Resiliency Scales for Children and Adolescents: Theory, Research, and Clinical Application

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This chapter will describe the Resiliency Scales for Children and Adolescents (RSCA) (Prince-Embury, 2006a, 2006b, 2006c, 2007) as an assessment of personal resiliency that is based on three core developmental systems commonly associated with adaptive functioning. In addition, this chapter will summarize and integrate the developmental theory underlying the RSCA, present research including reliability and validity evidence and discuss clinical application of the RSCA for preventive screening and clinical intervention.

Broad-Based Resilience Assessment Issues

The definition of resilience as a product of complex interactions of personal attributes and environmental circumstances, mediated by internal mechanisms, has presented an assessment challenge to developmental researchers in the past (Luthar, Cicchetti, & Becker, 2000). In an effort to clarify constructs, theorists have distinguished "resilience" from "resiliency" in that the former is defined as interactive and contextual and the latter addresses personal attributes of the individual (Luthar et al., 2000; Luthar & Zelazo, 2003; Masten, 1994). Studies of resilience have been longitudinal, have employed a developmental-psychopathology perspective and have tried to capture contextual aspects of resilience specific to groups and sets of circumstances. Studies assessing personal resiliency, in an effort to be comprehensive, have employed extensive batteries of preexisting tests, along with various criteria of competence, achievement or successful adaptation. Researchers of both resilience and resiliency have used different measures across studies and across populations, making it difficult to compare results across studies and across groups. In addition, these measures employed in research have often been impractical for widespread use because they are too labor intensive or expensive and in some cases require longitudinal research. In summary, there has been a lack of common metrics across different studies of resilience/resiliency and across research and practice.

On a practical level, Masten has suggested that there is work to be done to make resiliency assessment tools more field-friendly (Masten, 2001; Masten & Powell, 2003). In this pursuit measures should be brief, easily administered, simple to score and interpret and applicable across populations, bias free with respect to gender and ethnicity and worded so that they might be used with a broad range of age and reading levels while retaining core meaning. In addition,

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for widespread application such as universal screening, a measure assessing resiliency needs to be strength-based and informative while at the same time not stigmatizing or "pathologizing" of groups or individuals.

Developmental Systems of Personal Resiliency

The first step in the assessment of resiliency is to define what aspect to assess. A criticism in the field has been that there has not been consensus on a definition of the construct (Kaplan, 2005). Resilience research has identified lengthy lists of protective factors present in the child's family, school, and community as well as in personal characteristics of the child. An ecological perspective also considers the complex interaction of these factors and their effect on the child. Selecting what factors to assess or determining how to assess complex interactions presents a measurement challenge. First researchers must decide whether to focus on the context or environmental factors (resilience), personal attributes of the youth (resiliency), or the interaction between the two. Assessment of the interaction that underlies resilience requires multiple measures and specific plans on how to assess them in conjunction with each other. Alternatively, assessment of personal attributes must be based on developmental research and research showing that these attributes are correlated with protective factors and successful behavioral outcome.

The RSCA provides an assessment of three previously identified attributes of personal resiliency and is based on personal experience reflective of three core developmental systems: Sense of Mastery, Sense of Relatedness, and Emotional Reactivity and the relationship of these factors to one another (Prince-Embury, 2006a, 2006b, 2006c, 2007). Focus on the personal experience of the child assumes that this experience mediates between external protective factors and positive behavioral outcomes. The developmental research that demonstrates the relevance of these three constructs to children's subsequent coping and success is discussed below.

Sense of Mastery

Core mechanism that have been consistently identified as important for resiliency in developmental and resilience research are Sense of Mastery and self-efficacy. White (1959) suggested that children's sense of competence or efficacy provides them with the opportunity to interact with and enjoy cause and affect relationships in the environment. According to White, a sense of competence, mastery, or efficacy is driven by an innate curiosity, which is intrinsically rewarding and is the source of problem solving skills. Bandura (1977, 1993) suggested that students' self-efficacy beliefs for regulating their own learning and mastering academic activities determine their aspirations, level of motivation, and academic accomplishments. The construct of competence also found its way into what has been termed the third wave of resilience research. This work examined competence as a strategy for preventing or ameliorating behavioral and emotional problems (Masten & Curtis, 2000; Masten, Burt, & Coatsworth, 2006; Masten, Roisman, Long, Burt, Obradovic, Riley, et al., 2005; Masten & Coatsworth, 1998). Consistent with this, the Project Competence group (Masten & Obradovic, 2006), focused on competence criteria for positive adaptation in age-salient developmental tasks (Masten & Powell, 2003). Several studies conducted as part of the Rochester Child Resilience Project supported the hypothesis that positive expectation is related to resilience. Positive efficacy expectations in 10–12 year-olds predicted better behavioral adaptation and resilience to stress (Cowen, Pryor-Brown, Hightower, & Lotyczewski, 1991). Positive expectations about their future predicted lower anxiety, higher school achievement and better classroom behavior control (Wyman, Cowen, Work, & Kerley, 1993). In summary, previous research and theory suggests that children and youth who have a greater sense of competence/efficacy may be more likely to succeed in a school environment and less likely to develop pathological symptoms. Consistent with these findings, Sense of Mastery, which includes perception of self-efficacy, along with optimism and adaptability, was selected as a core construct underlying personal resiliency for the RSCA.

Sense of Relatedness

Reviewing five decades of resilience research in child development, Luthar (2006, p. 780) concluded, "Resilience rests, fundamentally, on relationships." The importance of relationships for human resilience has been noted in every major review of protective factors for resilience (see Masten & Obradovic, 2006). The importance of relationships and relational ability as mediators of resilience has been supported in research by developmental psychopathologists such as Werner and Smith (1982). Throughout their writing, Werner and Smith have stressed the importance of children having relationships with caring adults other than, or in addition to, their parents. Werner and Smith (1982) noted that resilient youth sought support from non-parental adults (especially teachers, ministers, and neighbors) more often than non-resilient youth. These supportive relationships were influential in fostering resilience.

The implication from this body of literature is that social relatedness is important but the mechanism by which this occurs is explained in a variety of ways. Youth may view relationships as providing specific supports in specific situations. In addition, internal mechanisms that emerge from youths' cumulative experience of previous support may shield youth from negative psychological impact by providing an internalized expectation of support. This expectation might lead to a youth's ability to find and use support when needed. Previous research has indicated that perceived support, as distinguished from actual support, is the dimension of social support that is most strongly related to psychological well-being in adults and children (Barrera, 1986; Cohen & Wills, 1985; Jackson & Warren, 2000; Sarason, Shearon, Pierce, & Sarason, 1987).

Developmental theorists have worked throughout the twentieth century to identify and label internal mechanisms of relatedness. Psychosocial theories of development, such as that of Erikson (1963), identified the first developmental psychosocial process that occurred in infancy through interaction between the child and the primary caregiver as the development of trust versus distrust. The significance of trust was identified by Erikson as the first stage of social-emotional development, upon which all other social development is built. Erikson defined basic trust as the ability to receive and accept what is given. Another theorist, Bowlby (1969), observing the interaction between the infant and primary caregiver, conceptualized this early social interactive process as the development of attachment, which has implications for the individual's ability to relate to others throughout their lifetime. The attachment system was originally described by John Bowlby in three volumes on attachment and loss (1969) and later examined in many studies of attachment in human development (Ainsworth, 1989; Bolby, 1982, 1988; Bretherton & Munholland, 1999; Sroufe, Carlson, Levy, & Egeland, 1999; Thompson, 2000). Consistent with this extensive body of research, the RSCA Sense of Relatedness Scales was designed to tap some aspects of youth's relational experience.

Emotional Reactivity

Developmental research has demonstrated that children's development of pathology in the presence of adversity is related to their Emotional Reactivity and their ability to regulate this reactivity. Specifically, strong Emotional Reactivity and related difficulty with regulation of this reactivity have been associated with behavioral maladjustment and vulnerability to pathology. Emotional Reactivity is the child's arousability or the threshold of tolerance that exists prior to the occurrence of adverse events or circumstances. Rothbart and Derryberry (1981) have defined Emotional Reactivity as the speed and intensity of a child's negative emotional response. Children's reactivity varies in its intensity, sensitivity, specificity, windows of tolerance, and recovery (Siegel, 1999). Conversely, emotional regulation, or the ability to modulate emotional responses is a significant factor in fostering resilience (Cicchetti, Ganiban, & Barnett, 1991; Cicchetti & Tucker, 1994; Eisenberg, Champion, & Ma, 2004). Regulation and redirection of emotional arousal is necessary for children to function

adaptively in emotionally challenging situations (Cicchetti et al., 1991; Thompson, 1990).

Consistent with previous research, the RSCA assumes that the degree of a child's Emotional Reactivity potentially aroused by adversity would be important in determining relative vulnerability or risk. Specifically, Emotional Reactivity is defined in the RSCA in terms of the child's self-perceived relative sensitivity or intensity of reaction, recovery or length of time it takes for the child to recover and the degree to which the emotion interferes with functioning.

Description of the Resiliency Scales for Children and Adolescents

The RSCA is a self-report instrument designed to tap the three core developmental systems defined above as experienced and expressed by a child or adolescent. The RSCA consists of three global scales designed to reflect the three designated underlying systems: Sense of Mastery, Sense of Relatedness, and Emotional Reactivity. *T*-Scores on these three global scales comprise a Personal Resilience Profile which graphically displays the child's relative strengths and vulnerabilities. Two composite scores, the Resource Index and the Vulnerability Index, are summary scores that quantify the child's relative strength and vulnerability for use in preventive screening. The three global scales are comprised of ten subscales that can be used to understand the child's specific strengths and vulnerabilities in more depth. All scores are standardized on age and gender based normative samples that are stratified by race/ethnicity and parent education level to match the US Census for 2003 (Prince-Embury, 2007, 2008).

The *Sense of Mastery* Scale is a 20-item self-report questionnaire written at a third-grade reading level. Response options are ordered on a 5-point Likert scale: 0 (Never), 1 (Rarely), 2 (Sometimes), 3 (Often), and 4 (Almost Always). The *Sense of Mastery* Scale consists of three conceptually related content areas: *optimism* about life and one's own competence; *self-efficacy* associated with developing problem-solving attitudes and strategies; and *adaptability*, being personally receptive to criticism, and learning from one's mistakes. Higher scores on this global scale or subscales suggest higher personal resiliency in this developmental system. Internal consistencies for the Sense of Mastery Scale are good with an alpha of 0.85 for youth ages 9–11, 0.89 for youth ages 12–14 and 0.95 for youth ages 15–18. Test–retest reliability coefficients were 0.79 for youth ages 9–14 and 0.86 for youth ages 15–18 (Prince-Embury, 2007).

The *Sense of Relatedness* Scale is a 24-item self-report questionnaire written at a third-grade reading level. Response options are frequency-based, ordered on a 5-point Likert scale: 0 (Never), 1 (Rarely), 2 (Sometimes), 3 (Often), and 4 (Almost Always). Within this scale, a Sense of Relatedness refers to *comfort* with others, *trust* in others, perceived access to *support* by others when in need, and *tolerance* of differences with others. Higher scores on this global scale or subscales suggest higher personal resiliency in this developmental system. Internal consistency is good to excellent for the Sense of Relatedness Scale: 0.89 for children ages 9–11, 0.91 for children ages 12–14, and 0.95 for youth ages 15–18. Test–retest reliability coefficients were good; 0.84 for youth ages 9–14 and 0.86 for youth ages 15–18 (Prince-Embury, 2008).

The *Emotional Reactivity* Scale is a 20-item self-report questionnaire written at the third grade reading level. Response options are ordered on a 5-point Likert scale: 0 (Never), 1 (Rarely), 2 (Sometimes), 3 (Often), and 4 (Almost Always). Unlike the Sense of Mastery and Sense of Relatedness Scales, lower scores on the Emotional Reactivity Scale are indicative of low reactivity and high scores suggest higher vulnerability in this developmental area and consequently less personal resiliency. This scale consists of three related content areas: the *Sensitivity* subscale assesses the child's threshold for emotional reaction and the intensity of the reaction, the *Recovery* subscale describes the length of time required for recovering from emotional upset, and the *Impairment* subscale describes the child's experience of disrupted functioning while upset. Internal consistency for the Emotional Reactivity Scale is excellent with alphas of 0.90 for youth

ages 9–11, 0.91 for youth ages 12–14 and 0.94 for youth ages 15–18. Test–retest reliability coefficient was 0.88 for youth ages 9–14 and youth ages 15–18 (Prince-Embury, 2007).

Summary Index Scores

The RSCA Summary Index scores combine information into two scores, which may be unfolded to provide more detailed information at the global and subscale levels. The Index scores were developed based on empirical analyses of RSCA Scale score profiles, factor analytic studies and validity studies (Prince-Embury, 2006a, 2006b, 2006c, 2007; Prince-Embury & Courville, 2008a, 2008b). Resilience theory traditionally divided factors of resilience into those that were protective versus those that increased risk. Protective factors were viewed as characteristics that buffered the negative effect of adversity on the individual. Risk factors were viewed as increasing the potential for negative outcome in the face of adversity. Within this framework, higher Sense of Mastery and Sense of Relatedness may be viewed as protective, while higher Emotional Reactivity may be viewed as a personal risk factor.

Factor analytic studies indicate that although the three RSCA Scales represent three distinct factors, two of these factors, Sense of Mastery and Sense of Relatedness, are highly correlated consistent with the assumption that both represent protective factors of resiliency (Prince-Embury & Courville, 2008a). Thus theory and analyses of empirical data suggested the first index score, the *Resource Index*, which is calculated as the standardized average of the Sense of Mastery and Sense of Relatedness Scale scores. This average is an estimate of students' personal strength or resources, weighting *Sense of Mastery* and *Sense of Relatedness* equally. It must be emphasized that equal weighting of these factors is an estimate for simplification and that more precise weights of these factors in protective significance may differ across groups and/or individuals. Internal consistency for the *Resource Index* was excellent with alpha coefficients of 0.93 for youth ages 9–11, 0.94 for youth ages 12–14 and 0.97 for youth ages 15–18. Test–retest reliability coefficient was 0.90 for youth ages 9–14 and 0.85 for youth ages 15–18 (Prince-Embury, 2007). Resilience theory suggests that youth who perceive themselves as having sufficient personal Resources will be more resilient and less likely to develop psychopathology as a consequence of adversity than those who experience themselves as having insufficient personal resources.

Developmental theory suggests that an individual's resiliency relates to whether the individual has sufficient resources and whether these resources are sufficient to offset the amount of personal risk experienced by the individual. The *Vulnerability Index* is designed to estimate the discrepancy between an individual's personal risk and perceived available personal resources. The *Vulnerability Index* score is calculated as the standardized difference between the *Emotional Reactivity T*-score and the *Resource Index T*-score. It quantifies children's personal vulnerability as the relative discrepancy between their combined self-perceived resources (the *Resource Index*) and their fragility as described by Emotional Reactivity the *Emotional Reactivity Scale* (Prince-Embury, 2007). Internal consistency for the *Vulnerability Index* score is excellent with alpha coefficients of 0.93 for youth ages 9–11, 0.94 for youth ages 12–14, and 0.97 for youth ages 15–18. Test–retest reliability coefficient was 0.83 for youth ages 9–14 and 0.93 for youth ages 15–18. Personal vulnerability would be indicated by a high *Vulnerability Index* score which would indicate that students' personal resources were significantly below their level of Emotional Reactivity.

Psychometric Adequacy of the RCSA

Reliability

Cicchetti (1994) suggests that coefficient alphas at or above 0.70 are adequate, at or above 0.80 are good, and at or above 0.90 are excellent.

Table 3.1 Alpha coefficients for the RSCA Global Scales across six countries

Scale	Canada 2009 (543)	Canada 2010 (390)	China (726)	Brazil (1,226)	Lebanon (599)	Nairobi, Kenya (83)	South Africa (487)
Mastery	0.90	0.92	0.95	0.83	0.78	0.70	0.74
Relatedness	0.92	0.93	0.94	0.90	0.86	0.74	0.83
Emotional Reactivity	0.90	0.91	0.89	0.87	0.87	0.80	0.76

Alpha coefficients of 0.90 are thought of as adequate for tracking individual scores over time. Alpha coefficients of 0.80 or more are considered adequate for tracking group scores over time. Using these criteria, reliability evidence was excellent for the RSCA Index scores, good for the Global Score, and adequate for most subscales. The RSCA Index and global scale scores show good or excellent internal consistency across age and gender groups and, as expected, greater internal consistency was evidenced with increased age (Prince-Embury, 2007). For children ages 9–11, the *RSCA Index* scores and the *Emotional Reactivity Scale* score meet the criterion of alpha coefficient >0.90 for individual-level tracking. The *Sense of Mastery* and *Sense of Relatedness Scale* scores meet the criterion of alpha coefficient >0.80 for group level tracking. For children ages 12–14, the *RSCA Index* scores and all three Global Scores meet the criterion for individual level tracking. Six of the *RSCA* subscales met criterion for group level tracking. For youth ages 15–18, both Index scores, three global scale scores, and three subscale scores meet the criterion for individual level tracking. For this age group all scores meet the criterion for group-level tracking. Hence the RSCA demonstrates good internal consistency, supporting the conceptual and theoretical derivation of the scale, subscales and indices. Cross-cultural studies indicate adequate to excellent internal consistency for the three global RSCA Scale Scores (see Table 3.1). The RSCA has been employed previously with youth in Canada (Saklofske & Nordstatt, 2011), South Africa (Van Wyk, 2011), Kenya (Tignor & Prince-Embury, 2013), China (Cui, Teng, & Oei, 2010), Brazil (Jordani, 2008), and Lebanon (Ayyash-Abdo & Sanchez-Ruiz, 2011).

Research and Validity Evidence

Establishing validity evidence for the RSCA is a conceptually complex process because the construct has been approached in many ways and has raised many conceptual questions. A few of these questions are the following. Is resiliency operable only in adverse circumstances or do these factors operate under normal circumstances as well? Are adverse circumstances required to identify resiliency? Does resiliency operate across circumstances or is it situation specific? Is resiliency a state or a trait and if a trait is it modifiable? Is resiliency one-dimensional or multidimensional?

The RSCA design assumes that resiliency is multidimensional, that these dimensions are relevant across circumstances but vary in relative salience depending on the validity question being asked. Therefore, validity evidence below will be presented with respect to protective factors first; Sense of Mastery, Sense of Relatedness and the summary Resource Index. Secondly validity evidence will be provided pertaining to risk facts; Emotional Reactivity and the summary Vulnerability Index. The RSCA design assumes that personal resiliency is based on core developmental processes that exist in normative as well as populations exposed to adversity. Therefore much of the validity evidence presented below is based on the presence of protective and risk factors in normative samples, as well as in the comparison of normative and clinical samples.

Protective Factors: Self-Concept

Validity evidence for the RSCA as a reflection of protective factors may be explored in the

relationship between RSCA scores and measures of Self-concept. Previous theorists have suggested that resiliency is associated with positive Self-concept or self-esteem (see Rutter, 1987, 1993), Luthar, & Brooks). Research by Dumont and Provost (1999) and others have previously provided support for this relationship. Prince-Embury (2007) described the relationship between the positive Self-concept score of the BYI-II and the RSCA protective factor scores for children and adolescents (see Table 3.2). Significant positive correlations were found for both child and adolescent samples, between a positive BYI Self-concept score and the RSCA Resource Index score (0.78, 0.79), the Sense of Mastery Scale score (0.74, 0.80), and the Sense of Relatedness Scale score (0.70, 0.70), suggesting convergent validity for these scores as reflective of positive Self-concept as a protective factor. At the subscale level the RSCA Self-efficacy subscale was most significantly related to positive Self-concept as assessed by the BYI-II for both children (0.75) and adolescents (0.77) suggesting that perceived Self-efficacy is an area of overlap between a positive Self-concept and personal resiliency.

These Self-concept findings were supported in a separate study using the Pier-Harris Children's Self-concept Scale, Second Edition (Piers-Harris 2; Piers, 2002) (see Table 3.2 and Prince-Embury, 2007). The RSCA Sense of Mastery, Sense of Relatedness and Resource Index scores were positively correlated with the Pier Harris 2 Total Score (0.60, 0.55, 0.59). The Behavior Adjustment Domain subscale of the Piers Harris 2 was most strongly related to the RSCA scores (0.70, 0.61, 0.69). The RSCA subscale most strongly correlated with Piers Harris 2 Total and Domain scores was the optimism subscale of the Sense of Mastery Scale.

Emotional Intelligence

Emotional Intelligence defined as awareness of and understanding of emotions has been defined as a protective factor. Total score on the Self-reported Emotional Intelligence Test (SSEIT; Schutte et al., 1998) was positively correlated with the RSCA Resource Index score (0.59), Sense of Mastery (0.54), and Sense of Relatedness (0.46) Scale scores, for 157 adolescents attending a charter school located in a low income area of a New England city (Luthar, 2006, unpublished study). The fact that the RSCA Resource Index score correlates more strongly than either the Sense of Mastery or Sense of Relatedness scores with emotional intelligence suggests that the combination of these protective factors is more salient than either of these considered separately for this variable.

Protective Factor: Parent Attachment

As discussed above in the introduction section of this chapter, most formulations of resiliency include positive relationships with others as a significant protective factor. Developmental theory has identified quality of Parent Attachment as a major variable underlying all attachments. Construct validity of the RSCA and the Sense of Relatedness Scale in particular may be explored in relation to parental attachment as examined by the Inventory of Parent and Peer Attachment (IPPA; Armsten & Greenberg, 1987). One study of 157 adolescents attending high school in a low SES area of Connecticut correlated overall attachment scores for mother and father with RSCA Index and global scale scores (Luthar, 2006) (see Table 3.2). Overall attachment score with mother was significantly and positively correlated with the RSCA Resource Index score (0.52), Sense of Mastery Scale score (0.48), and Sense of Relatedness Scale score (0.50). Overall attachment with father was related to a lesser extent to the three RSCA protective scores (0.36, 0.29, and 0.33). Convergent validity evidence was provided by the positive and significant relationships between RSCA protective scores and mother and father attachment scores. Correlations between Sense of Relatedness scores and attachment scores are slightly but not significantly higher than those between Sense of Mastery scores and attachment. The Resource Index score correlates most strongly with parental attachment suggesting that combined resources of Sense of Relatedness and Mastery are related to strength of Parent Attachment.

Table 3.2 Correlations of RSCA Index and Global Scale Scales with Self-Concept, Parent Attachment, and Emotional Intelligence scores

RSCA Index and Global Scale Scores	Piers-Harris Self-Concept Total Score (49)	Piers-Harris Self-Concept Behavior Adjustment (49)	BYI-II Self-Concept (46)[a]	BYI-II Self-Concept (200)[a]	IPPA Mother Attachment (157)[b]	IPPA Father Attachment (157)[b]	Emotional Intelligence (SREIT) (157)[b]
Vulnerability	–0.61	–0.62	–0.64	–0.76	–0.48	–0.37	–0.47
Resource	0.59	0.69	0.78	0.79	0.52	0.36	0.59
Mastery	0.60	0.70	0.74	0.80	0.48	0.29	0.54
Relatedness	0.55	0.61	0.70	0.70	0.50	0.33	0.50
Emotional Reactivity	–0.49	–0.43	–0.31	–0.58	–0.27	–0.22	–0.24
Age Range	(9–14)	(15–18)	(9–14)	(15–18)	(15–18)	(15–18)	(15–18)

All correlations were statistically significant at $p < 0.05$
[a]Stratified sample, (Prince-Embury, 2007)
[b]Luthar Bridgeport sample

Risk Factors and Measures of Negative Affect and Behavior

As stated earlier, the RSCA assumes that personal risk would be reflected by higher Emotional Reactivity Scale scores and higher Vulnerability Index scores. Convergent validity for these variables may be assessed by strength of their correlations with measures of negative affect and behavior. *S*trong positive correlations were found between the Emotional Reactivity Scale score and all Beck Youth Inventory—Second Edition (BYI-II; Beck, Beck, Jolly, & Steer, 2005) scores in non-clinical samples of children and adolescents; (0.43, 0.65) with Anxiety, (0.70, 0.67) with Disruptive Behavior, (0.44, 0.74) with Depression and (0.59, 0.76) with Anger (see Table 3.3 below). The Vulnerability Index score was also associated with the BYI-II scores; (0.36, 0.65) with Anxiety, (0.71, 0.66) with Disruptive Behavior, (0.51, 0.75) with Depression, and (0.59, 0.77) with Anger (see Table 3.3 below). These strong correlations suggest that higher Emotional Reactivity and associated higher Vulnerability are associated with more negative affect and behavior for children and adolescents. These relationships appears to be stronger for adolescents than for children although this finding would need to be replicated in studies of larger groups of children.

It should also be noted that the RSCA Resource Index, Sense of Mastery, and Sense of Relatedness scores were negatively correlated with all of the BYI-II scores of negative affect and behavior. These negative correlations are consistent with the notion that personal resources have a buffering effect against negative affect and behavior. This buffering effect is suggested more strongly for adolescents than for children (see Table 3.3).

Similar results were found in correlational studies of the RSCA with other assessments of problem behaviors such as the Connors Adolescent Symptom Scale: Short Form (CASS; Connors, 1997) (see Prince-Embury, 2007). In a sample of 89 youth ages 15–18, conduct, cognitive, and ADHD problems as assessed by the CASS:S were associated with higher Emotional Reactivity Scale scores (0.48–0.65) and higher Vulnerability Index score (0.48–0.68) providing additional support for the Emotional Reactivity Scale score and associated Vulnerability Index as risk variables. In addition, lower Resource Index, Sense of Mastery and Relatedness Scale score were associated with higher CASS scores (–0.37 to –0.64) indicating that lower personal resources are associated with more behavioral difficulties (see Table 3.4).

Personal Resiliency, Bullying, and Victimization

A study correlating RSCA scores with Bullying and Victimization Scale scores of the *Reynolds Bully Victimization Scales* (Reynolds, 2004) for 47 children ages 9–14 suggested some gender differences between the relationship of these behaviors with vulnerability and resources in children (see Table 3.4 below and Prince-Embury, 2007). For boys, Vulnerability and Emotional Reactivity were significantly positively related to self-reported bullying (0.60, 0.60) and victimization (0.54, 0.45). Resource scores were inversely and less significantly related to bullying (–0.21 to –0.38) and victimization (0.02 to –0.21) for boys. For girls on the other hand, lower perceived personal resources were inversely and significantly related to both bullying and victimization. The Resource Index, Sense of Mastery and Sense of Relatedness Scale scores were negatively correlated with self-reported bullying and victimization in the following manner (Resource Index, –0.75, –0.57), (Sense of Mastery, –0.77, –0.44), (Sense of Relatedness, –0.63, –0.61). Emotional Reactivity was less related to bullying and victimization for girls (0.26, 0.08). It must be noted that these results are preliminary and should be replicated and expanded upon in larger studies of bullying and victimization. However, if replicated these results would suggest that bullying prevention programs might differ for males and females. Interventions might focus more on managing Emotional Reactivity for males and on enhancing Sense of Mastery and Relatedness for females (Table 3.5).

Table 3.3 Correlations of RSCA Global Scale and Index Scores with BYI-II scores of negative affect and behavior for children and adolescents

	BYI-II Anxiety (46) (9–11)	BYI-II Anxiety (200) (15–18)	BYI-II Depress (46) (9–11)	BYI-II Depress (200) (15–18)	BYI-II Anger (46) (9–11)	BYI-II Anger (200) (15–18)	BYI Disruptive Behavior (46) (9–11)	BYI Disruptive Behavior (200) (15–18)
Vulnerability	0.36	0.65	0.51	0.75	0.59	0.77	0.71	0.66
Resource	−0.11	−0.53	−0.38	−0.61	−0.36	−0.62	−0.43	−0.51
Mastery	−0.07	−0.51	−0.31	−0.59	−0.32	−0.61	−0.42	−0.53
Relatedness	−0.13	−0.50	−0.38	−0.56	−0.34	−0.57	−0.37	−0.45
Emotional Reactivity	0.43	0.65	0.44	0.74	0.59	0.76	0.70	0.67

Table 3.4 Correlations between RSCA Index and Global Scale scores CASS: S scores of ADHD, conduct and cognitive problems

	CASS:S Conduct Problems (89)	CASS:S Cognitive Problems (89)	CASS:S Hyperact (89)	CASS:S ADHD Index (89)
Vulnerability	0.62	0.59	0.48	0.68
Resource	–0.56	–0.51	–0.43	–0.63
Mastery	–0.57	–0.45	–0.37	–0.60
Relatedness	–0.51	–0.54	–0.48	–0.64
Emotional Reactivity	0.59	0.59	0.48	0.65
Age Range	(15–18)	(15–18)	(15–18)	(15–18)

All correlations significant at the $p < 0.05$

Table 3.5 Correlations of Reynolds Bully/Victimization Scale scores with RSCA Global, Index and subscale scores (Table reprinted from RSCA Technical Manual, Prince-Embury, 2007)

	Male ($n = 24$)		Female ($n = 23$)		Total ($n = 47$)	
Scale/Subscale/Index	Bully	Victim	Bully	Victim	Bully	Victim
Sense of Mastery	–0.21	0.02	–0.77	–0.44	–0.44	–0.16
Optimism	0.08	0.01	–0.58	–0.44	–0.20	–0.16
Self-efficacy	–0.27	0.03	–0.65	–0.33	–0.41	–0.10
Adaptability	–0.38	–0.28	–0.76	–0.45	–0.52	–0.32
Sense of Relatedness	–0.38	–0.21	–0.63	–0.61	–0.40	–0.29
Trust	–0.26	–0.29	–0.58	–0.62	–0.33	–0.34
Support	–0.09	–0.14	–0.51	–0.61	–0.21	–0.25
Comfort	–0.28	0.03	–0.66	–0.65	–0.45	–0.21
Tolerance	–0.55	–0.27	–0.49	–0.27	–0.36	–0.16
Emotional Reactivity	0.60	0.54	0.26	0.08	0.49	0.42
Sensitivity	0.64	0.50	0.02	–0.15	0.40	0.31
Recovery	0.23	0.34	0.14	–0.06	0.09	0.08
Impairment	0.53	0.48	0.34	0.21	0.51	0.44
Resource Index	–0.32	–0.10	–0.75	–0.57	–0.46	–0.24
Vulnerability Index	0.60	0.45	0.59	0.38	0.58	0.41
Reynolds BVS						
Mean	51.17	52.21	46.00	47.48	48.64	49.89
SD	8.09	10.79	5.74	5.62	7.44	8.89

Personal Resiliency and Risk Behavior

Risk behavior was assessed by the *Adolescent Risk Behavior Inventory* (ARBS; Prince-Embury, 2006a) which consists of item clusters tapping self-reported frequency of alcohol and drug abuse, sexual behavior, self-harm ideation, and sensation seeking. The sample which comprised the normative adolescent sample for the RSCA was stratified by race/ethnicity and parent education level within gender and age (see Prince-Embury, 2007, for details of the sample). Results were the following. The Emotional Reactivity Scale and Vulnerability Index scores were positively correlated with self-reported frequency of substance use (0.51, 0.50), sexual behavior (0.42, 0.39), self-harm ideation (0.67, 0.68), and sensation seeking (0.33, 0.31). These findings suggest that higher Emotional Reactivity and associated Vulnerability

Table 3.6 Correlations of frequency of risk behaviors and negative life outcomes with RSCA Index and Global Scale Scores (all correlations significant at $p<0.05$)

	Substance use (200)	Sexual behavior (200)	Self-harm (200)	Sensation seeking (200)	Negative life outcomes (200)
Vulnerability	0.50	0.39	0.68	0.31	0.54
Resource	–0.40	–0.29	–0.55	–0.23	–0.48
Mastery	–0.40	–0.23	–0.52	–0.19	–0.47
Relatedness	–0.40	–0.29	–0.53	–0.24	–0.44
Emotional Reactivity	0.51	0.42	0.67	0.33	0.49

are related to higher frequency of risk behaviors in adolescents.

On the other hand, the Resource Index, Sense of Mastery and Sense of Relatedness Scale scores were negatively correlated with frequency of risk behaviors suggestive of a slight buffering effect. Sense of Relatedness was negatively correlated with frequency of substance use (–0.40), sexual behavior (–0.29), self-harm ideation and behavior (–0.53), and sensation seeking (–0.24). Sense of Mastery was negatively correlated with frequency of substance use (–0.40), sexual behavior (–0.23), self-harm ideation and behavior (–0.52), and sensation seeking (–0.19). Correlations above 0.30 were significant at the $p<0.001$ level and correlations above 0.20 were significant at the $p<0.05$ level. Overall, these findings suggest that Emotional Reactivity is more strongly related to risk behavior than protective factors.

Personal Resiliency and Negative Life Events

(Frequency of Negative Life Events was assessed by *The Negative Life Events Inventory*, Prince-Embury, 2006b). The sample of 200 was split by gender and stratified by race/ethnicity and parent education level to match the US Census. Negative Life Events were divided into Negative Life Events (NLE) that occurred to the teen over which he or she had no control, such as the death of a loved one or parental loss of job. Negative outcomes (NLO) were events over which the youth might have some control, such as dropping out of school or trouble with the law. Correlational analysis shown in Table 3.6 illustrates that the number of negative life outcomes is moderately correlated with RSCA global scale scores and index scores, particularly the Emotional Reactivity Scale score (0.49) and the Vulnerability Index score (0.54). Additional analyses suggested a possible gender difference. For males the Emotional Reactivity Scale score was correlated with Negative Life Outcomes (0.53) more than were the Sense of Mastery Scale (–0.41) or Sense of Relatedness Scale scores (–0.35).

For females on the other hand, the Sense of Mastery Scale (–0.52) and the Sense of Relatedness Scale (–0.53) were slightly more correlated with Negative Life Outcomes in a negative direction than was the Emotional Reactivity Scale score (0.46) in a positive direction. These possible gender differences are consistent with those found for the relationship between resiliency and bullying and victimization behavior.

Evidence of Criterion Group Differences

The relationship between RSCA scores and presence or absence of clinical pathology has been supported by analyses of criterion group differences. Prince-Embury (2007) reported significant differences between mean scores of ten clinical groups and matched control groups for children and adolescents (Depression Disorder, Anxiety Disorder, Conduct Disorder, ADHD, Bipolar Disorder). Overall, the non-clinical groups scored significantly higher than the clinical groups on self-reported protective factors; the Resource

Table 3.7 Mean *T* scores and SD of the Child Depressive Disorder sample and matched control group

	Clinical sample		Matched control					
Scale/Subscale	Mean	SD	Mean	SD	Diff	*t*	Significance	*d*[a]
Sense of Mastery	42.2	10.8	52.1	9.3	9.90	3.51	0.0024	0.98
Optimism	6.9	3.3	10.9	2.8	4.00	4.41	0.0003	1.30
Self-efficacy	8.7	3.6	10.3	3.0	1.60	1.70	0.1055	0.48
Adaptability	8.3	2.7	10.5	3.4	2.20	2.16	0.0435	0.71
Sense of Relatedness	37.9	11.7	52.2	9.9	14.30	4.68	0.0002	1.33
Trust	6.5	3.2	10.7	3.3	4.25	4.82	0.0001	1.29
Support	6.9	3.7	10.6	2.9	3.70	3.40	0.0030	1.13
Comfort	7.8	3.5	10.4	2.6	2.60	3.04	0.0068	0.85
Tolerance	7.3	3.4	10.5	2.7	3.25	3.61	0.0019	1.05
Emotional Reactivity	63.0	7.3	47.7	10.1	−15.30	−6.60	<0.0001	−1.74
Sensitivity	13.5	2.3	9.9	2.4	−3.65	−6.32	<0.0001	−1.55
Recovery	11.9	3.0	9.7	3.2	−2.20	−2.45	0.0239	−0.72
Impairment	13.6	2.4	9.0	3.1	−4.55	−6.86	<0.0001	−1.66
Resource Index	39.0	10.0	52.4	9.6	13.45	4.64	0.0002	1.37
Vulnerability Index	64.5	8.9	47.2	9.9	−17.35	−7.15	<0.0001	−1.84

Note. Clinical sample $n=20$, matched control $n=20$. Using the Bonferroni correction (Hays, 1994, p. 450): $\alpha^{PC} \geq \alpha^{PW}/k = 0.05/15 = 0.0033$, differences between groups are significant where $p \leq 0.0033$

a*d* is the difference of the two test means divided by the square root of the people variance computed using Cohen's (1996) Formula 10.4 (table from Prince-Embury, 2007, RSCA technical manual)

Index score, Sense of Mastery, Sense of Relatedness Scales, and subscales. On the other hand, the clinical groups scored significantly higher on the Vulnerability Index, Emotional Reactivity Scale, and subscale scores. Effect sizes were large for all differences and in most cases significant. Tables 3.7 and 3.8 demonstrate differences in resiliency factors between youth diagnosed with Depressive Disorder and matched control group.

Table 3.7 reports RSCA scores for a sample of 20 depressed children and a matched sample of children ages 9–14 from the normative sample. The RSCA Index Scores and global scale scores for the clinical sample are significantly different from those of the matched control in the direction that would be expected. The depressed group differed from the control group most in Vulnerability (*T*65 versus *T*47), next in higher Emotional Reactivity (*T*63 versus *T*48) and then in Sense of Relatedness (*T*38 versus *T*52) and Sense of Mastery (*T*42 versus *T*52). Examination of subscale scores suggests that the clinically depressed group differs most in self-reported impairment, sensitivity, optimism, and trust. These findings are consistent with the diagnosis of Depressive Disorder.

Table 3.8 reports RSCA scores for a sample of 45 depressed adolescents and a matched sample of youth ages 15–18 from a normative sample. The RSCA Index Scores and global scale scores for the clinical sample are significantly different from those of the matched control in the direction that would be expected. The depressed group differed significantly from the matched control group on all measures with large effect sizes. The biggest differences were on the Vulnerability (*T*65 versus *T*47) and Resource Index (*T*35 versus *T*52) scores, Sense of Mastery Scale (*T*35 versus *T*53), Sense of Relatedness (*T*36 versus *T*51), and Emotional Reactivity Scale score (*T*62 versus *T*48). Similar to the sample of depressed children Vulnerability and Emotional Reactivity were in the high range for the clinical group while Resource, Mastery and Relatedness scores were in the low range. The matched control groups reported all scores within the average range.

Table 3.8 Mean *T* scores and SD of the Adolescent Depressive Disorder sample and matched control group

	Clinical sample		Matched control					
Scale/Subscale	Mean	SD	Mean	SD	Diff	*t*	Significance	*d*[a]
Sense of Mastery	35.4	8.2	53.2	8.5	17.82	10.82	<0.0001	2.14
Optimism	5.7	2.7	10.6	2.8	4.93	9.22	<0.0001	1.81
Self-efficacy	6.1	2.6	11.2	2.4	5.09	9.42	<0.0001	2.00
Adaptability	6.9	2.5	10.6	2.4	3.71	8.41	<0.0001	1.53
Sense of Relatedness	35.7	10.7	51.3	7.9	15.53	8.71	<0.0001	1.66
Trust	5.7	2.9	10.4	2.5	4.71	8.98	<0.0001	1.73
Support	6.5	3.3	10.5	2.5	3.98	6.66	<0.0001	1.38
Comfort	6.6	3.3	9.8	2.7	3.24	5.31	<0.0001	1.07
Tolerance	6.7	3.3	10.6	2.4	3.69	7.15	<0.0001	1.33
Emotional Reactivity	61.6	8.6	47.7	7.2	−13.84	−7.04	<0.0001	−1.75
Sensitivity	13.0	3.3	9.5	2.3	−3.47	−5.23	<0.0001	−1.22
Recovery	12.9	3.2	10.2	2.8	−2.73	−3.88	0.0003	−0.91
Impairment	13.2	2.7	9.2	2.3	−4.00	−6.87	<0.0001	−1.62
Resource Index	34.8	9.5	52.4	8.2	17.62	10.30	<0.0001	2.00
Vulnerability Index	64.9	8.2	47.4	7.2	−17.53	−10.25	<0.0001	−2.27

Note: Clinical sample $n=45$; matched control $n=45$. Using the Bonferroni correction (Hays, 1994, p. 450): $\alpha^{PC} \geq \alpha^{PW}/k = 0.05/15 = 0.0033$, difference between groups are significant where $p \leq 0.0033$

a*d* is the difference of the two means divided by the square root of the pooled variance computed using Cohen's (1996) Formula 10.4 (table from Prince-Embury, 2007, technical manual)

Predicting Clinical Status

Additional analysis suggested that the RSCA Vulnerability Index score was a good predictor of clinical status in adolescents; in some cases predicting better than the presence of psychological symptoms. Discriminant function analysis (Prince-Embury, 2008) was employed to examine the relative predictive validity of the RSCA Index and scale scores, demographic variables, and the psychological symptoms assessed by the BYI-II (Beck et al., 2005). Variables entered as independent variable included the following: (1) parent level of education, (2) gender, and (3) RSCA Scale scores (Sense of Mastery, Sense of Relatedness, and Emotional Reactivity *T*-scores), Index scores (Vulnerability and Resource), and the Beck Youth Inventory II scores for Anxiety, Depression, Anger, and Disruptive Behavior. Groups to be discriminated were coded according to clinical status as 0 (non-clinical) or 1 (clinical). The classification sensitivity was 73% and specificity was 81% with the RSCA Vulnerability Index score emerging as the predictor of the most variance followed by the BYI-II Anxiety score accounting for a small part of the remaining unique variance.

In summary, validity evidence relating RSCA scores and psychological symptoms, risk behavior and clinical pathology included the following. Significant and high correlations were found between Negative Affect and Behavior (BYI-II scores) and all of the RSCA Scale and Index scores. The strongest correlations were between the RSCA Vulnerability Index and Emotional Reactivity scores and the BYI-II scores on Depression, Anger, Disruptive Behavior, Anxiety; as well as self-reported self-harm ideation and behavior and Substance Abuse. Some gender differences are suggested in aspects of vulnerability/resiliency that are most salient for bully/victimization and negative life outcomes. For males higher Emotional Reactivity appears to be a salient risk factor for bullying behavior and negative life outcomes. For females higher Sense of Relatedness and Sense of Mastery appear to be more salient protective factors against bullying, victimization, and negative life outcomes.

Discriminant function analysis using gender, parent education level, Resilience Scale and

Index scores, and BYI-II Negative Affect and Behavior scores to predict membership in the clinical versus non-clinical sample indicated the RSCA Vulnerability Index was the best single predictor. These findings suggest that high Emotional Reactivity in combination with low personal resources is associated with the development of psychological symptoms in youth.

Personal Resiliency Profiles: Normative

The Personal Resiliency Profile, based on RSCA global scale scores (Sense of Mastery, Sense of Relatedness, and Emotional Reactivity) when graphed provides a visual tool for better understanding the relative strengths of multiple aspects of personal resiliency. The profile presents the three global scale scores standardized using the same *T* metric, which when viewed together, emphasize relative perceived resources and vulnerabilities of children and adolescents. Personal Resiliency Profiles may be examined for individuals or in aggregate. Characteristic Personal Resiliency Profiles in the RSCA normative standardization sample ages 9–18 (stratified by race/ethnicity and parent education level to match the US census) were identified using cluster analysis, a statistical technique for summarizing the variability of profiles into those that most characterize the sample (Prince-Embury & Steer, 2010). This method produced three Personal Resiliency Profiles that most characterize the normative sample of children and adolescents in the USA. These profiles are displayed in Fig. 3.1. Profile A may be characterized as a high Personal Resiliency Profile characterized by high Sense of Mastery and Sense of Relatedness Scale scores (higher than *T*55) and a lower Emotional Reactivity Scale score (lower than *T*50). This high Personal Resiliency Profile cluster represented 31% of the normative sample. Profile B may be characterized as sufficiently resilient, characterized by Sense of Mastery, Sense of Relatedness, and Emotional Reactivity Scale scores within the average range (between *T*45 and *T*55). Profile B represented 44% of the normative sample. Profile

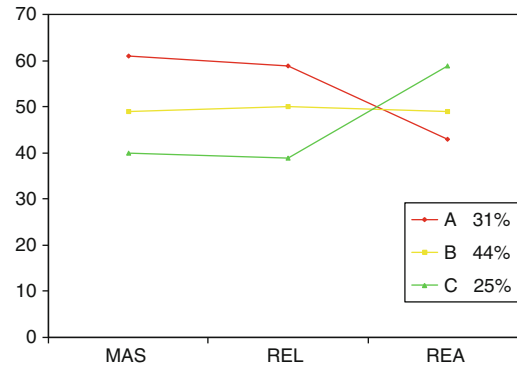

Fig. 3.1 RSCA Profiles of personal resiliency in a normative sample. $n = 641$

C may be characterized as a Vulnerable Personal Resiliency Profile and was characterized by lower than average Sense of Mastery and Sense of Relatedness Scale scores (below *T*45) along with a higher than average Emotional Reactivity Scale Score (above *T*55). Profile C represented 25% of the normative sample. These normative resiliency profiles raise interesting issues. High resiliency group A supports the claim of Masten (2001) of resiliency as "ordinary magic" which is not unusual but characteristic of many children. The existence of Profile C in the normative sample raises questions in that it is similar to the resiliency profiles found in clinical samples (see Fig. 3.2). Are these youth who are vulnerable but who have not developed psychological symptoms or are they youth who have psychological symptoms but who have not been formally diagnosed? These and other questions await future research for illumination.

It must be noted that these characteristic profiles represent statistical summaries which may be used as guides, but that the individual profiles within each group varied. Youth whose profiles were characterized by Profiles A and B demonstrated more within group similarity while youth whose profiles were characterized by Profile C were most varied from each other. Also, these profiles were based on a normative sample stratified by parent education level, race/ethnicity to match the US census. Characteristic profiles may differ for groups that differ demographically or which are representative of unique settings

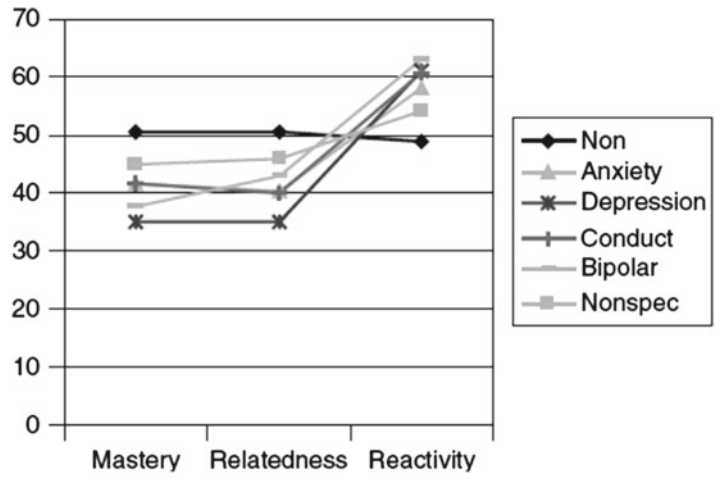

Fig. 3.2 RSCA resiliency profiles for adolescent clinical groups (reproduced from RSCA Technical Manual, Prince-Embury, 2007)

(see Kumar, Steer, & Gulab, 2010; Mowder, Cummings, & McKinney, 2010 for examples). The identification of characteristic Personal Resiliency Profiles in a normative sample have implications for preventive intervention. For example preventive screening might focus on youth whose individual profiles are most characterized by Profile C which suggests low personal resources and higher Emotional Reactivity.

Personal Resiliency Profiles: Clinical

Figure 3.2 displays aggregate Resiliency Profiles for six groups of adolescents: non-clinical, Anxiety Disorder, Depression, Conduct Disorder, Bipolar Disorder, and a group that had been in therapy previously (Prince-Embury, 2007). The Personal Resiliency Profile of the non-clinical group approximates a straight line around a *T*-score of 50 which is most similar to Profile B identified in the normative sample. The Resiliency Profiles of the four clinical groups vary somewhat but share these characteristics in common: high Emotional Reactivity Scale scores (above *T*55), low Sense of Mastery, and Sense of Relatedness Scale scores (below *T*45). These similarities suggest that in spite of differences in disorder, there are overarching themes of higher Emotional Reactivity and lower personal resources. It must be noted that the global scale scores in Fig. 3.2 represented aggregated means and that there is considerable variability within diagnostic groups (see Prince-Embury & Steer, 2010).

Preventive Screening Using the RSCA Index Scores

The relationships between the three global RSCA Scale scores illustrated in the profiles above may be quantified and expressed in the two Index scores described earlier in this chapter. The Resource Index combines the Sense of Mastery and Sense of Relatedness Scale scores. The Vulnerability Index score quantifies the difference between the Emotional Reactivity Scale score and the Resource Index score. As illustrated in Fig. 3.2, the graphic presentation of the Personal Resiliency Profile allows us to view this discrepancy across clinical groups. Validity evidence discussed earlier in this chapter suggests that the Vulnerability Index is correlated with negative affect and discriminates significantly between clinical and non-clinical samples (Prince-Embury, 2008). Therefore, preventive screening may use the Vulnerability Index to identify students who may be at-risk for developing clinical symptoms and other difficulties. Students who have Vulnerability Index *T*-scores in the above-average or higher ranges (*T*60 or above) may be screened for further examination and intervention (see Prince-Embury, 2010a, 2010b for additional information).

Resiliency-Based Interventions

According to the RSCA screening framework provided above, resiliency based interventions start with identifying children or adolescents who are the most Vulnerable according to the Vulnerability Index score (*T*60 or greater). Once vulnerability is identified then the RSCA scores may be examined further to determine whether the vulnerability is due to high Emotional Reactivity or low Resources, or both. Based on the research findings presented above and the clinical experience of the author, Emotional Reactivity is most related to the presence of and strength of psychological symptoms and risk behaviors. For these reasons, in the event of an elevated Emotional Reactivity Scale score, interventions to reduce Emotional Reactivity may be addressed first. The clinical experience of the author suggests that high Emotional Reactivity has a negative effect on relatedness and mastery and interferes with interventions to address these issues unless Emotional Reactivity is below *T*60. The presence of high Emotional Reactivity (≥*T*60) suggests the application of interventions that are known to address this issue early in the treatment process.

Interventions to Reduce Personal Vulnerability: Emotional Reactivity

Interventions designed to reduce Emotional Reactivity should be informed by an understanding of the developmental underpinnings of high reactivity. Developmental researchers have informed us that a predisposition for high Emotional Reactivity may be related to temperament and may be exacerbated by many factors including intrauterine contamination, and early traumatic experiences that have been shown to alter the nervous system. Research of various psychiatric disorders suggest a "kindling" effect through which triggering of the nervous system that occurs in the initiation of a symptom event lowers the threshold at which this symptom event may occur in the future. In this respect the negative impact of heightened Emotional Reactivity may be cumulative. A temperament based predisposition to high Emotional Reactivity, may be exacerbated by early traumatic events, which may increase the likelihood of a triggered symptom event, which in turn may increase the likelihood of future symptom events. This series of circumstances suggests the value of prevention at any point along the way including, pre-natal care, parent education, and good public health policy decisions. Once high Emotional Reactivity is present, intervention may include increased awareness, education, emotion regulation training, and medication.

For youth who have higher-than-average Emotional Reactivity, (*T*60 or above), preventive intervention may focus initially on intentional management of Emotional Reactivity. This preventive strategy might start by helping the youth to identify Emotional Reactivity as a potential source of vulnerability. Some youth may already be aware of this, but others may need time to fully understand the connection. Awareness may be enhanced by breaking Emotional Reactivity down into the more discrete and observable components of sensitivity, recovery, and impairment (subscales of the Emotional Reactivity Scale). Once these constructs are understood by the youth in terms of his or her experience, strategies for self-monitoring and eventual self-management are possible. Interventions may focus on identifying triggers for Emotional Reactivity and helping youth quantify and communicate the difficulty they have in various types of situations.

Sensitivity

Interventions for reducing sensitivity may involve introducing the notion that everyone has triggers that upset him or her and that some people are more reactive than others. The youth's scores can be compared to others for the purpose of better understanding his or her own sensitivity. The counselor can explain that although Emotional Reactivity is to some extent automatic, it is possible to manage it by identifying triggers, learning to anticipate them, and learning better strategies for calming down, such as self-relaxation or systematic desensitization.

Work on reducing sensitivity might begin by generating a list of specific circumstances, hot spots, or trigger events that are upsetting to the youth. Such a list may be used to work on anticipating and managing response to triggering events.

Recovery

Recovery time reflects the time that it takes to recover from emotional upset which varies across youth. Recovery time is important because the longer the time to recover, the longer that the youth must experience discomfort and the longer the youth is exposed to possible impairment associated with the Emotional Reactivity. Questioning about a youth's ability to recover from emotional upset can introduce the notion that recovery from upset is within the control of the upset individual. Techniques for calming down or self-soothing may be introduced. The inquiry can also uncover self-strategies that the youth employs for self-calming intentionally and unintentionally. These self-calming behaviors may be positive, such as removing himself or herself from the situation or calling a friend. On the other hand, there can be negative coping strategies, such as use of drugs or alcohol, that may further increase the possibility of impairment. The negative impact of using negative strategies should be discussed with the youth and positive self-calming strategies introduced.

Impairment

Emotional Reactivity is known to have a potentially impairing effect on the functioning of children, adolescents, and adults. The impairment may affect any of the developmental systems such as cognitive or executive functioning, behavioral functioning, and relationship functioning. The RSCA attempts to tap several areas where such impairment might occur as well as the frequency with which this impairment occurs. Interventions might seek to help the youth further understand the potentially impairing effect of Emotional Reactivity, types of impairment that occur, and strategies to ameliorate this impairment. For example, a youth may also be asked to write down where he or she makes the most mistakes, get most confused, and gets into the most trouble and then to describe what is happening is these situations. The youth may discover that a common theme is that he or she cannot think clearly when upset. Positive intervention strategies might be introduced such as delaying decisions or actions while upset and not thinking clearly and waiting until more clear thinking prevails. Pros and cons of various strategies may then be discussed.

Interventions to Enhance Resources

Youth for whom personal resiliency is compromised by low personal resources may be characterized by low self-esteem, low motivation to achieve, and low expectation of success. Low personal resources may be the result of many factors including socio-economic circumstances that have not provided enriching experiences (Prince-Embury, 2009). These factors may be associated with lower parent educational level, a difficult personal history of neglect, abuse, failure, and lack of success. Interventions targeting Resource Enhancement would be implemented when Resource Index scores are below average (*T*44 or lower). The specific type of intervention implemented would be determined by whether low resources are associated with lower Sense of Mastery, lower Sense of Relatedness, or both (*T*44 or lower).

Interventions Targeting Sense of Mastery

Earlier research, theory, and interventions for children dealing with Sense of Mastery have focused on the constructs of optimism and Self-efficacy (i.e., Seligman's *Optimistic Child*, 1995). Seligman initially identified "learned helplessness" as the process by which failure experiences may lead to expectations of failure and decreased

efforts to succeed. Consequently Seligman and others suggested "learned optimism" as a way of increasing expectations that may lead to more efforts and more success experiences (Seligman, Reivich, Jaycox, & Gillham, 1995). The Resilience program at the University of Pennsylvania grew out of this earlier work employing cognitive behavioral techniques to overcome depression and enhance resiliency in children (Reivich, Gilham, Chaplin, & Seligman, 2005). Cognitive behavior treatments for depression are based on the belief that depression is based in part on a triad of hopelessness about the future, oneself, and the world in general. Consistent with this assumption, many cognitive behavioral treatments focus on challenging negative assumptions and encouraging more positive reframing of beliefs.

Preparing for Mastery

For younger children, strength-based interventions may begin by preparing the child to experience a Sense of Mastery. Brooks and Goldstein (2001) advise parents and teachers to help youth to develop a "resilient mindset." Three examples of preparing children for mastery are presented below.

The power of "I think I can." Positive self-expectation may be discussed and the importance of whether or not you think you can do something. Research shows that whether you think you can do something or not makes a big difference in whether you do it.

Using baby steps. Mastery and self-determination may be introduced with the idea of baby steps, or breaking tasks down into smaller steps and tackling one at a time: step 1, step 2, step 3. Sometimes it helps to write the steps down or to remind oneself by saying baby step 1, baby step 2, etc.

Praising yourself. Mastery involves the ability to recognize and reward oneself when something is accomplished. Children lose their innate sense of pleasure in competence when they enter into social circumstances when not all of their acts are rewarded by teachers and parents. The ability to reward oneself for accomplishments should be nurtured by asking the children to keep a journal and each night before they go to bed to write down a list of things that they did and were proud of that day.

Mining for Mastery and Strength Identification

Children and adolescents who have experienced more failure than success in their lives may have lost the ability to identify their own strengths. For such youth, it is helpful to provide interventions that help them remember and identify positive experiences associated with hidden, forgotten, buried, or uncultivated strengths. For most youth, there is something that they can recall having done well.

Block and Block (1980) originally coined the term "islands of competence" and Brooks and Goldstein (2001, 2008) have recently expanded this concept with numerous clinical examples of identifying islands of competence to enhance resilience in youth. In addition, once areas of strength are identified, preventive intervention may further identify, elaborate, enhance, and generalize these strengths. These interventions can help youth generalize their strengths to other areas where they may not feel as successful. Structured interventions might help youth learn specific skills and how these skills could be employed in a variety of arenas.

Self-Praise and Self-Acknowledgment

As indicated above recognizing mastery experiences is important in developing a Sense of Mastery. Children seem to develop this ability early in life as recognized by White in motive for competence. The ability to experience competence becomes inextricably linked to acceptance and approval by significant others. In some cases parents are active in acknowledging and praising their children for mastery. In other cases this acknowledgement is not forthcoming or is

replaced by censure by busy parents whose attention is captured only by negative behavior. In the latter case children and teens may experience both the lack of praise for mastery experiences and the loss of the ability for self-praise. Behavior therapy with children often focuses on helping parents to accurately identify and reward mastery experiences in their children.

Identifying Strength Distracters

Once strengths are identified and understood, the discussion may turn to distracters or reasons why the youth cannot appreciate or expand on a particular strength. Distracters may include many factors such as poverty, limited resources, lack of parental support, or an already internalized expectation that "it is not going to work anyway." Clinical intervention can then focus on identifying the strength distracters that are operating in the youth's life and developing strategies for defusing them. Cognitive behavioral therapy techniques may be very useful in this regard.

Interventions Targeting Sense of Relationship

As mentioned previously, there is consensus among developmental theorists on the importance of relationship for resiliency in youth and adults alike. The ability to relate to others and to gain strength and resilience from these relationships is a multi-faceted and complex process. Subscales of the Sense of Relatedness Scale were designed to tap and target specific aspects of relatedness for the purpose of identifying strengths and weaknesses of relatedness as experienced and reported by the child or adolescent.

Perceived Social Support

Developmental theorists have acknowledged the significance of perceived support for resiliency in dealing with adversity. Research has indicated that an individual's perception that social support is available and accessible is the most important dimension of social support. This perception is predictive of psychological well-being and is not directly or strongly linked with enacted social support (see Hogan, Linden, & Najarian, 2002). Thompson, Flood, & Goodvin (2006) suggest that it is sometimes more important to focus on the person's subjective experience of supportiveness by carefully examining their expectations of support in relation to what they perceive to be provided by those around them. These authors also suggest that (1) troubled individuals may be less capable of viewing others as sources of available support because of their emotional turmoil and (2) individuals in difficulty may be less able to mobilize supportive networks when they are needed. These ideas highlight the need to explore with children and adolescents what their supports are, before a time of crisis, so that the youth can think about it objectively and think of how they might ask for help in difficult circumstances. Also, family therapy increasing positive communication between parents and their children might facilitate the child's ability to ask for help and the parent's ability to encourage this process.

Developing Possible "What If" Support Networks

With younger children the idea of support networks can be explained as a list of people that you can turn to for help when you need to. The clinician may initiate a list of people who might provide support when needed. The list can include family members, teachers, friends, neighbors, church members, etc. Then several types of situations may be discussed. For each situation the child may be asked to identify people who they could ask for help, how they would approach them, and what they would say. With young children, parents should be involved in this process, emphasizing the importance of a child's perception of support networks and parents support in this process.

Exploring Trust

Developmental theories suggest that the establishment of basic trust begins very early and is built upon throughout development. The implication is that basic trust is established as a core experience and is not easily modified. Enhancing a youth's experience of trust has been the subject of much therapeutic interest beyond the scope of this chapter. Traditional therapy approaches have often focused on providing supportive therapeutic relationships for youth as emotionally corrective experiences. Some clinicians work within the context of family, coaching parents in providing a more nurturing experience for youth within the home (Brooks & Goldstein, 2001). Other programs take a skills enhancement approach which assumes that increasing a youth's social skills will increase the likelihood of positive relationships with others, which in turn may enhance the youth's overall Sense of Relatedness. School psychologist, such as Doll et al. (2004), focus on ecological methods of changing classrooms to be more supportive environments.

The Trust subscale of the RSCA Sense of Relatedness Scale does not reflect basic trust in all of its complexity but rather, allows exploration of how the youth experiences trust or mistrust. Understanding of a youth's conceptualization and experience of trust may allow better understanding of how the youth experiences his or her relationships. The discussion may increase understanding of previous loss and or experiences of perceived betrayal. Therapeutic intervention might include revisiting these experiences and exploring the potential for trusting others in the future.

RSCA Use in Treatment Planning and Treatment Monitoring

This section illustrates the use of the RSCA Profile for treatment planning and monitoring with repeated administrations of the RSCA. An understanding of clinical use of the RSCA Profile requires understanding of the clinical ranges for the global scale scores (see Table 3.9). Of particular clinical note are Resource Index, Sense of Mastery or Sense of Relatedness Scale scores *T*40 or below, and/or Vulnerability Index and Emotional Reactivity Scale scores *T*60 or above. Also, a change of five *T* score points or half a standard deviation is conservatively considered a statistically significant change for the three RSCA Global Scores.

Table 3.9 Clinical ranges for RSCA Global Scale Scores and Index Scores

Ranking	*T* score ranges
High	≥60
Above average	56–59
Average	46–55
Below average	41–45
Low	≤40

Erik, is a 9 year old male, oldest of two siblings and son of a highly educated family. Erik was referred because of intense anger outbursts at home and during recess at school and complaints that he was being bullied in his third grade class. Erik had recently transferred from another school as the result of a family move. The first task of treatment was defined as helping Eric control his extreme angry outbursts. This work began by helping Eric identify triggers that set off the anger and the development of self-calming strategies. Triggers included his perception that he was being bullied by peers. This was exaggerated by Erik's recent transfer to a new school and associated aggressive testing behavior frequently experienced by children who have recently transferred. During this time, Erik's Emotional Reactivity interfered with his relating to peers and with his functioning well academically.

Erik's first profile 2.16.2011, portrayed in Fig. 3.3, represents his intake session RSCA scores. It may be observed that all three global scale scores are out of the average range; Emotional Reactivity was in the high range (*T*62), Sense of Mastery was below average (*T*41), and Sense of Relatedness is in the low range (*T*34). These scores and the overall profile are similar to profiles of other children characterized by

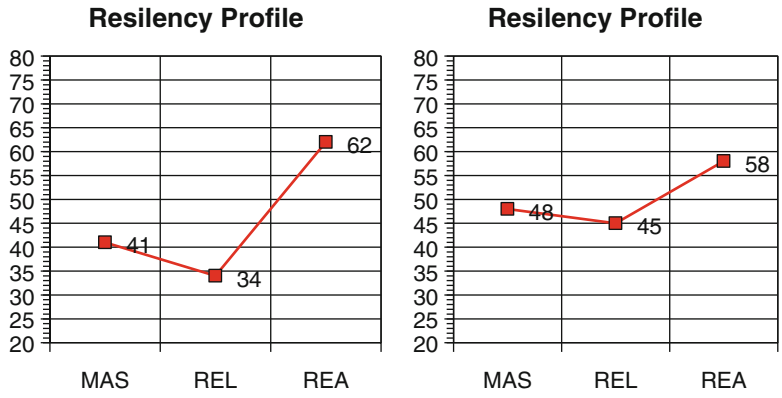

Fig. 3.3 RSCA profiles for Erik at intake (2.16.11) and 2 weeks later (3.03.11)

psychological symptoms and formal diagnosis (Prince-Embury, 2007). This similarity was highlighted by Erik's elevated Anxiety, Anger, and Depression scores on the BYI-II (Beck et al., 2005) scales administered at the same time and was consistent with the initial presenting problems.

Erik's second RSCA Profile 2 weeks later (3.03.2011) (Fig. 3.3) showed improvement in all areas related to new coping skills of anger management and a parental reinforcement system that had been introduced. Erik's Sense of Mastery had increased seven points and was now in the average range. His Sense of Relatedness score had increased 11 points and was also now in the average range. Erik's Emotional Reactivity Score had reduced four points and was now in the above average range. It is interesting to note that Erik showed more improvement in Sense of Mastery and Sense of Relatedness than Emotional Reactivity which was the targeted area of intervention. This is most likely common in therapy interventions but not detectable without an appropriate assessment tool. It is likely that the interventions helped Erik to experience an initial feeling of increased efficacy and greater parental support (Fig. 3.3).

Examination of Erik's scores 2 weeks (3.17.2011) and 4 weeks later (3.31.2011) (Fig. 3.4) indicated that Erik's increased Sense of Mastery had been sustained (*T*55, *T*52) and his Emotional Reactivity continued to decrease (*T*52, *T*48). On the other hand his earlier increase in Sense of Relatedness had not been sustained but decreased towards what it had been at intake (*T*40, *T*36). At this point therapy intervention was focused on social relatedness encouraging the family to arrange play dates for Erik and to monitor Erik's behavior for social appropriateness. These observations were then discussed in therapy with suggestions for better social effectiveness. Thus use of the RSCA to monitor progress in therapy helped to identify a core problem area for Erik that had not previously been identified and addressed (Fig. 3.4).

Erik learned to avoid situations that would provoke triggers to his anger such as participating in playground games with kids who bullied him because he liked the game. He chose to play games with kids who he liked even though the game was not as exciting. Erik learned to count to ten before acting on his anger, use self-talk, and leave the situation when he felt he was getting out of control. Erik's parents put him on a behavioral point system for which he lost points if he had a meltdown at home or at school. Over time the frequency of Erik's angry outbursts decreased as did his anger score on the BYI-II. On the RSCA, Erik's Emotional Reactivity Score decreased and his Sense of Mastery and Sense of Relatedness Scores increased.

Erik's RSCA Profile 3 months later (7.13.2011) (Fig. 3.5) illustrated significantly increased Sense of Mastery (*T*67) in the very high range; increased

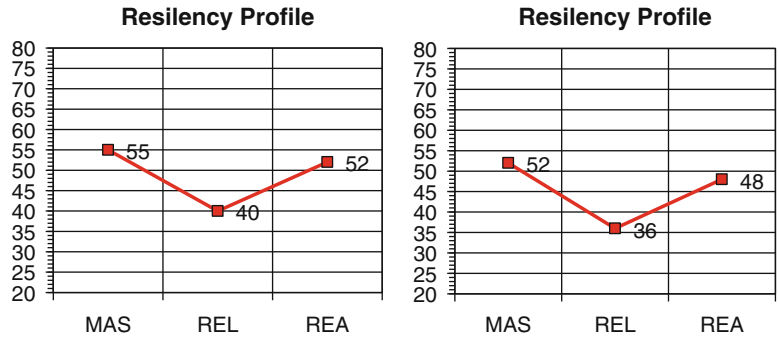

Fig. 3.4 RSCA profiles for Erik in March 2011 (3.17.11) and (3.31.11)

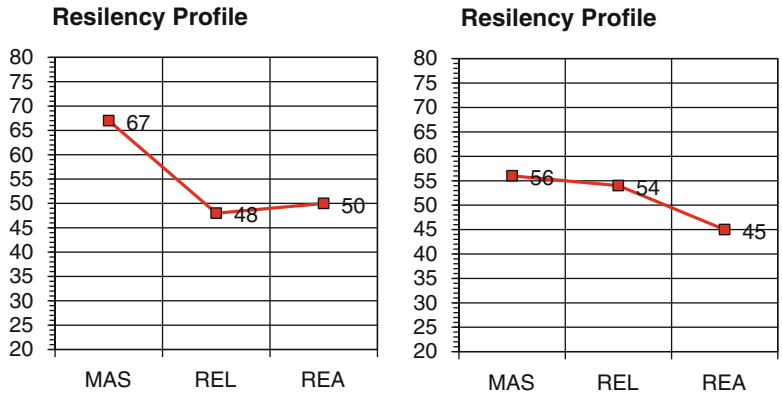

Fig. 3.5 RSCA profiles for Erik summer (7.13.11) and fall 2011 (10.06.11)

Sense of Relatedness (*T*48) in the average range, and a maintained Emotional Reactivity Score in the average range (*T*50). It is likely that Erik's Sense of Mastery was higher than previously because Erik was not in school, did not have homework, and was attending camp engaging in fun activities. Increased Sense of Relatedness may have been related to the structured social activities at camp where teams were structured and supervised by camp counselors as opposed to the unstructured socializing that had taken place at recess and lunch during the school year.

Erik's RSCA Profile 3 months later (10.06.2011) (Fig. 3.5) shows a Sense of Mastery Score decreased back to the above average range (*T*56) consistent with being back in school and faced with increased academic demands. Sense of Relatedness has increased slightly (*T*54) and Emotional Reactivity has decreased (*T*45) and is in the average range. This profile reflects a time when Erik had returned to the school that had been new to him the year before, and to peers, teachers who know him and an environment with which he was familiar. It should be noted that Erik's lowered Emotional Reactivity reflects his increased awareness and sense of control in this area, although he remained somewhat emotionally reactive (Fig. 3.5).

These positive changes allowed Erik's parents to focus on other behaviors such as Erik's tendency to bully his younger sister at home. Although the two siblings generally were good friends and played well together, Erik would occasionally lose control and bully his sister. Work began on helping Erik be aware of this behavior and his inability to control it. Erik was coached in how to diffuse his own anger by thinking of something funny.

In summary, Erik RSCA profile indicates a steady decrease in Emotional Reactivity across treatment consistent with the goals of treatment. In addition there was an increase in Sense of Mastery which may have been related to decreased Emotional Reactivity and a greater sense of control in this area. Erik's profile indicated the most vulnerability in Sense of Relatedness. Some gains were indicated after treatment focus shifted to enhancement of social skills. The example provided above illustrates that the experience of personal resilience is modifiable and not "carved in stone" as a trait interpretation of the construct would imply.

Summary

In summary this chapter presents the Resiliency Scales for Children and Adolescents as a tool for translating resiliency theory for application with children and adolescents ages 9–18.

Three global scales are designed to reflect three developmental systems that have been consistently identified as core aspects of personal resiliency, Sense of Mastery, Sense of Relatedness, and Emotional Reactivity. Research suggests that these three scales reflect the underlying constructs in a reliable and valid manner. In addition these three scales are linked with specific areas of intervention that may help to enhance personal resiliency through these three developmental systems. Outcome studies tracking changes in RSCA Global Scores over time may be used to assess the effectiveness of interventions. Two Index scores combining the three global scale scores may be used to assess perceived personal resources (the Resource Index) and the discrepancy between Emotional Reactivity and perceived personal resources (the Vulnerability Index). The RSCA Index scores, particularly the Vulnerability Index score may be used along with the RSCA Personal Resiliency Profile for preventive screening to select youth who might benefit from preventive intervention to enhance personal resiliency.

Unique characteristics of the RSCA are the following. The RSCA describes three core developmental systems underlying resiliency that are well documented in the literature and consistent with factor analytic studies (Prince-Embury, 2007). The RSCA was normed on a US representative sample systematically stratified by race/ethnicity and parent education level allowing *T* scores to be determined based on a representative normative sample that is represented in the US Census. Further analysis by Prince-Embury (2009) suggests that there are no systematic differences in RSCA scores across race/ethnicity that are not accounted for by differences in parent education level. The *T* score metric allows comparison across developmental system to identify areas of relative strength or vulnerability. Identification of three areas of personal resilience allows targeted interventions to enhance personal resiliency and/or identify those who may be more at risk in the face of adversity. In summary, the RSCA passes the test of sound theoretical and psychometric foundation as well as clinical and research utility.

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