

**Resilience, emotional problems, and behavioral problems of adolescents in China:  
Roles of mindfulness and life skills**

**Abstract**

While emotional and behavioral problems increase risks to youth development, resilience helps youth adapt and overcome adversity. Research has discussed factors related to youth resilience, emotional problems, and behavioral problems; however, existing literature excludes non-western sociocultural contexts and has not explored the potential relations among mindfulness and life skills. This study examines the effects of mindfulness and life skills on resilience, emotional problems, and behavioral problems of adolescents in China. Our data come from a group-administered survey among 60 adolescents from a school for behaviorally delinquent students in Beijing, China, in 2017. The regression results indicate that mindfulness is associated with reduced adolescent emotional and behavioral problems, while life skills is associated with increased resilience. The findings suggest the importance of adolescent interventions that incorporate concepts from both mindfulness and life skills training.

**Keywords:** resilience; emotion; behavior; delinquent; mindfulness; life skills

## **Introduction**

Emotional and behavioral problems have been consistently associated with a variety of youth health problems as well as developmental, social, and behavioral delays (Jokela, Ferrie, & Kiyimaki, 2009; Jones, Greenberg, & Crowley, 2015). Although negative emotional and behavioral experiences are strong risk factors for healthy development, research has also indicated that the life outcomes for youth with these experiences are disparate (Sroufe, Egeland, Carlson, & Collins, 2005; Masten, 2018). One factor that mitigates the harmful effects of negative experiences is resilience.

Resilience is a dynamic process marked by positive adaptation to stress and difficult situations (Luthar, 2003; Rutter, 2012; Wagnild & Young, 1993). Thus, while emotional and behavioral problems increase risks to youth development, resilience may help youth overcome such adversity. Existing studies have established a link between resilience and reduced emotional and behavioral problems (Arslan, 2016; Ziaian, Anstiss, Antoniou, & Sawyer, 2012). However, previous literature has been primarily conducted in western countries and excludes other sociocultural contexts. Research has also not explored the potential relations among mindfulness and life skills. To fill these gaps, this study examines the effects of mindfulness and life skills on resilience, emotional problems, and behavioral problems of youth in China.

## **Background Literature**

### **Emotional and Behavioral Problems, Resilience, and Youth Development**

Empirical studies have shown that emotional and behavioral problems, which include both internalizing and externalizing behaviors, are important risk factors for youth development, long-term achievements, and health outcomes (Herres et al., 2017; Jokela et al., 2009; Slopen, Kubzansky, & Koenen, 2013). For instance, internalizing and externalizing problems could

moderate adolescents' response to trauma- and grief-related interventions, in which adolescents with higher internalizing symptoms might present a delayed path of treatment benefits (Herres et al., 2017). Early internalizing and externalizing behavioral problems are also related to elevated inflammatory markers, which may further lead to chronic disease in adulthood (Slopen et al., 2013). Internalizing and externalizing behaviors are also linked to increased risks for long-term mortality (Jokela et al., 2009).

Internalizing and externalizing problems in childhood have also shown association with depression, anxiety, academic under-achievement, delinquency, and employment-related problems (Bahmani et al., 2016; Broidy et al., 2003). For example, Lancefield, Raudino, Downs, and Laurens (2016) investigated the relation between childhood internalizing and externalizing psychopathology and psychotic-like experiences (PLEs), which are early manifestations of what may later develop into severe mental illnesses such as schizophrenia. Using baseline and two-year follow-up data from 73 primary schools in London, their analysis revealed that children with either internalizing or externalizing psychopathology at baseline were more likely to exhibit some PLEs in the follow-up assessment. Children with internalizing psychopathology at baseline, for instance, were three times more likely than those without internalizing psychopathology at baseline to have PLEs in the follow-up assessment. Similarly, children with externalizing psychopathology at baseline were over twice as likely than their counterparts to have PLEs later on. These results indicate that children with internalizing and externalizing problems are at higher risk for developing severe mental health issues.

In the recent years, resilience has raised increasing research interest because it enables individuals to exhibit adaptive functioning amidst life circumstances that put them at risk (Masten, 2018; Wagnild & Collins, 2009). Resilience can be defined as overcoming stress or

adversity with relatively good outcomes despite heightened risks (Rutter, 2006, 2012; Wagnild & Young, 1993). The growing emphasis on resilience has pushed health professionals to focus on individual strengths and develop interventions that build on individuals' existing capabilities, as opposed to previous interventions that have been based on pathology and "fixing" deficits or problems (Masten, 2014; Wagnild & Collins, 2009).

Building resilience helps individuals mitigate risks and promote either resistance or recovery when they are faced with stress, crisis, or adversity. Such experiences may include exposure to abuse, violence, family discord, substance abuse, and social discrimination (Bethell, Newacheck, Hawes, & Halfon, 2014). For instance, Schulz and colleagues (2014) found that although childhood abuse and neglect contributes to lifetime major depressive disorder, resilience could significantly mitigate development of the disorder in traumatized individuals. In another study of 59 homeless adolescents, nearly half of whom reported a history of being sexually abused, participants who perceived themselves as resilient were less lonely, less hopeless, and engaged in fewer life-threatening behaviors than their counterparts (Rew, Taylor-Seehafer, Thomas, & Yockey, 2001).

### **Mindfulness and Life Skills**

Kabat-Zinn (2003) defines mindfulness as a non-judgmental and non-reactive attentional awareness of the present moment. An abundance of literature has discussed the positive effects of mindfulness on behaviors, emotions, and relationships (Keng, Smoski, & Robins, 2011; Mak, Whittingham, Cunnington, & Boyd, 2018). Mindfulness skills allows people to achieve an open and receptive state of awareness, which can benefit both physical and mental health (Black & Fernando, 2014; Bluth & Eisenlohr-Moul, 2017).

Interventions designed to cultivate mindfulness skills have shown promising effects on psychological adjustment in both adults and adolescents. For instance, Bluth and Eisenlohr-Moul (2017) found that during and six weeks following a mindfulness intervention among 47 adolescents aged 11–17 in the U.S., resilience increased significantly, among other factors. The positive effects of mindfulness interventions are consistent across cultural contexts, including the Netherlands, Hong Kong, and China (Bögels, Hoogstad, van Dun, de Schutter, & Restifo, 2008; Lam, 2016). In a recent study of 69 Chinese rural migrant children, Lu, Rios, and Huang (2018) found that children's level of mindfulness was associated with reduced internalizing and externalizing behaviors. Specifically, for children whose post-test mindfulness score increased by more than 6 points, internalizing problems and externalizing problems decreased by 2.8 points and 3.1 points, respectively.

Life skills, as defined by the World Health Organization (WHO), are the “abilities for adaptive and positive behavior that enable individuals to deal effectively with the demands and challenges of everyday life” (WHO, 1997, p. 1). Life skills comprise interrelated components, which work in tandem with and reinforcing one another. Together, they foster individuals' psychosocial competence, self-esteem, self-efficacy, and holistic self-development. These skills are essential to mediate the daily challenges that many young people face as they transition to adulthood. Such challenges include the pressure and temptation to participate in risky behaviors, such as alcohol use, drug use, and risky sexual behavior (Botvin & Griffin, 2004; Nasheeda, Abdullah, Krauss, & Ahmed, 2018). Practicing life skills allows individuals to minimize these risks while maximizing protective factors (UNICEF, 2015).

Life skills training (LST), designed by Botvin, Eng, and Williams (1980), provides youth with important skills to resist social pressure to engage in substance use and to cope with anxiety

induced by social situations. The LST program was found effective in reducing youth behavioral problems, including violence, psychoactive substance use, cigarette smoking, and use of alcohol (Botvin et al., 1980; Botvin & Griffin, 2014; Velasco, Griffin, Botvin, Celata, & Lombardia, 2017). The effectiveness of LST program has also been validated among youth from various socioeconomic backgrounds (Botvin & Griffin, 2004, 2014). For instance, in an LST program implemented in Dublin, the participating children's resilience increased through enhanced emotional literacy, problem-solving ability, and healthy relationships (Barnardo's Northern Ireland, 2018). In other words, the skills taught by LST are closely linked to key factors that promote youth positive emotional outcomes and resilience.

In short, mindfulness and life skills have both shown positive effects in improving youth resilience and emotional and behavioral outcomes. However, existing research on these topics is primarily based on western countries and excludes other sociocultural contexts. Focusing on an at-risk population in China, this study examines the effects of mindfulness and life skills on resilience, emotional outcomes, and behavioral outcomes of adolescents with delinquent behaviors.

## **Method**

### **Data**

Our sample came from School X in Beijing, China, a combined middle and high school that focuses on education for students with delinquent behaviors. At the time of this study, six schools for students with delinquent behaviors were operating in Beijing, among which School X was one of the largest and was selected for this study through local education board's referral. The school was established in 1978 and previously only accepted male students. Students were often transferred from other schools due to their persistent delinquent behaviors, such as gang

involvement, juvenile delinquency, carrying controlled objects such as knives, assault, forcefully taking others' property, stealing, gambling, and using illegal drugs. In 2016, School X began to admit female students. Currently, around 60% of its students have records of delinquent behaviors in their previous schools. The study was reviewed and approved by the review board of School X and a local social work agency that works with the school. Participation was voluntary. Two students chose not to participate due to personal and/or health reasons. We then conducted a group-administered survey among the rest of students ( $n = 61$ ) in classroom setting. The research team identified six incomplete questionnaires on site and was able to follow up with five students on the missing information. However, due to incomplete data from one student, whose information was excluded from the analysis, our final sample size was 60.

## Measures

**Dependent Variables.** Emotional and behavioral problems were measured by a short version of the Self-Description Questionnaire (SDQ) that was designed for adolescents (Bendheim-Thoman Center for Research on Child Wellbeing, 2013; Marsh, 1990). The shortened SDQ contained 14 items regarding youth internalizing and externalizing problems. We used the Chinese version of SDQ, which has shown good reliability, validity, and cultural applicability among Chinese adolescents (Leung, Marsh, Craven, & Abduljabbar, 2016; Lu, Rios, & Huang, 2018; Marsh, Kong, & Hau, 2000; Yeung & Lee, 1999). The Cronbach's alpha of these 14 items was 0.82 in this study.

Externalizing problems, or problems that manifest as outward behavioral outcomes (Bögels et al., 2008), were measured by six items: "I get distracted easily," "It's hard for me to finish my school work," "It's hard for me to pay attention," "I often argue with other kids," "I

get in trouble for fighting with other kids,” and “I get in trouble for talking and disturbing others.” The Cronbach's alpha of these six items was 0.63 in this study.

Internalizing problems, namely problems manifested in thoughts and feelings, were assessed by eight items: “I feel sad a lot of the time,” “I often feel lonely,” “I feel angry when I have trouble learning,” “I worry about doing well in school,” “I worry about finishing my work,” “I worry about taking tests,” “I worry about having someone to play with at school,” and “I feel ashamed when I make mistakes at school.” In this study, the Cronbach's alpha of these eight items was 0.79.

On a scale of 0–3, the participants rated the frequency of having these experiences in their daily lives. The answers ranged from “*not at all true*” to “*very true*.” Summing all items, scores representing externalizing problems ranged 0–18, while scores representing internalizing problems ranged 0–24. The total SDQ score ranged from 0 to 42, with higher scores indicating more internalizing and externalizing problems.

Resilience was measured by the 14-item Resilience Scale (RS-14; Wagnild, 2016, which is a concise form of the original Resilience Scale (Wagnild & Young, 1993). RS-14 assesses resilience-related traits, which involve a set of personal characteristics that can mediate the impact of adverse life conditions on psychological adjustment (Wagnild, 2016; Wagnild & Young, 1993). Examples of items include “I am determined;” “My belief in myself gets me through hard times;” and “When I’m in a difficult situation, I can usually find my way out of it.” The scale has demonstrated cross-ethnic validity in the U.S. and good reliability among adolescents in China (Pritzker & Minter, 2014; Shi, Yu, Zhou, Geng, & Fan, 2016). The Cronbach's alpha of these items was 0.87 for this study. Participants were asked to rate the degree to which they identified with each of the items within the past two weeks on a scale of 1



(*strongly disagree*) to 7 (*strongly agree*). The sum scores range from 14 to 98; higher scores indicate higher resilience.

**Key Independent Variables.** Our key independent variables were mindfulness and life skills. Mindfulness was measured by the 14-item Mindful Attention Awareness Scale for Adolescents (MAAS-A). The MAAS-A has been validated among adolescents between the age of 14 and 18 (Brown, West, Loverich, & Biegel, 2011). The Chinese version showed both reliability and validity when administered to Chinese adolescents (Deng et al., 2012; Lu, Huang, & Rios, 2017). The 14 items describe everyday experiences related to mindful thoughts, behaviors, and feelings. Examples of the items include: “I break or spill things because of carelessness, not paying attention, or thinking of something else;” “I find myself doing things without paying attention;” and “I rush through activities without being really attentive to them.” Participants rated the frequency that they experienced each of these items during the past two weeks. The scale ranged from 1 (*almost never*) to 6 (*almost always*). We reversed the coding so that higher scores represented higher levels of mindfulness. The sum score, which ranged from 14 to 84, indicates level of mindfulness.

Life skills was measured by a 10-item questionnaire developed by National Health Promotion Associates (2018). The 10 items measure four sub-components of life skills: refusal, assertiveness, relaxation, and self-control skills. On a scale of 1 (*definitely would*) to 5 (*definitely would not*), participants were asked to rate how frequently they were likely to have the following behaviors in the past two weeks.

Items of refusal skills include “Say no when someone tries to get you to smoke a cigarette,” “Say no when someone tries to get you to drink beer, wine, or liquor,” and “Say no when someone tries to get you to smoke marijuana or drug.”

Assertiveness skills asked about the following instances: “Tell someone if they give you less change (money) than you’re supposed to get back after you pay for something,” “Say no to someone who asks to borrow money from you,” and “Tell someone to go to the end of the line if they try to cut in line ahead of you.”

Regarding relaxation skills, two items asked subjects if they would “Relax all the muscles in your body, starting with your feet and legs,” and “Breathe in slowly and deeply” when faced with feelings of anxiety or nervousness.

Lastly, self-control skills contain two items: “If you find that something is really difficult, you get frustrated and quit,” and “You stick to what you are doing until you’re finished with it.” We reversed the coding in the analysis, except for one negatively worded question, so that higher scores represented greater life skills. The sum score of the 10 items indicates the level of life skills, which ranged from 10 to 50.

*Covariates.* We also controlled for demographic and personal background information that may influence adolescent emotional and behavioral outcomes and resilience, including age, gender, place of birth (Beijing or other), family structure (two-parent, single-parent, or other family), and delinquent behavior history (1 = the student transferred to School X due to delinquent behaviors in his/her previous school, 0 = otherwise).

### **Analytic Strategy**

First, the descriptive analysis presented the frequency and mean distribution of the main variables. Pearson correlation analyses were then performed to measure the association between all variables. In the multivariate analysis, we used ordinary least squares (OLS) regressions to examine the net effect of the key independent variables on resilience and emotional and

behavioral outcomes, while controlling for all covariates. All analyses were performed by STATA software 15.0.

## Results

Table 1 shows the descriptive statistics of the sample. Among the 60 adolescents, 60% transferred into the school due to delinquent behaviors in their previous schools. The average age of the sample was 16.6 and 85% of them are male. About half of the students were born in Beijing; 67% of them came from two-parent families. The average mindfulness score was 63.8 on a scale of 14–84, with a standard deviation of 8.5. The average life skills score was 38.4 on a scale of 10–50, with a standard deviation of 5.3. Regarding our dependent variables, the average resilience score was 66.2 on a scale of 7–98, indicating a low level of resilience (Wagnild, 2016). The average SDQ score was 9.8 out of 42, with 3.8 for externalizing problems and 6.0 for internalizing problems.

[Table 1 about here]

Table 2 shows the Pearson correlation analyses of variables. Resilience levels significantly correlated with life skills ( $r = 0.33, p = .009$ ). However, the correlation coefficient between resilience and mindfulness was not significant ( $r = 0.18, p = .159$ ). The SDQ level significantly correlated with mindfulness ( $r = -0.51, p < .001$ ). Further analyses showed that the correlation coefficients between mindfulness and externalizing and internalizing problems were  $-0.51$  and  $-0.42$ , respectively (both at  $p < .001$ ). No significant correlation was found between life skills and SDQ scores. The correlation coefficients among independent variables were low, all of which were below 0.22 except for the one between male and delinquent ( $r = 0.59, p < .001$ ), which suggests that collinearity was not a threat to the data analysis.

[Table 2 about here]

Table 3 presents the OLS regression estimates of adolescent resilience and SDQ. First, life skills and age had significant effects on resilience. Holding all other variables constant, a 1-point increase in life skills was associated with a 0.86-point increase in resilience ( $p = .008$ , 95% confidence interval  $[CI] = 0.24 - 1.49$ ). Likewise, increasing age by 1 year was associated with 2.67 points higher resilience ( $p = .022$ , 95%  $CI = 0.39 - 4.96$ ) after controlling for other variables in the regression model. Mindfulness and delinquent behaviors did not have any significant effect on resilience.

Mindfulness, age, and family structure showed significant effects on SDQ score. Controlling for all covariates, every point increase in mindfulness was associated with 0.35-point decrease in SDQ scores ( $p < .001$ , 95%  $CI = -0.51 - -0.20$ ). Increasing age by one year was associated with 1.06-point decrease in SDQ score ( $p = .027$ , 95%  $CI = -1.99 - -0.13$ ). Compared with adolescents in two-parent families, those in the other-family category scored an average of 4.85 points higher on SDQ score ( $p = .015$ , 95%  $CI = 0.97 - 8.73$ ). Life skills and delinquent behaviors did not have significant effects on SDQ scores.

With respect to the SDQ subscales, mindfulness was strongly associated with fewer externalizing and fewer internalizing problems; every point increase in mindfulness was associated with 0.15 point lower externalizing problem and 0.2 point lower internalizing problem. With respect to demographic background, age, family structure, and gender were significant predictors for internalizing problems. Being older and living in two-parent families (vs. the “other family” category) predict fewer internalizing problems. Male adolescents had significantly fewer internalizing problems than females, whereas no gender difference was found in externalizing problems.

[Table 3 about here]

We further examined the effects of life skills sub-components on SDQ and resilience, results upon request. The regression analyses followed the same method as used in the main analysis, except that we replaced the life skill sum score with scores of each life skill sub-component. The results show that among the four sub-components, self-control skills had significantly positive effects on resilience. Holding all other variables constant, 1-point increase in self-control skills was associated with 3.17-points increase in resilience ( $p = .001$ , 95%  $CI = 1.36 - 4.99$ ). Meanwhile, assertiveness skills had marginally significant effects on increasing resilience and reducing SDQ score. Every point of increase in assertiveness skills was associated with 1.95-point increase in resilience ( $p = .075$ , 95%  $CI = -0.20 - 4.10$ ) and 0.72-point decrease in SDQ score ( $p = .094$ , 95%  $CI = -1.57 - 0.13$ ) after controlling for other variables in the regression model.

### **Discussion**

Our results indicate that mindfulness has strong effects on emotional and behavioral outcomes for a group of adolescents in China, most of whom have had delinquent behaviors. Those with high levels of mindfulness present lower internalizing and externalizing problems, which may be explained by mindfulness practice's emphasis on attentional awareness. With enhanced focused attention, individuals can deliberately direct their attention towards present-moment sensory awareness. This non-judgmental present-moment awareness reduces negative self-evaluation (which links to internalizing behavior) and increases distress tolerance (Farb, Anderson, & Segal, 2012). On the other hand, mindfulness may fully expose individuals to emotions arising from distressing stimuli, and may reverse individuals' responses to these stimuli in a relaxed state (Hölzel et al., 2011). Therefore, with increased levels of mindfulness, adolescents are able to

either divert their attention from, or reduce automatic response to, stressors that can foster internalizing and externalizing behaviors.

Our findings suggest the likely success of mindfulness interventions among adolescents who are at risk of developing emotional and behavioral problems. In addition to providing academic and emotional support to at-risk youth, neuroscience literature has identified the importance of neurological repair methods, including mindfulness training, in mediating the impact of adverse childhood experiences (Bethell et al., 2014). While problematic coping behaviors may develop in response to adverse experiences, mindfulness interventions can help adolescents regulate their emotions and respond to these experiences in a healthier manner, deterring them from externalizing their problems (e.g., through substance abuse and violence) and internalizing their problems (e.g., through anxiety and rumination).

This study also finds that life skills training, particularly assertiveness and self-control skills, is related to increased adolescent resilience, which also can mediate the impact of adverse childhood experiences (Bethell et al., 2014) through positive adaptation. Although individuals' adaptive attributes vary by age, some common attributes include problem-solving skills, self-regulation ability, and secure attachment relationships with caregivers and peers (Masten, 2018). These attributes show strong parallel with life skills training, where problem-solving, self-regulation, and maintaining interpersonal relationships with support networks are an integral part.

In conclusion, our research indicates that higher mindfulness and life skills are related to lower emotional and behavioral problems and greater resilience, respectively. Interventions that involve both mindfulness and life skills training can help adolescents manage stressful situations in a healthier way. This will significantly benefit adolescents' development and long-term life

outcomes given the challenges of transitioning to adulthood, particularly for those with delinquent behaviors.

Several limitations of this study warrant further investigation. First, our data came from a convenience sample that consisted of 60 adolescents. Future research utilizing a larger and representative sample is warranted. Second, our results establish associations rather than causations. Conceptually, mindfulness and life skills are related to individuals' awareness and ability, which affect their behaviors and levels of resilience. However, given that these variables were measured at the same time, the relationship between dependent and independent variables can be bi-directional. This calls for further longitudinal research to establish causation and test possible mediation effects. Lastly, future studies could use interventions that combine both mindfulness and life skill training components to explore how core concepts of these two fields affect adolescent well-being together. Despite these limitations, this study is among the first to validate the significant association among mindfulness, life skills, and adolescents' emotional problems, behavioral outcomes, and resilience in a high-risk non-western population.

## References

- Arslan, G. (2016). Psychological maltreatment, emotional and behavioral problems in adolescents: The mediating role of resilience and self-esteem. *Child Abuse & Neglect*, 52, 200–209. <https://doi.org/10.1016/j.chiabu.2015.09.010>
- Bahmani, D. S., Hatzinger, M., Gerber, M., Lemola S., Clough, P. J., Perren, S., ... & Brand, S. (2016). The origins of mental toughness – Prosocial behavior and low internalizing and externalizing problems at age 5 predict higher mental toughness scores at age 14. *Frontiers in Psychology*, 7, 1–10. <https://doi.org/10.3389/fpsyg.2016.01221>
- Barnardo's Northern Ireland. (2018). An early intervention and prevention programme to build resilience. Retrieved from [https://www.lifeskillstraining.com/wp-content/uploads/2018/06/Barnardos\\_LifeSkillsEarlyInterventionPaper\\_v4.pdf](https://www.lifeskillstraining.com/wp-content/uploads/2018/06/Barnardos_LifeSkillsEarlyInterventionPaper_v4.pdf)
- Bendheim-Thoman Center for Research on Child Wellbeing. (2013). Self-Description Questionnaire. *Scales documentation and question sources for the nine-year wave of the Fragile Families and Child Wellbeing study*. Retrieved from [http://fragilefamilies.princeton.edu/sites/fragilefamilies/files/ff\\_scales9.pdf](http://fragilefamilies.princeton.edu/sites/fragilefamilies/files/ff_scales9.pdf)
- Bethell, C. D., Newacheck, P., Hawes, E., & Halfon, N. (2014). Adverse childhood experiences: Assessing the impact on health and school engagement and the mitigating role of resilience. *Health Affairs*, 33(12), 2106–2115. <https://doi.org/10.1377/hlthaff.2014.0914>
- Black, D. S., & Fernando, R. (2014). Mindfulness training and classroom behavior among lower-income and ethnic minority elementary school children. *Journal of Child and Family Studies*, 23(7), 1242–1246. <https://doi.org/10.1007/s10826-013-9784-4>
- Bluth, K., & Eisenlohr-Moul, T. A. (2017). Response to a mindful self-compassion intervention in teens: A within-person association of mindfulness, self-compassion, and emotional



- well-being outcomes. *Journal of Adolescence*, 57, 108–118.  
<https://doi.org/10.1016/j.adolescence.2017.04.001>
- Bögels, S. M., Hoogstad, B., van Dun, L., de Schutter, S., & Restifo, K. (2008). Mindfulness training for adolescents with externalizing disorders and their parents. *Behavioural and Cognitive Psychotherapy*, 36(2), 193–209. <https://doi.org/10.1017/S1352465808004190>
- Botvin, G. J., Eng, A., & Williams, C. L. (1980). Preventing the onset of cigarette smoking through life skills training. *Preventive Medicine*, 9, 135–143.  
[https://doi.org/10.1016/0091-7435\(80\)90064-X](https://doi.org/10.1016/0091-7435(80)90064-X)
- Botvin, G. J., & Griffin, K. W. (2004). Life skills training: Empirical findings and future directions. *The Journal of Primary Prevention*, 25(2), 211–232.  
<https://doi.org/10.1023/B:JOPP.0000042391.58573.5b>
- Botvin, G. J., & Griffin, K. W. (2014). Life skills training: Preventing substance misuse by enhancing individual and social competence. *New Directions for Youth Development*, 141, 58–65. <https://doi.org/10.1002/yd.20086>
- Broidy, L. M., Nagin, D. S., Tremblay, R. E., Bates, J. E., Brame, B., Dodge, K. A., ... & Lynam, D. R. (2003). Developmental trajectories of childhood disruptive behaviors and adolescent delinquency: A six-site, cross-national study. *Developmental Psychology*, 39, 222–245. <http://dx.doi.org/10.1037/0012-1649.39.2.222>
- Brown, K. W., West, A. M., Loverich, T. M., & Biegel, G. M. (2011). Assessing adolescent mindfulness: Validation of an adapted Mindful Attention Awareness Scale in adolescent normative and psychiatric populations. *Psychological Assessment*, 23, 1023–1033.  
<http://dx.doi.org/10.1037/a0021338>
- Deng, Y. Q., Li, S., Tang, L. Y., Zhu, L. H., Ryan, R., & Brown, K. (2012). Psychometric

- properties of the Chinese translation of the Mindful Attention Awareness Scale (MAAS). *Mindfulness*, 3(1), 10–14. <https://doi.org/10.1007/s12671-011-0074-1>
- Farb, N. A. S., Anderson, A. K., & Segal, Z. V. (2012). The mindful brain and emotion regulation in mood disorders. *The Canadian Journal of Psychiatry*, 57(2), 70–77. <https://doi.org/10.1177/070674371205700203>
- Herres, J., Williamson, A. A., Kobak, R., Layne, C. M., Kaplow, J. B., Saltzman, W. R., & Pynoos, R. S. (2017). Internalizing and externalizing symptoms moderate treatment response to school-based trauma and grief component therapy for adolescents. *School Mental Health*, 9(2), 184–193. <https://doi.org/10.1007/s12310-016-9204-1>
- Hölzel, B. K., Lazar, S. W., Gard, T., Schuman-Olivier, Z., Vago, D. R., & Ott, U. (2011). How does mindfulness meditation work? Proposing mechanisms of action from a conceptual and neural perspective. *Perspectives on Psychological Science*, 6(6), 537–559. <https://doi.org/10.1177/1745691611419671>
- Jokela, M., Ferrie, J., & Kivimaki, M. (2009). Childhood problem behaviors and death by midlife: The British National Child Development Study. *Journal of American Academy of Child and Adolescent Psychiatry*, 48(1), 19–24. <https://doi.org/10.1097/CHI.0b013e31818b1c76>
- Jones, D. E., Greenberg, M., & Crowley, M. (2015). Early social-emotional functioning and public health: The relationship between kindergarten social competence and future wellness. *American Journal of Public Health*, 105, 2283–2290. <https://doi.org/10.2105/AJPH.2015.302630>
- Kabat-Zinn, J. (2003). Mindfulness-based intervention in context: Past, present, and future. *Clinical Psychology: Science and Practice*, 10(2), 144–156.

<https://doi.org/10.1093/clipsy.bpg016>

Keng, S., Smoski, M. J., & Robins, C. J. (2011). Effects of mindfulness on psychological health:

A review of empirical studies. *Clinical Psychology Review*, 31(6), 1041–1056.

<https://doi.org/10.1016/j.cpr.2011.04.006>

Lam, K. (2016). School-based cognitive mindfulness intervention for internalizing problems:

Pilot study with Hong Kong elementary students. *Journal of Child & Family Studies*,

25(11), 3293–3308. <https://doi.org/10.1007/s10826-016-0483-9>

Lancefield, K. S., Raudino, A., Downs, J. M., & Laurens, K. R. (2016). Trajectories of childhood

internalizing and externalizing psychopathology and psychotic-like experiences in

adolescence: A prospective population-based cohort study. *Development and*

*Psychopathology*, 28, 527–536. <https://doi.org/10.1017/S0954579415001108>

Leung, K. C., Marsh, H. W., Craven, R. G., & Abduljabbar, A. S. (2016). Measurement

invariance of the Self-Description Questionnaire II in a Chinese sample. *European*

*Journal of Psychological Assessment*, 32(2), 128–139. [https://doi.org/10.1027/1015-](https://doi.org/10.1027/1015-5759/a000242)

[5759/a000242](https://doi.org/10.1027/1015-5759/a000242)

Lu, S., Huang, C-C., & Rios, J. (2017). Mindfulness and academic performance: An example of

migrant children in China. *Children and Youth Services Review*, 82(1): 53–59.

<https://doi.org/10.1016/j.childyouth.2017.09.008>

Lu, S., Rios, J., & Huang, C-C. (2018). Mindfulness, emotion, and behavior: An intervention

study with Chinese migrant children. *Children & Society*, 32(4), 290–300.

<https://doi.org/10.1111/chso.12256>

Luthar, S. S. (2003). *Resilience and vulnerability: Adaptation in the context of childhood*

*adversities*. Cambridge, U.K.: Cambridge University Press.

- Mak, C., Whittingham, K., Cunnington, R., & Boyd, R. (2018). Efficacy of mindfulness-based interventions for attention and executive function in children and adolescents—A systematic review. *Mindfulness*, *9*(1), 59–78. <https://doi.org/10.1007/s12671-017-0770-6>
- Marsh, H. W. (1990). *Self-Description Questionnaire manual*. Campbelltown, Australia: University of Western Sydney, Macarthur.
- Marsh, H. W., Kong, C. K., & Hau, K. T. (2000). Longitudinal multilevel models of the big-fish-little-pond effect on academic self-concept: Counterbalancing contrast and reflected-glory effects in Hong Kong schools. *Journal of Personality and Social Psychology*, *78*(2), 337–349. <http://dx.doi.org/10.1037/0022-3514.78.2.337>
- Masten, A. S. (2014). Global perspectives on resilience in children. *Child Development*, *85*(1), 6–20. <https://doi.org/10.1111/cdev.12205>
- Masten, A. S. (2018). Resilience theory and research on children and families: Past, present, and promise. *Journal of Family Theory & Review*, *10*(1), 12–31. <https://doi.org/10.1111/jftr.12255>
- National Health Promotion Associates. (2018). *LifeSkills Training Middle School Survey*. Retrieved from <https://www.lifeskillstraining.com/wp-content/uploads/2018/10/LifeSkills-Training-Middle-School-Survey-Revised-9-7-18.pdf>
- Nasheeda, A., Abdullah, H. B., Krauss, S. E., & Ahmed, N. B. (2018). A narrative systemic review of life skills education: Effectiveness, research gaps and priorities. *International Journal of Adolescence and Youth*, *9*(1), 1–18. <https://doi.org/10.1080/02673843.2018.1479278>
- Pritzker, S., & Minter, A. (2014). Measuring adolescent resilience: An examination of the cross-ethnic validity of the RS-14. *Children and Youth Services Review*, *44*, 328–333.

<https://doi.org/10.1016/j.chilyouth.2014.06.022>

Rew, L., Taylor-Seehafer, M., Thomas, N. Y., & Yockey, R. D. (2001). Correlates of resilience in homeless adolescents. *Journal of Nursing Scholarship*, 33(1), 33–40.

<https://doi.org/10.1111/j.1547-5069.2001.00033.x>

Rutter, M. (2006). Implications of resilience concepts for scientific understanding. *Annals of the New York Academy of Sciences*, 1094, 1–12. <https://doi.org/10.1196/annals.1376.002>

Rutter, M. (2012). Resilience as a dynamic concept. *Development and Psychopathology*, 24, 335–344. <https://doi.org/10.1017/S0954579412000028>

Schulz, A., Becker, M., Auwera, S. V., Barnow, S., Appel, K., Mahler, J., ... & Grabe, H. J. (2014). The impact of childhood trauma on depression: Does resilience matter? Population-based results from the Study of Health in Pomerania. *Journal of Psychosomatic Research*, 77 (2): 97-103.

Shi, X., Yu, N. X., Zhou, Y., Geng, F., & Fan, F. (2016). Depressive symptoms and associated psychosocial factors among adolescent survivors 30 months after 2008 Wenchuan earthquake: A follow-up study. *Frontiers in psychology*, 7, 467.

<https://doi.org/10.3389/fpsyg.2016.00467>

Slopen, N., Kubzansky, L. D., & Koenen, K. C. (2013). Internalizing and externalizing behaviors predict elevated inflammatory markers in childhood. *Psychoneuroendocrinology*, 38(12), 2854–2862. <https://doi.org/10.1016/j.psyneuen.2013.07.012>

Sroufe, L. A., Egeland, B., Carlson, E. A., Collins, W. A. (2005). *The development of the person: The Minnesota study of risk and adaptation from birth to adulthood*. New York, NY: Guildford Press.

UNICEF. (2015). *Review of the life skills education programme: Maldives*. Retrieved from

[https://www.unicef.org/evaldatabase/files/LSE\\_Maldives\\_review\\_2015.001.pdf](https://www.unicef.org/evaldatabase/files/LSE_Maldives_review_2015.001.pdf)

Velasco, V., Griffin, K. W., Botvin, G. J., Celata, C., & Lombardia, G. L. (2017). Preventing adolescent substance use through an evidence-based program: Effects of the Italian adaptation of life skills training. *Prevention Science, 18*(4), 394–405.

<https://doi.org/10.1007/s11121-017-0776-2>

Wagnild, G. (2016). *The Resilience Scale user's guide: For the U.S. English version of the Resilience Scale™ and the 14-Item Resilience Scale™ (RS-14™)*. Worden, MT: The Resilience Center.

Wagnild, G., & Collins, J. A. (2009). Assessing resilience. *Journal of Psychosocial Nursing & Mental Health Services, 47*, 28–33. <https://doi.org/10.3928/02793695-20091103-01>

Wagnild, G. M., & Young, H. M. (1993). Development and psychometric evaluation of the Resilience Scale. *Journal of Nursing Measurement, 1*(2), 165–178.

World Health Organization [WHO]. (1997). *Life skills education for children and adolescents in schools*. WHO/MNH/PSF/93.7A.Rev.2. Geneva: WHO. Retrieved from [http://www.searo.who.int/entity/mental\\_health/documents/who-mnh-psf-93.7arev2.pdf?ua=1](http://www.searo.who.int/entity/mental_health/documents/who-mnh-psf-93.7arev2.pdf?ua=1)

Yeung, A. S., & Lee, F. L. (1999). Self-concept of high school students in China: Confirmatory factor analysis of longitudinal data. *Educational and Psychological Measurement, 59*(3), 431–450. <https://doi.org/10.1177/00131649921969965>

Ziaian, T., de Anstiss, H., Antoniou, G., & Sawyer, M. (2012). Resilience and its association with depression, emotional and behavioural problems, and mental health service utilisation among refugee adolescents living in South Australia. *International Journal of Population Research, 2012*, 1–9. <http://dx.doi.org/10.1155/2012/485956>

Table 1: Descriptive statistics of key variables

	<b>Percentage or Mean (S.D.)</b>
Delinquent [%]	60.0
Age	16.6 (1.4)
Gender [%]	
Male	85.0
Female	15.0
Birth Place [%]	
Beijing	50.0
Other	50.0
Family Structure [%]	
Two-parent Family	66.7
Single-parent Family	20.0
Other	13.3
Mindfulness [14–84]	63.8 (8.5)
Life Skills [10–50]	38.4 (5.3)
Refusal [3–15]	12.6 (3.1)
Assertiveness [3–15]	11.5 (1.6)
Relaxation [2–10]	6.9 (1.7)
Self-control [2–10]	7.4 (1.7)
Resilience [7–98]	66.2 (12.7)
SDQ [0–42]	9.8 (6.3)
Externalizing [0–18]	3.8 (2.6)
Internalizing [0–24]	6.0 (4.4)

Note:  $N = 60$ .

Table 2: Pearson's correlation coefficients of variables

	1	2	3	4	5	6	7	8	9	10	11
1. Resilience	---										
2. SDQ	-0.33 *	---									
3. Mindfulness	0.18	-0.51 ***	---								
4. Life Skills	0.33 **	-0.14	0.23	---							
5. Delinquent	0.07	-0.17	-0.03	-0.15	---						
6. Age	0.22	-0.12	-0.17	-0.15	0.08	---					
7. Male	0.05	-0.28 *	0.04	-0.09	0.59 ***	-0.02	---				
8. Born in Beijing	-0.00	-0.21	0.07	-0.06	0.21	0.00	0.14	---			
9. Two-Parent Family	-0.03	-0.28 *	0.08	-0.06	0.10	-0.08	0.10	0.00	---		
10. Single-Parent Family	0.00	0.07	-0.04	0.05	-0.09	0.05	-0.02	0.08	-0.70	---	
11. Other Family	0.04	0.30 *	-0.07	0.02	-0.03	0.04	-0.11	-0.10	-0.55	-0.20	---

Note:  $N = 60$ . \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .



Table 3: Regression estimates of resilience and SDQ

	Resilience			
	Coefficient	Standard Error	P	95% Confidence Interval
Mindfulness	0.23	0.19	0.230	-0.15 – 0.62
Life Skills	0.86	0.31	0.008 **	0.24 – 1.49
Delinquent (vs. Non-delinquent)	2.27	4.22	0.594	-6.21 – 10.75
Age	2.67	1.13	0.022 *	0.39 – 4.96
Male (vs. Female)	1.48	5.46	0.787	-9.48 – 12.44
Born in Beijing (vs. Non-Beijing)	-0.26	3.21	0.935	-6.71 – 6.19
Single-parent Family (vs. Two-parent Family)	-0.34	4.01	0.932	-8.40 – 7.72
Other Family (vs. Two-parent Family)	1.41	4.72	0.767	-8.06 – 10.87
Constant	-29.02	26.82	0.285	-82.87 – 24.84
Adj. R-square	0.10			
	SDQ			
	Coefficient	Standard Error	P	95% Confidence Interval
Mindfulness	-0.35	0.08	0.000 ***	-0.51 – -0.20
Life Skills	-0.13	0.12	0.308	-0.39 – 0.13
Delinquent (vs. Non-delinquent)	-0.11	1.73	0.947	-3.59 – 3.36
Age	-1.06	0.46	0.027 *	-1.99 – -0.13
Male (vs. Female)	-3.88	2.24	0.089 +	-8.38 – 0.61
Born in Beijing (vs. Non-Beijing)	-1.62	1.32	0.225	-4.27 – 1.03
Single-parent Family (vs. Two-parent Family)	2.07	1.64	0.215	-1.24 – 5.37
Other Family (vs. Two-parent Family)	4.85	1.94	0.015 *	0.97 – 8.73
Constant	58.24	11.01	0.000 ***	36.13 – 80.34
Adj. R-square	0.38			

	Externalizing			
	Coefficient	Standard Error	P	95% Confidence Interval
Mindfulness	-0.15	0.04	0.000 ***	-0.22 – -0.08
Life Skills	-0.05	0.06	0.381	-0.17 – 0.07
Delinquent (vs. Non-delinquent)	-0.04	0.80	0.957	-1.66 – 1.57
Age	-0.30	0.22	0.172	-0.74 – -0.14
Male (vs. Female)	0.55	1.04	0.599	-1.54 – 2.65
Born in Beijing (vs. Non-Beijing)	-0.51	0.62	0.413	-1.74 – 0.73
Single-parent Family (vs. Two-parent Family)	1.10	0.77	0.156	-0.44 – 2.64
Other Family (vs. Two-parent Family)	0.92	0.90	0.315	-0.90 – 2.72
Constant	19.91	5.13	0.000 ***	9.61 – 30.23
Adj. R-square	0.26			
	Internalizing			
	Coefficient	Standard Error	P	95% Confidence Interval
Mindfulness	-0.20	0.05	0.000 ***	-0.31 – -0.09
Life Skills	-0.08	0.09	0.374	-0.26 – 0.10
Delinquent (vs. Non-delinquent)	-0.07	1.20	0.953	-2.47 – 2.33
Age	-0.76	0.32	0.022 *	-1.40 – -0.11
Male (vs. Female)	-4.43	1.54	0.006 **	-7.54 – -1.33
Born in Beijing (vs. Non-Beijing)	-1.11	0.91	0.227	-2.94 – 0.72
Single-parent Family (vs. Two-parent Family)	0.96	1.14	0.401	-1.32 – 3.24
Other Family (vs. Two-parent Family)	3.93	1.34	0.005 **	1.25 – 6.62
Constant	38.32	7.60	0.000 ***	23.06 – 53.58
Adj. R-square	0.41			

Note:  $N = 60$ . +  $p < .10$ , \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .