quadratic Slope  | $\beta_{2j}$  |     |               |     |               |     |
| Time$^2$         | $\gamma_{20}$ |     |               |     |               |     |
| **Random effects**|              |     |               |     |               |     |
| Level 1 (within) |               |     |               |     |               |     |
| Residual         | $r_{ij}$      | .565***| .006| .470***       | .006| .443***       | .006|
| Level 2 (between)|               |     |               |     |               |     |
| Intercept        | $u_{0j}$      | .622***| .016| .785***       | .025| .810***       | .030|
| Time             | $u_{1j}$      | -.065***| .005| -.124***      | .017|
| Time$^2$         | $u_{2j}$      |     |               |     |               |     |
| **Fit statistics**|              |     |               |     |               |     |
| Deviance         | 58099.191     |     | 57059.376     |     | 56935.875     |     |
| AIC              | 58105.191     |     | 57071.376     |     | 56955.875     |     |
| BIC              | 58129.167     |     | 57119.328     |     | 57035.795     |     |
| df               | 3             | 6   | 10            |     |               |     |

**Note:** Model 1 = unconditional mean model; model 2 = unconditional linear growth model; model 3 = unconditional quadratic growth model.  
*** p < .001
Table 8 Results of LMM Models with Level-2 Predictors (Life Satisfaction)

| Fixed effects | Model 4 |   |   |
|---------------|---------|---|---|
| Intercept     | β0j     |   |   |
| Intercept     | γ00     | 4.228*** |   |
| Gender        | γ01     | .053*** |   |
| RE            | γ02     | .061*** |   |
| SC            | γ03     | .046**  |   |
| PI            | γ04     | .116**  |   |
| SP            | γ05     | .361*** |   |
| Family Functioning | γ06 | .212*** |   |
| Father-child Relationship Qualities | γ07 | .102**  |   |
| Mother-child Relationship Qualities | γ08 | .050**  |   |
| Linear slope  | β1j     |   |   |
| Intercept     | γ10     | -.084  |   |
| Gender        | γ11     | -.036** |   |
| RE            | γ12     | -.009  |   |
| SC            | γ13     | .009   |   |
| PI            | γ14     | -.055** |   |
| SP            | γ15     | -.101*** |   |
| Family Functioning | γ16 | -.036  |   |
| Father-child Relationship Qualities | γ17 | -.002  |   |
| Mother-child Relationship Qualities | γ18 | -.042*  |   |
| Quadratic slope | β2j  |   |   |
| Intercept     | γ20     | -.052  |   |
| Gender        | γ21     | -.004  |   |
| RE            | γ22     | .001   |   |
| SC            | γ23     | -.002  |   |
| PI            | γ24     | .009*  |   |
| SP            | γ25     | .011** |   |
| Family Functioning | γ26 | .005   |   |
| Father-child Relationship Qualities | γ27 | .0002  |   |
| Mother-child Relationship Qualities | γ28 | .005   |   |

Random effects
Level 1 (within)
Residual r̃j .433 .007

Level 2 (between)
Intercept u0j .234 .017
Time u1j .108 .015
Time u2j .003 .001

Fit statistics
Deviance 35648.016
AIC 35734.016
BIC 36060.589
df 43

Note: 1) Predictors that had insignificant effects in initial status, linear slope, and quadratic slope are not presented;
2) a Male = 1, Female = -1. *** p < .001; ** p < .01, * p < .05
Results (Life Satisfaction:3)

- **Significance of predictors:**
  1. Resilience, psychosocial competence, family functioning, and father-child relational qualities were significant predictors of initial status, but not significant in linear and quadratic slopes (Table 8)
  2. **Gender** was significant only in **initial status** and **linear change**. Males had more life satisfaction in initial assessment, but showed a faster decreasing rate than females (Table 8 & Fig. 2)
  3. **Mother-child relational qualities** was significant only in **initial status** and **linear change** (-). Good mother-child relationship showed more life satisfaction than poor mother-child relationship in initial assessment, but had a faster decreasing rate (Table 8 & Fig. 5)
  4. **Positive identity** and **spirituality** were significant predictors of **initial status**, **linear** (-), and **quadratic slopes** (+). In initial assessment, higher positive identity and spirituality showed more life satisfaction. Life satisfaction for adolescents with higher positive identity/spirituality will drop faster than those with lower positive identity/spirituality (Table 8; Fig. 3 & 4)
Growth Curve (Life Satisfaction)

Fig. 1 Growth Trajectory of the Overall Sample

Fig. 2

Gender

Fig. 3

Positive Identity

Fig. 4

Spirituality

Fig. 5

Mother-child Relational Qualities
Results (Hopelessness: 1)

Correlations: Socio-demographic factors, family attributes, positive youth development attributes, and family process were associated with hopelessness (Table 6)
| Variables          | 1.  | 2.  | 3.  | 4.  | 5.  | 6.  | 7.  | 8.  | 9.  | 10. | 11. | 12. | 13. | 14. | 15. | 16. | 17. |
|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1. HL              |     |     |     |     |     |     |     | .451**|     |     |     |     |     |     |     |     |     |
| 2. SHL             | .404**|     |     |     |     |     |     | .536**| .1     | 1     |     |     |     |     |     |     |     |
| 3. THL             | .345**| .406**|     |     |     |     | .536**|     |     | .1     | 1     |     |     |     |     |     |     |
| 4. FHL             | .337**| .410**| .512**| .584**|     | .1     | .512**|     | .584**| .1     | 1     |     |     |     |     |     |     |
| 5. GHL             | .325**| .383**| .464**| .515**| .621**|     | .515**| .621**|     |     |     |     |     |     |     |     |     |
| 6. QHL             | .027**| -.006 | .022**| .012 | .003 | .029**|     | .029**|     |     |     |     |     |     |     |     |     |
| 7. Age             | -.064**| .044 | .069**| .092 | .106 | .103 | .030**|     |     | .1     |     |     |     |     |     |     |     |
| 8. Gender          | -.029**| .054**| .039**| .031**| .032 | .047**| .064**|     |     | .008 | 1     |     |     |     |     |     |     |
| 9. Family Intactness | -.058**| -.008 | -.016 | -.014 | .022 | -.004 | -.020 | -.067 | .1     |     |     |     |     |     |     |     |     |
| 10. Economic Disadvantage | -.375**| .313 | .286**| .267 | .267 | .259 |     | .013 | .020 | .048 | .002 | 1     |     |     |     |     |     |
| 11. RE             | -.292**| .277 | .231 | .222 | .234 | .212 | .000 | .067 | .052 | .017 | .479 | 1     |     |     |     |     |     |
| 12. SC             | -.305**| .263 | .245 | .247 | .255 | .271 | .011 | .079 | .063 | .013 | .495 | .510 | 1     |     |     |     |     |
| 13. PI             | -.469**| .350 | .331 | .277 | .284 | .289 | .038 | .041 | .086 | .004 | .533 | .454 | .514 | 1     |     |     |     |
| 14. SP             | -.403**| .318 | .278 | .231 | .242 | .248 | .078 | .049 | .184 | .003 | .384 | .347 | .387 | .499 | 1     |     |     |
| 15. Family Functioning | -.330**| .293 | .262 | .237 | .220 | .228 | .053 | .015 | .196 | .033 | .322 | .286 | .354 | .413 | .611 | 1     |     |
| 16. Father-child Relationship Qualities | -.345**| .283 | .243 | .219 | .211 | .203 | .083 | .070 | .110 | .032 | .337 | .281 | .334 | .410 | .600 | .484 | 1     |
| 17. Mother-child Relationship Qualities |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
Results (Hopelessness: 2)

- Model fit:
  - Unconditional model: Quadratic model (Model 3) fitted the data better than the linear model.
  - Conditional model: **Model 4 had the best model fit** (Table 9 & 10)

- Development trend: Hopelessness **increased** across six waves and the increasing rate significantly slowed down (Fig. 6)
Table 9 Results of Unconditional Growth Models (Hopelessness)

|                  | Model 1 |          | Model 2 |          | Model 3 |          |
|------------------|---------|----------|---------|----------|---------|----------|
|                  | Estimate| SE       | Estimate| SE       | Estimate| SE       |
| Fixed effects    |         |          |         |          |         |          |
| Intercept        | $\beta_{0j}$ | 2.775*** | .013    | 2.762*** | .017    | 2.730*** | .019    |
| Linear Slope     | $\beta_{1j}$ |          | $\gamma_{10}$ | .005 | .004 | .048*** | .014    |
| Quadratic Slope  | $\beta_{2j}$ |          | $\gamma_{20}$ |       |       | -.009*** | .003    |
| Random effects   |         |          |         |          |         |          |
| Level 1 (within) |         |          |         |          |         |          |
| Residual         | $r_{ij}$ | .685*** | .008    | .600*** | .008    | .564*** | .008    |
| Level 2 (between)|         |          |         |          |         |          |
| Intercept        | $u_{0j}$ | .626*** | .017    | .801*** | .028    | .847*** | .034    |
| Time             | $u_{1j}$ | .030*** | .002    | .197*** | .020    |         |         |
| Time$^2$         | $u_{2j}$ |          |         | .005*** | .001    |         |         |
| Fit statistics   |         |          |         |          |         |          |
| Deviance         | 61346.789 |       | 60964.940 |       | 60817.793 | |
| AIC              | 61352.789 |       | 60976.940 |       | 60837.793 | |
| BIC              | 61376.754 |       | 61024.872 |       | 60917.679 | |
| df               | 3       |          | 6       |          | 10      |          |

**Note:** Model 1 = unconditional mean model; model 2 = unconditional linear growth model; model 3 = unconditional quadratic growth model.  
*** $p < .001$
Table 10 Results of LMM Models with Level-2 Predictors *(Hopelessness)*

| Fixed effects | Estimate | SE  |
|---------------|---------|-----|
| Intercept     | \( \beta_{0j} \) | \( \gamma_{00} \) | 2.727*** | .309 |
| Gender^a      | \( \gamma_{01} \) | -.002** | .016 |
| Family Intactness | \( \gamma_{02} \) | .055*  | .027 |
| RE            | \( \gamma_{03} \) | -.124*** | .022 |
| SC            | \( \gamma_{04} \) | -.044* | .022 |
| Family Functioning | \( \gamma_{05} \) | -.282*** | .024 |
| SC            | \( \gamma_{05} \) | -.196*** | .026 |
| Father-child Relationship Qualities | \( \gamma_{06} \) | -.065** | .023 |
| Mother-child Relationship Qualities | \( \gamma_{07} \) | -.079*** | .023 |

| Linear slope  | \( \beta_{1j} \) | \( \gamma_{10} \) | -.231 | .275 |
| Gender^a      | \( \gamma_{11} \) | -.057 | .018 |
| Family Intactness | \( \gamma_{12} \) | -.016 | .024 |
| RE            | \( \gamma_{13} \) | .001 | .020 |
| SC            | \( \gamma_{14} \) | -.018 | .019 |
| SP            | \( \gamma_{15} \) | .095*** | .021 |
| Family Functioning | \( \gamma_{16} \) | .093*** | .023 |
| Father-child Relationship Qualities | \( \gamma_{17} \) | -.033 | .020 |
| Mother-child Relationship Qualities | \( \gamma_{18} \) | .006 | .020 |

| Quadratic slope | \( \beta_{2j} \) | \( \gamma_{20} \) | .068 | .053 |
| Gender^a      | \( \gamma_{21} \) | -.002 | .003 |
| Family Intactness | \( \gamma_{22} \) | .003 | .005 |
| RE            | \( \gamma_{23} \) | .001 | .004 |
| SC            | \( \gamma_{24} \) | .005 | .004 |
| SP            | \( \gamma_{25} \) | -.013*** | .004 |
| Family Functioning | \( \gamma_{26} \) | -.015*** | .004 |
| Father-child Relationship Qualities | \( \gamma_{27} \) | .007 | .004 |
| Mother-child Relationship Qualities | \( \gamma_{28} \) | .002 | .004 |

| Random effects | Residual | \( r_{ij} \) | .537 | .009 |
| Level 1 (within) | Intercept | \( u_{0i} \) | .443 | .025 |
| Level 2 (between) | Time | \( u_{1i} \) | .178 | .020 |
| | Time^2 | \( u_{2i} \) | .004 | .001 |
| Fit statistics | Deviance | 38789.197 |
|    | AIC | 38875.197 |
|    | BIC | 39201.723 |
|    | df | 43 |

Note: 1) Predictors that had insignificant effects in initial status, linear slope, and quadratic slope are not presented; 2) a Male = 1, Female = -1. *** p < .001; ** p < .01, * p < .05
Results (Hopelessness: 3)

Significance of predictors:

1. Gender, family intactness, resilience, psychosocial competence, father-child relational qualities, and mother-child relational qualities were significant in initial status, but not significant in linear and quadratic slopes (Table 10)

2. Spirituality was a significant predictor of initial status, linear (+), and quadratic slopes (-). Adolescents with lower spirituality attained higher hopelessness in the beginning. Yet adolescents with higher spirituality would increase hopelessness more. The change was first-drop-then-increase (Table 10 & Fig. 7)

3. Family functioning was significant in initial status, linear (+), and quadratic slopes (-). Adolescents with poorer family functioning attained higher hopelessness in the beginning. Yet adolescents with better family functioning would increase hopelessness faster. The change was first-drop-then-increase (Table 10 & Fig. 8)
Growth Curve (Hopelessness)

Fig. 6 Growth Trajectory of the Overall Sample

Fig. 7 Spirituality

Fig. 8 Family Functioning

- Low Level of Spirituality
- High Level of Spirituality

- Poor Family Functioning
- Good Family Functioning
General Discussion

- Consistent with some previous literature, adolescents' life satisfaction exhibits a decreasing trend [8-10], while their hopelessness level is increasing [10, 13].

- Adolescents’ decreased life satisfaction and increased hopelessness could be explained by the confusions and developmental challenges they face during transitional process, notably the increase of studying pressure/future career decisions and problems engendered by peers or dating. [6, 8, 10, 62]

- This study has developed an integrated perspective for measuring different levels of factors that associated with adolescent life satisfaction and hopelessness.
Some factors affect initial status (Grade 7), some affect the initial status and the change, even some affect the initial status, the change and the rate of change (Table 11).

**Table 11 Significance of Factors**

| Factors                        | Life Satisfaction |        | Hopelessness |        |
|--------------------------------|-------------------|--------|--------------|--------|
|                                | Initial Status    | Linear Change | Quadratic Change | Initial Status | Linear Change | Quadratic Change |
| Family Functioning             | √                 | x      | x            | √      | √             | ✓              |
| Resilience                     | √                 | x      | x            | ✓      | x             | x              |
| Psychosocial Competence        | √                 | x      | x            | ✓      | x             | x              |
| Father-child Relational Qualities | √               | x      | x            | ✓      | x             | x              |
| Gender                         | √                 | ✓      | x            | ✓      | x             | x              |
| Family Intactness              | x                 | x      | x            | ✓      | x             | x              |
| Mother-child Relational Qualities | ✓               | ✓      | x            | ✓      | x             | x              |
| Positive Identity              | √                 | ✓      | ✓            | x      | x             | x              |
| Spirituality                   | √                 | ✓      | ✓            | √      | ✓             | ✓              |

*Note:* “√”=significant; “X”=insignificant.
- Males had faster decreasing life satisfaction than females, self-understanding (decline of over-optimistic image) and school life (females adapt better at project-based learning) would contribute to the change of life satisfaction.

- Positive identity and spirituality could be protective factors for the development of life satisfaction, while spirituality and family functioning could be treated as protective factors for the development of hopelessness.
Contrary to previous literature, this study found that good-mother child relationship showed a faster decrease of life satisfaction in linear change. This might be because maternal over-control or over-protection constrains adolescents’ decision-making autonomy and limit their exposure to responsibilities and opportunities, which lead to their increased risk of maladjustment for late adolescence[63-65]. The impact may be more pronounced in Chinese families (helicopter parents)
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