



Measuring Resilience in the Adolescent Population: A Succinct Tool for Outpatient Adolescent Health

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Objective To create a valid tool to measure adolescent resilience, and to determine if this tool correlates with current participation in risk behaviors and prior adverse childhood events.

Study design One hundred adolescents were recruited from primary care clinics in New Jersey for this cross-sectional study. A “7Cs tool” was developed to measure resilience using the 7Cs model of resilience. All participants completed the 7Cs tool, the Adverse Childhood Events Survey, and the Health Survey for Adolescents to identify current risk behaviors. Demographic and background data were also collected. To assess the validity of the 7Cs tool, Cronbach alpha, principal factor analysis, Spearman coefficients, and sensitivity analyses were conducted. The χ^2 test and ORs were used to determine if any relationships exist between resilience and prior adverse childhood events and risk taking behaviors.

Results Participants ranged from 13 to 21 years old (65% female). Internal consistency was established using Cronbach alpha (0.7). Lower resilience correlated with higher adverse childhood events ($P = .008$) and Health Survey for Adolescents scores ($P < .001$). Lower resilience was associated with increased problems in school (OR 2.6; $P = .021$), drug use (OR 4.0; $P = .004$), violent behavior (OR 3.7; $P = .002$), recent depression (OR 5.0; $P < .001$), and suicidality (OR 4.1; $P = .009$). Higher resilience was associated with participation in exercise ($P = .001$) and activities ($P = .01$).

Conclusions The 7Cs tool is an internally validated tool that may be used to screen adolescent resilience and guide pediatricians’ counseling against risk behaviors. Further studies will evaluate resilience-building interventions based on results from this study. (*J Pediatr* 2017;189:201-6).

Resilience describes the occurrence of a positive result, despite the presence of risk.^{1,2} The value of resilience is its focus on an individual’s strengths.³ Resilience may be examined as an ever-evolving force that transforms as an individual amasses their life experiences. This dynamic concept is especially true for youth who are constantly vulnerable to internal and external variables.⁴ The Adverse Childhood Experiences study demonstrated that adverse experiences in childhood are correlated with increased risk behaviors later in life, including increased cigarette, alcohol, and drug use; high-risk sexual behaviors; and depressed mood.⁵ Resilience may attenuate the likelihood of participating in risk behaviors despite adverse childhood experiences. Resilience and vulnerability are described as 2 parts of a spectrum that modulate the impact of stressors on youth.⁶ Resilience strengthens an individual’s resolve against the impact of stressors.⁷

Recent studies focusing on resilience included the development of an 88-item tool measuring resilience in Australia, called the Adolescent Resilience Questionnaire.⁴ Another study used the scale of resilience and protective factors based on the California Healthy Kids Survey to implement a resilience intervention and demonstrated decreased use of illicit substances among high school students.⁸ Although these studies document methods of measuring adolescent resilience, they are not easily performed in a busy outpatient setting.

Our study aims to design a brief instructive tool using the “7Cs,” a constellation of 7 descriptors, beginning with the letter C, that together define a framework for adolescent resilience (Table I).¹⁰ These descriptors originated from a longitudinal study by Lerner et al,¹¹ as the “5 Cs of Positive Youth Development:” competence, confidence, character, connection, and caring. These were qualities that correlated with resilience and thriving in youth.¹² Ginsburg suggested adding 2 more qualities, coping and control, resulting in the 7Cs Model of Positive Development.¹⁰ The primary aim of this study was to create a brief and easy-to-use tool measuring adolescent resilience using this comprehensive framework. The second aim was to determine if any relationships exist between resilience, participation in risk behaviors, and prior adverse childhood events. A tool measuring resilience could provide physicians with an easy method for resilience screening to aid in recognizing and enhancing resilience among youth.¹³

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Table I. The 7 C's model of positive development***Competence**

Success in school, work, or relationships can reinforce and build competence in youth. Having the ability to negotiate these skills safely in their world can also reinforce these competencies. Adults can model and recognize these skills that reinforce competence and build on existing competencies. Competence can be undermined when adults try to "fix" situations without allowing youth to develop their own skills and problem solving techniques or practices.

Confidence

Reinforcing and practicing the skills that build competence can lead to confidence. The reinforcement and recognition of existing strengths by adults can help youth to further gain confidence. Confidence is critical in establishing positive behaviors and avoiding risk-taking behaviors. Without confidence, youth may not be strong enough to make positive choices and may follow the crowd for fear of rejection.

Character

Having the attributes that can be ascribed to someone of good character may include such things as having moral fortitude, an understanding of behavioral norms, recognition of how one's behavior can affect others, and such attributes as tenacity, perseverance, and the ability to self-reflect and learn from life challenges.

Connection

Resilience can be strengthened by having a meaningful connection with at least 1 adult in their life who believes in them unconditionally and holds them to a high standard. These connections can reinforce a youth's confidence and feeling of worth, even in times of stress.

Contribution

Confidence, competence, character, and connection are attributes that are essential building blocks for youth to make contributions to their families, communities, and society. The rewards of contribution are many and the experiences of contribution are 2-fold; youth will not only experience the personal rewards, but others around them will appreciate and acknowledge their contribution and, therefore, reinforce the value of their contribution.

Coping

Coping effectively is a positive and adaptive strategy to help youth deal with life stressors. Stress is a normal part of life and the development of positive coping strategies is essential to avoiding the long-term effects of toxic stress. Adopting positive coping strategies may help to avoid unsafe or unhealthy behaviors. Adults' coping strategies and ability to adapt to stressful situations can be a positive model for youth behavior and coping.

Control

Control (or self-efficacy) is one's ability to resist or avoid high-risk behaviors in the face of temptation. The development of control over one's environment allows one to have a sense of independence or a sense of purpose. However, with that control may come certain outcomes or consequences, and youth who demonstrate responsibility should be rewarded with gradual trust and privileges. Adults' ability to control can be an important model of the importance of patience and control of one's actions, even if it is not desirable or delays gratification. Parents who deny their children the ability to make their own decisions are limiting their children's development of self-responsibility and discipline.

*Adapted from: Kenneth R. Ginsburg and Martha M. Jablow, *Building Resilience in Children and Teens: Giving Kids Roots and Wings*, 3rd Edition. Elk Grove Village, IL: American Academy of Pediatrics. 2015.⁹

Methods

Using a cross-sectional study design, participants were recruited from 2 academic adolescent medicine primary care practices in New Jersey, one located in an urban underserved area and the second in a nearby suburb. Patients ≥ 13 years of age could participate if able to speak and read English at the eighth-grade level and provide informed consent and assent. Parents or guardians also had to be able to speak and read English at the eighth-grade level and provide informed consent. This study was approved by the Cooper University Hospital Institutional Review Board.

Adolescents completed 4 forms: the Health Survey for Adolescents (HSA), the Adverse Childhood Events survey, a background and demographics form, and the newly created "7Cs of Resilience Tool." Forms were compiled in envelopes and handed to the participant to complete without a provider present. Forms were returned in the envelope once completed.

The 7Cs of Resilience Tool is a questionnaire developed to measure resilience using the following components: competence, confidence, connection, character, contribution, coping, and control, (Figure; available at www.jpeds.com). Each component was assigned a Roman numeral to decrease participant

bias that could occur when recognizing the assessed components. Each component was given 3 statements built on a Likert scale model. For example, confidence (II) was assigned the following statements: I believe I can be successful in whatever I choose; I can usually be successful, but I know what my strengths and weaknesses are; I have doubts that I will be successful, even in the things I am good at. For each component, the statements range from most to least resilient and were assigned a score of 0, 1, or 2, respectively. Higher points were assigned to lower resilience statements to counteract potential social desirability bias. For each Roman numeral, participants read the statements and circled the one that most described how they felt. Points from each component were added together for a total score. Low resilience levels corresponded with higher total scores and vice versa. At the end of the form was an area for participants' additional comments. The tool was pilot tested for readability, time to complete, and acceptability among the adolescent population, resulting in minor phrasing edits.

Participants answered the Adverse Childhood Events Survey⁵ to assess 10 adverse events, including various forms of abuse and household dysfunction, experienced in childhood. The Adverse Childhood Events Survey specifically asks if participants

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