Factors and Processes Contributing to Resilience

The Resilience Framework

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Introduction

Resilience is becoming an increasingly popular concept for research and application in the field of prevention. Because of reduced funding for services to help at-risk children and families, information on low cost methods for increasing resilience to negative life events is critically needed. A better understanding of ways to increase resilience in all children holds great promise for improving the effectiveness of preventive community, school, and family services.

A shift in focus from risk to resilience, according to Turner (1995), has developed partially from a frustration with such a pervasive emphasis on the identification of risk factors. While a risk-focused approach has been very helpful in the public health field in the reduction of infectious diseases, more complex diseases of life style require a more comprehensive approach including protective and resilience mechanisms (Rutter, 1993). A paradigm-shift appears to be occurring towards an increasing emphasis on optimism and hope as opposed to the frustration and despair that can occur from an emphasis on risk processes.

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Prevention programs, whether universal programs serving all youth and families, selective programs for at-risk youth or indicated prevention interventions for identified youth (Mrazek & Haggerty, 1994), could be strengthened by a conscious attempt to promote resilience. Unfortunately, despite an increasing research literature on resilience mechanisms (Kumpfer, in press; Rutter, 1993), the systematic application of existing knowledge about resilience to prevention services is almost non-existent. Fortunately for the delivery of youth and family services, many of the resilience mechanisms being discovered by research are already being applied on an intuitive basis. A systematic application of methods for increasing resilience could improve child outcomes and prevent future problem behaviors and poor life adjustment, which are becoming increasingly costly to treat.

Few prevention programs are based on resilience theory or are specifically designed to increase resilience. One such program specifically designed to increase resiliency is the Iowa Strengthening Families Program (Kumpfer, Molgaard, & Spoth, in press). This family skills training program for 11- to 14-year-olds specifically focuses on motivating at-risk youth towards positive life adaptations by encouraging dreams, goals, problem solving, and academic and social skills. Issues in developing and conducting research on interventions designed to promote resilience are addressed in Rolf and Johnson's chapter in this book.

**Purpose and Content of Chapter**

Understanding resilience is a very difficult task. Despite recent interest in etiological factors and processes leading to resilience in high risk individuals, resilience remains an illusive construct. The goal of this chapter is to review resilience processes and factors predictive of successful life adaptation in resilient children who, because of multiple environmental risk factors, should not be so successful. Because resilience has been such a loose, broadly defined construct, this paper attempts to organize variables found related to increased resilience into a dynamic framework that allows for interactions between the resilient person and his/her high risk environment. This transactional model includes: 1) environmental precursors commonly called risk and protective factors, 2) characteristics of the resilient person, 3) his/her resilient reintegration or positive outcome after a negative life experience as well as dynamic processes that mediate between the person and their environment and the person and the outcome. Relevant research on etiological factors and dynamic processes within each of these
areas of the proposed resilience framework is discussed. Without a clear differentiation of the stimuli, the person, and the outcome, resilience can become a tautology—a concept that predicts itself. This paper ends with implications of these resilience research findings for increasing positive life adaptation and reducing drug use in high-risk youth.

Defining Resilience

According to many developmental psychopathologists, who constitute the major group conducting resilience research: “Resilience in an individual refers to successful adaptation despite risk and adversity” (Masten, 1994, p. 3). More specifically, resilience has been broadly defined as a “process, capacity or outcome of successful adaptation despite challenges or threatening circumstances... good outcomes despite high risk status, sustained competence under threat and recovery from trauma” (p. 426, Masten, Best, & Garmezy, 1990). Most researchers have defined resilience more narrowly by focusing on “resiliency factors” or protective personality traits (see Wolin & Wolin, 1993 for a review). Often these shorthand “factor labels” mask a more complex interaction between a resilient youth and his/her environment. It is increasingly recognized that resilient youth are active participants in creating their own environment (Scarr & McCarty, 1983)—a reasonably radical concept that transcends stimulus-response behaviorism and smacks of human agency (Bandura, 1989). Some researchers have attempted to describe these transactional person/person interplays that buffer negative life events, such as between a caring adult and a child (Rutter, 1992; Radke-Yarrow & Sherman, 1990; Werner, 1993). Few resilience researchers have stressed resilience processes that help an individual develop resilient reintegration after disruption by stressors or challenges, yet these are commonly recognized by therapists (Richardson, Neiger, Jensen, & Kumpfer, 1990).

Research Issues in Studying Resilience

A number of major stumbling blocks make research on resilience a formidable task for anyone, whether a seasoned veteran or newcomer to the field, because of a lack of agreement on: 1) operationalization of the resilience concept, 2) gender, age or culturally unbiased definitions of the successful outcomes indicative of a resilient person, 3) definitions of environmental risk protection, and 4) the primary self characteristics of
a resilient person. Additionally, research in this field suffers from difficulties
separating cause and effect, locating good measures for resiliency variables,
simultaneously studying large numbers of variables needed to determine
which are most salient or predictive of positive outcomes despite high
risk status, and finding non-linear, transactional data analytic methods
capable of accurately summarizing bi-directional, transactional data. Each
of these resilience research issues is covered in more detail in Kumpfer (in
press).

Operationalization of Resilience

A review of the resilience research demonstrates that resilience has
been defined by different researchers as virtually all internal and external
variables or transactional and moderating or mediating variables capable
of affecting a youth’s life adaptation. The only focusing concept appears to
be the search for positive protective factors or processes (as opposed to
negative risk factors) that are predictive of successful life adaptation in
high-risk children. In most longitudinal studies focusing on determining
resilience factors or processes, the concept of resilience is operationalized
as the positive end of a distribution of outcomes in samples of high-risk
children (Egeland, Carlson, & Sroufe, 1993). This important point means that
resilience has been equated with virtually any direct or indirect variable
correlated or predictive of positive outcomes in high-risk children. Accord-
ing to Staudinger and associates (1993), “the distinction between the pro-
tective factors and mechanisms underlying resilience and resilience as an
outcome can be quite arbitrary” (p. 545).

Because research output has not matched the popularity of resilience
as an explanatory construct for children’s behavior, resilience risks losing
credibility within the scientific community (Cicchetti & Garmezy, 1993). As
mentioned by many researchers in this field (Cicchetti & Garmezy, 1993;
Liddle, 1994; Luthar, 1993; Gordon & Song, 1994) additional theoretical
clarity would promote research precision and improve communication. Dif-
ferent operational definitions of resilience result in disparate findings in
summarizing the critical components of resilience or determining estimates
of the rate of resilience in similar target populations of high-risk youth.
Gordon and Song (1994) suggest that definition may be difficult because
resilience may not be a single construct, but “a complex of related processes
that deserve to be identified and studied as discrete constructs” (p. 30). Nev-
ertheless, according to Cicchetti and Garmezy (1993): “Depending on how
broad or conservative the definition of resilience, vastly different conclusions
can be drawn” (p. 499). To summarize outcome or predictive research
results across many different foci of resilience research using different definitions, the following broad framework was developed. This framework is preliminary and should be considered a starting point for organizing factors and processes predictive of positive outcomes in high-risk children.

**Organization of Multiple Resilience Constructs into a Framework for Resilience Research**

Because predictive longitudinal studies discuss resilience factors or processes as many different constructs, the following organizational framework or model of resilience has been developed. Bronfenbrenner and Crouter (1983) recommended the use of social ecology models or person-process-context models to study the relationship of contextual risk and protective factors, intervening processes, and individual characteristics. Rutter (1987) has also argued that resilience be understood in terms of processes rather than just identifying static factors. Therefore, this resilience framework includes both process and outcome constructs.

Six major constructs are specified. Four are domains of influence and two are transactional points between two domains. The four influence domains are: the acute stressor or challenge, the environmental context, the individual characteristics, and the outcome. Points for transactional processes are the confluence between the environment and the individual and the individual and choice of outcomes. Therefore, resilience research on predictors discussed in this paper are organized into these six major predictors of resilience, namely:

1. **Stressors or Challenges**—These incoming stimuli activate the resilience process and create a disequilibrium or disruption in homeostasis in the individual or organizational unit (e.g., family, group, community) being studied. The degree of stress perceived by the individual depends on perception, cognitive appraisal and interpretation of the stressor as threatening or aversive.

2. **The External Environmental Context** includes the balance and interaction of salient risk and protective factors and processes in the individual child’s external environment in critical domains of influence (i.e., family, community, culture, school, peer group). These change with age and are specific to culture, geographic location, and historical period.

3. **Person–Environment Interactional Processes** include transactional processes between the child and his or her environment as the child
or caring others either passively or actively attempt to perceive, interpret and surmount threats, challenges or difficult environments to construct more protective environments.

4. Internal Self Characteristics include internal individual spiritual, cognitive, social/behavioral, physical and emotional/affective competencies or strengths needed to be successful in different developmental tasks, different cultures, and different personal environments.

5. Resilience Processes include unique short-term or long-term resilience or stress/coping processes learned by the individual through gradual exposure to increasing challenges and stressors that help the individual to bounce-back with resilient reintegration (Richardson, Neiger, Jensen, & Kumpfer, 1990).

6. Positive Outcomes or successful life adaptation in specific developmental tasks which are supportive of later positive adaptation in specific new developmental tasks culminating in a higher likelihood of reaching a global designation in adulthood as a “resilient child or adult”. While this is an outcome, in a dynamic model, a positive outcome suggesting resilience is also predictive of later resilient reintegration after disruption or stress.

All six of these major cluster variables or constructs are needed to organize predictors of resilient outcomes in high-risk youth because research studies have reviewed these different constructs as predictive of resilience in an individual. Organizing research findings by these six areas would help to clarify the differences between environmental stimuli, transactional environment buffering processes, internal mediating self factors, resilience processes used to bounce-back after a challenge, and the final developmental outcomes of resilient children. Because it is a daunting task to simultaneously test multicausal models (Sameroff, Seifer, & Barocas, 1983), most of the predictive research cited in this review includes only parts of this framework in a single study. This resilience framework has been empirically tested in doctoral dissertations at the University of Utah using structural equation models in simultaneous measures of multiple domains in college students (Neiger, 1991), working mothers (Dunn, 1994), and children of alcoholics (Walker, 1995). As highlighted by Egeland, Carlson, & Sroufe (1993), an organizational approach or framework for the study of resilience provides a means of integrating findings on risk and protective factors in individuals and environments and focuses attention on processes of adaptation. “From such an organizational view, the capacity for resilience is seen as developing over time through an integration of constitutional and experiential factors in the context of a supportive environment” (p. 525).
Figure 1. Resilience Framework.

- Perception
- Reframing
- Changing Environments
- Active Coping
Types of Resilience Research

Different research designs have been used to study resilience or related concepts (e.g., stress-coping, ego-resilience, personality, motivation, and health). Each of these different research methodologies can produce discrepant, but perhaps eventually converging, results concerning the most critical elements predicting resilience to negative life events or high-risk environments. Five major types of resilience research were reviewed.

**Retrospective, Single Sample, or Cross-Sectional Studies**

This type of research design is used primarily by life events researchers and some other resilience researchers. Because of time constraints, this design is popular with graduate students. Life events researchers, typically limit their collection of data to determining the relationship of negative life events and adaptation. If children or adolescents are studied, they are generally asked to rate stressful life events experienced in the recent past and whether they perceive the event as positive or negative (Swearingen & Cohen, 1985). Simple correlational data analyses suggest that major life stressors impact life adjustment, but these relationships are more complicated in individual cases and appear to be moderated by daily hassles and stressors (DeLongis, Coyne, Dakof, Folkman, & Lazarus 1982). Retrospective, small sample studies are also conducted using qualitative, in-depth interview studies of successful adults who have “made it despite the odds” (Gordon & Song, 1993). Life events analysis is used to develop grounded theory for later hypothesis testing (Strauss & Glaser, 1967).

**Retrospective, Cross-Sectional, Multivariate Studies**

Resilience researchers using cross-sectional designs tend to include intervening variables (i.e., daily hassles, personality traits, environmental context, and interactive processes with significant others). In adults, a retrospective rating of major negative life events occurring at any time in their lives combined with daily hassles has been used to determine “high-risk” status (Dunn, 1994). High and low risk groups have been created post-hoc or chosen in advance. General population comparison groups are sometimes compared to high-risk populations—children of alcoholics, schizophrenics, and families living in poverty. More sophisticated multivariate statistics are used, such as multiple regression and structural equation modeling. Including multiple variables from environmental, individual, and adjustment domains, researchers increased correlation coefficients to
between .60 to .80, in contrast to the usual .30 or .40 found in studies that include environmental stressors and adjustment outcomes but exclude individual characteristics (Garmezy, Masten & Tellegen, 1984; Luthar, 1991). While helpful in linear model development and testing, these cross-sectional studies cannot ascertain the impact of resilience on life adjustment. Longitudinal studies are needed for such conclusions.

**Short-Term, Transactional, Longitudinal Studies**

Transactional models of the reciprocal influence of people with their environment are considered more powerful in accounting for variance in developmental outcomes than are simple linear models (Bronfenbrenner, 1986; Sameroff & Chandler, 1975). Some researchers are using three month to several year longitudinal designs to determine the impact of risks and protective factors and processes. Different statistical methods have been used ranging from cross-lagged correlations to cross-lagged structural equation models (Roosa, 1991). Using longitudinal designs, researchers have discovered bi-directional relationships between environmental precursors, individual competence, and adjustment. Specifically, adjustment problems at Time 1 are related to increased negative life events (Compas, Howell, Phares, Williams, & Giunta, 1989).

**Long-Term Prospective Developmental Studies—No Control Group**

Some researchers are conducting very long-term studies of general populations of children, occasionally from birth, such as Werner and Smith's (1992) 30-year study or White, Moffitt, and Silva's (1989) New Zealand cohort. Some studies focus on presumed high-risk groups, such as those from low-income schools. The longitudinal study of Project Competence is a good example of this (Gest, Neeman, Hubbard, Masten, & Tellegen, 1993), as is the 20 year longitudinal Mother-Child Project of 267 children of young, poor, pregnant women (Egeland, Carlson, & Sroufe, 1993). Frequently, these studies do not include a comparison group, but create post-hoc comparisons of children high in risk factors and compare them to children lower in the targeted risk factors. Sometimes these studies select children from very high-risk populations, such as children of alcoholics (Werner, 1986), children of depressed mothers (Radke-Yarrow & Brown, 1993), children of schizophrenics (Garmezy, 1974), institutionalized children (Rutter & Quinton, 1994) for study. Longitudinal studies without normal comparison groups are limited in their ability to determine whether resilient children
from high-risk samples function comparably to well-functioning children in general population samples (Luthar & Zigler, 1991).

Occasionally these prospective studies begin after the occurrence of a specific traumatic event, such as child abuse or parental divorce. Such studies can be criticized for not having data on the child’s adjustment prior to the onset of the major stressor or risk factor. Causality is difficult to determine since these children may have poor life adjustment or behaviors prior to the trauma.

**Prospective, Multiple Sample Studies**

This type of design is used by developmental researchers interested in comparing children in the general population with a high-risk population over time (Conger et al., 1992; Kumpfer, Molgaard, & Spoth, in press). Matched pairs or families are sometimes used as control groups (Johnson, Glassman, Fiks, & Rosen, 1990). This design could be used with many prevention studies where one group is given an intervention, another is not, and a general population sample exists for comparison. Using this type of design, Abelson, Zigler, & DeBlasi (1974) and Mulholland and associates (1991) discovered that the resilient children in high-risk groups did not equal the attainment of the normal, low-risk groups. This type of design is encouraged by Luthar and Cushing (1996) to answer the question of whether the most resilient individuals of a high-risk group truly resilient or are simply the best of a generally poorly functioning group.

**Outcome Research Pertaining to the Six Resiliency Predictor Areas of the Resilience Framework**

Outcome research on resilience was organized into the six predictor areas of the proposed resiliency framework, namely: 1) the acute stressor or challenge, 2) the external environmental context, 3) person–environment interactional processes, 4) internal self characteristics or resiliency factors, 5) resiliency processes, and 6) the positive outcome. Research on each of these six resilience predictor areas are discussed below in their own sections.

**The Acute Stressor or Challenge**

The resiliency framework or process begins with an initiating event and ends with an outcome, hopefully a successful one that demonstrates
resilience. The stimulus in any resiliency situation should be some type of stressor or challenge, because by definition, resilience can only be demonstrated when the person experiences some type of stressor or challenge. Measuring life stressors and challenges is discussed by Luthar and Cushing (1996) in this book and presents its own challenges. The initiating stimuli or event can be selected by the person with more or less anticipated stressors. Challenges help a person to face new stressors and to grow from the experience. This is the essence of resilience. For instance, a youth may decide to train and enter a marathon, try out for the basketball team, or sign up for a theater class. Both parents and youth are constantly balancing the successes and failures of challenges in an attempt to have positive healthy development. Unanticipated negative experiences are the other side of stressors. Most people don’t choose to have them happen, but never the less, they can also learn valuable lessons in coping successfully from negative life events.

External Environmental Risk and Protective Factors

The environmental context within which a child operates is very influential on risk and resilience processes. Aspects of the family, neighborhood, school, and peer group impact the socialization process of the child. When acute or chronic stressors occur, this environmental context can buffer or exacerbate the negative impact on the child. High-risk youth often live in high-risk environments that are, by definition, not as supportive of positive life adaptation as they should be. Many of these high-risk environments are determined by the family circumstances. Poverty often reduces opportunities for some children and leads to an impoverished environment (Dunst, 1995). Resilient youth are those who find micro-niches of support with adequate growth opportunities even within high-risk environments (Garmezy, 1993).

Research on resilience requires the ability to define "high-risk" environments and high-risk children who adapt amazingly well. Some youth can be high-risk because of personal biological, genetic, or personality dysfunctions, such as cognitive or biological damage due to in utero drug exposure, hyperactivity, anti-social personality, or biological differences in endocrine or metabolic functioning (Kumpfer, 1987; Tarter & Mezzich, 1992). Most high-risk youth are categorized in resilience research on the basis of a high-risk environment, rather than internal high-risk characteristics. Demographic factors are often used, such as poverty, minority status, high-crime neighborhoods, single parent family, and other indicators of risk status. Hence, considerable attention should be focused on how to define
“high risk”. Merely assuming that a child is high risk because of belonging to a high-risk category has been questioned.

This review of environmental risk and protective factors will not attempt an exhaustive list of the most critical risk and protective factors because 1) many existing reviews of risk and protective factors for different adjustment problems exist, and 2) the most important risk and protective factors differ for each field. For reviews of risk factors for substance abuse, the reader is referred to Kumpfer (1987) for a review that includes biological risk factors. Hawkins, Arthur and Catalano (1994) or Hawkins, Catalano and Miller (1992) provide more recent summaries of risk factors for substance abuse as well. What is discussed in this section are dimensions of risk and protective factors that must be considered when attempting to determine the most predictive risk or protective factors for positive life outcomes.

In most research “high-risk” means children from high-risk environments, such as children from dysfunctional families. However, some researchers also include personal risky behaviors (i.e., substance use, conduct disorders, attention deficit disorder, and delinquency) in their definition of high risk samples (Stouthamer-Loeber et al., 1993). According to Luthar and Zigler (1991), it is important to differentiate risk factors or stressors that the individual can influence (e.g., failing in school) and those generally out of their control (e.g., death of a parent, war, being born to a dysfunctional parent). If this is not done, predictive results are confounded by having maladjustment predict maladjustment or the converse.

In this review, risk factors are defined primarily by chronic adversity in the environment of the child. Acute stressors are considered the stimuli for disruption and integration, thus beginning the resiliency process (Richardson, Neiger, Jensen, & Kumpfer, 1990) towards maladaptation or resilient reintegration. The environmental context of stressors and supports can help the child through psychosocial facilitation processes. Critical dimensions of risk factors and processes must be considered in resilience research in defining risk, namely:

1. Whether the child actually experiences the risk factors (Plomin & Daniels, 1987; Werner & Smith, 1992),
2. Perception or attribution of risk or threat by child (Gordon & Song, 1994),
3. Degree of direct or indirect effects on the child because of proximal or distal status in a chain of causal variables,
4. Degree of transactional buffering by child or caring others (Radke-Yarrow & Brown, 1993),
5. The balance of the accumulation of risk and protective factors (Radke-Yarrow & Brown, 1993),
6. Presence of salient or powerful protective factors (e.g., supportive home life) in counterbalancing risk factors (Richters & Martinez, 1993),
7. General or specific risk or protective factors for different developmental outcomes,
8. Different risk factors or protective factors critical for different ages, developmental tasks, cultures, geographic locations, and historical periods.

For a more complete review of these conditions for defining risk the reader is referred to the original NIDA resilience conference paper (Kumpfer, 1994) which was shortened and revised for this chapter. A number of researchers (Bry, 1983; Magnusson, 1988; Rutter, 1993) have found that youth can adjust reasonably well to one or two risk factors or processes, but beyond two risk factors they are the damage increases rapidly. Research suggests that increasing the number of protective processes can help to buffer these risk mechanisms (Dunst, 1995; Rutter, 1993; Sameroff & Chandler, 1975).

**Person–Environment Interactional Processes**

The second juncture of the Resiliency Framework (see Figure 1), includes important transactional processes that mediate between a person and his/her environment. Better understanding of ways that people consciously or unconsciously modify their environment or selectively perceive their environment, holds promise for prevention programs. In some cases, youth living in high-risk environments may actively seek better environments for themselves by going to a different school or choosing to live with a relative in a better neighborhood, seeking positive prosocial friends. However, most youth don’t have the option to leave a negative environment or neighborhood. Resilient youth living in high drug and crime communities seek ways to reduce environmental risk factors by seeking the prosocial elements in their environment. They maintain close ties with prosocial family members, participate in cultural and community events, seek to be school leaders, and find non-drug using friends and join clubs or youth programs that facilitate friendships with positive role models or mentors.

Unfortunately, much less resiliency research has been focused on
person-environment transactional processes than on internal self resiliency factors (Masten, 1994). Considerable person-person or person-environment research is potentially relevant, but it must be gleaned from applicable research within psychology, anthropology, sociology and other related fields. Potentially useful resiliency building processes have already been summarized in more depth in Kumpfer and Bluth (in press). Some interactional processes that help these youth transform a high-risk environment into more protective environment include: 1) selective perception, 2) cognitive reframing, 3) planning and dreaming, 4) identification and attachment with prosocial people, 5) active environmental modifications by the youth and 6) active coping. Caring others sought out by resilient youth facilitate positive life adaptations and enhancement of protective processes by positive socialization or caregiving through: 1) role modeling, 2) teaching, 3) advice giving, 4) empathetic and emotionally responsive caregiving, 5) creating opportunities for meaningful involvement, 6) effective supervision and disciplining, 7) reasonable developmental expectations and 8) other types of psychosocial facilitation or support. As suggested by Coie and associates (1993) family prevention and intervention research can be used to better understand these complex person-environment processes by systematically varying transactional processes within the program variations and testing the impact on youth.

**Internal Individual Resiliency Factors**

Children are not born equal, Some children are physically stronger and more intellectually and physically endowed. Such physical and biological strengths help to make a youth more resilient to life stresses. Biological invulnerability variables do play a major role in resiliency. Temperament variables have been found associated with risk and resiliency to drug use. According to the Biopsychosocial Model of Vulnerability to Drug Use (Kumpfer & DeMarsh, 1985), there are three major categories of biological characteristics to consider in susceptibility to drug use: 1) genetic and biological factors, 2) in utero factors, and 3) temperament and personality factors.

**Genetic and Biological Invulnerability Factors**

*Intelligence.* Intellectual capacity (I.Q.) has been widely studied in predicting resilience. In general, most studies have found a protective effect of higher cognitive levels (Kandel et al., 1988; Long & Vaillant, 1984; Werner & Smith, 1982) or a risk effect for low cognitive levels. Most researchers
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propose a unidirectional, linear model in which low IQ predicts adjustment difficulties directly or through intervening variables (White, Moffitt, & Silva, 1989). The St. Louis Risk Research Project found the childhood intelligence measures predicted mental health in children of mentally ill parents (Anthony, 1987; Worland, Weeks, & Jones, 1987). Other studies with children of mentally ill parents support this relationship (Bleuler, 1984; Garmezy, 1985; Long & Vaillant, 1984).

Increased intellectual capabilities, particularly verbal skills, have been found in resilient children of schizophrenic and depressed parents (Garmezy, 1985; Masten, Best, & Garmezy, 1990) and children of alcoholics (COAs) (Werner, 1985). This latter study found that none of the resilient COAs were judged below average at two years in intellectual development, compared to 16% of COAs who later manifested adaptive problems. Verbal capabilities and aptitude were significantly higher by age 10 as well as scholastic aptitude and educational achievement tests in grades 5, 8-10, and 12 in COAs who did not develop serious coping problems compared to those who did. The resilient COAs also had fewer errors on the Bender-Gestalt Test, considered a measure of central nervous system integrity.

A recent study by Luthar and Zigler (1992) examined the role of intelligence looking for interaction effects with level of stressors and personal characteristics. They found that I.Q. can be a vulnerability factor in high stress situations for high IQ children. Inner-city, multi-cultural ninth grade students with higher intelligence showed considerably more variation in school-based performance depending on locus of control and impulse control (ego development). Hence, youth with higher levels of internal locus of control and impulse control were more likely to be motivated to use their intelligence to achieve academically. However, if these youth have learned powerlessness through social and educational inequities leading them to believe that school success does not lead to life success (Fordham & Ogbu, 1986), they tended to underachieve dramatically. Possibly, their achievement motivation is directed to other areas where they perceive greater chances of successfully applying their talents and intelligence, such as illegal activities and drug dealing (Myers, 1990).

Gender. Another major genetic factor related to increased resiliency in high-risk children is female gender. Repeatedly, developmental studies of children living in at-risk environments and families have found girls to be more resilient than boys (Werner, 1985). Boys appear to be more vulnerable to out-of-home care (Gamble & Zigler, 1986). Some researchers (Rutter 1982) suggest that boys react emotionally and behaviorally in more negative ways than girls to negative family situations.
Temperament and Personality. Most resiliency researchers (Garmezy, 1985; Rutter, Maughan, Mortimore, Ouston, & Smith, 1979) regardless of their discipline, agree that constitutional and temperamental disposition is a major factor in resilience. Both Garmezy (1985) and Rutter (1979) have discussed positive temperament or positive personality disposition as one of the three major precursors of resilience; the other two factors are supportive family milieu (family cohesion and warmth) and the availability and use of external support systems by parent and child. In their 14-year study of ego resilience from pre-school to late adolescence, Block and Block (1980) found precursors of resilience in children to be positive temperament traits, such as responsiveness to environmental change, ability to be comforted after stress, and ability to maintain physiological equilibrium, as well as to modify sleep-wakefulness states. Wertlieb and associates (1989) found three temperament traits related to effects of stress: distractibility, stimulus threshold sensitivity, and response to novel stimuli.

A number of studies have supported the hypothesis that “difficult” temperament is associated with alcohol and other drug use in later life. A “difficult” temperament as defined by frequent negative moods and withdrawal was found by Lerner and Vicary (1984) as correlated with later drug problems in a longitudinal study that tracked kindergartners until adulthood. Children characterized as “easy” children, defined by greater adaptability and happier dispositions, were significantly less likely than “difficult” children to become adult regular users of tobacco, alcohol, and marijuana.

As described by Lerner and Vicary (1984), as well as Brook and associates (1990), two major temperament traits in children who later used drugs are: 1) negative mood states (anxiety, irritability, sadness, emotional upset, anger and crying) and 2) social withdrawal. These are very similar to the two major temperament characteristics—aggression and shyness—found in the Kellam and Brown (1982) longitudinal study of adolescents who later used drugs. If youth continue aggressive behaviors until 13 years of age, they have a strong likelihood of developing alcoholism (Loeber, 1988) or drug abuse (Barnes & Welte, 1986) and delinquency (Stouthamer-Loeber et al., 1993). Hyperactivity, attention deficit disorder and oppositional defiant behavior in junior high school aged children have been found to increase odds ratios for delinquency (Stouthamer-Loeber et al., 1993).

Neurotransmitter Imbalances. Because of the consistent finding of temperament differences in negative life adjustment, temperament should be considered a significant risk factor leading to risk processes involving parents, teachers, and peers. Youth with difficulty, unpleasant, or aggressive temperaments are often rejected by other prosocial peers. The role of biological chemical imbalances (neurotransmitter or hormonal imbalances)
should be more thoroughly investigated in this powerful risk process. Such chemical imbalances can be due to genetic inheritance, *in utero* chemical exposure, and postnatal exposure. The use of alcohol, tobacco, and other drugs also leads to neurotransmitter imbalances that can increase craving for drugs (Goodwin, 1986). In addition to complex interactional processes between external environmental variables, internal self factors have complex relationships.

**Internal Psychological Self Resiliency Factors**

*Organization of Internal Personal Traits or Self Factors.* To develop a categorical framework for improving understanding of self factors to resilience, the internal individual factors have been reviewed in the child development and child psychopathology literature. Following traditional wisdom, they have been organized into five major overlapping domains: spiritual, cognitive, social/behavioral, emotional, and physical.

This organization maps reasonably well on the mind, body, and spirit division of traditional wisdom. The “Four Worlds” Native American tradition consider four major developmental tasks for youth—namely physical, emotional, cognitive, and spiritual. An additional cluster variable of social/behavior competencies has been added because of the large number of resilience studies that equate resilience with social competencies. Luthar (1993) has distinguished three of these five domains in her longitudinal study, namely social, emotional and physical. It is of interest that very few researchers have focused on the spiritual or affective domain which is critical to the concepts of flexibility, perseverance, hopefulness, optimism and the ability to bounce back after failure.

Individual characteristics within each of these five internal domains will be discussed in detail including those that are more determined by genetics or biological, *in utero* environment effecting biology or temperament, and the five types of self factors. In addition, resilience processes will be discussed although few researchers currently focus their research on these unique processes despite resilience specifically being considered the ability to bounce back after failure. A number of longitudinal studies of positive life adaptation despite stressful or high-risk environments (Garmezy, 1985; Luthar, 1991; Radke-Yarrow & Brown, 1993; Werner & Smith, 1982, 1992) indicate that strength, hardiness and competence are predictive of successful interactions with their environments.

**Resilience as Internal Capacity or Competence.** Resilient children have coping skills and competencies to minimize stress of negative impacts, maintain self-esteem and gaining access to opportunities. In studying resilience, researchers have often focused on the internal characteristics of
Environmental Risk Factors
- Anti-social values
- ATOD Abusing Parents
- Poverty
- Family Dysfunction
- Family Conflict

Environmental Protective Factors
- Prosocial Family Values
- Low Family Stress
- Good Parent/Child Relationship
- Good Parenting Skills (Supervision and Discipline)
- Parent/Child Attachment
- Positive Role Models
- Strong Extended Family
- High Expectations
- Family Teaching/Support
- Family Guidance/Counsel
- Opportunities for Meaningful Family involvement

Figure 2. Internal Self Resiliency Characteristics.
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“resilient” children. Comparing outcomes in successful and unsuccessful high risk children, many different personal characteristics have been found to be predictive of resilience in diverse at-risk populations (Rolf, Masten, Cicchetti, Nuecherlein, & Weintraub, 1990), such as children of mentally ill mothers (Garmezy, 1985); children of depressed mothers (Conrad & Hammen, 1993; Radke-Yarrow & Brown, 1993); children of poverty (Garmezy, 1991); children of alcoholics (Werner & Smith, 1989, 1992); children addicted to drugs (Newcomb & Bentler, 1990); children exposed to inner city violence and stress (Luthar, Doernberger, & Zigler, 1993; Richters & Martinez, 1993; Wyman, Cowen, Work, & Kerley, 1993); and children of divorced parents (Wallerstein, 1983). While these researchers are looking for unique characteristics predictive of the ability to beat the odds, many of the personal traits or learned capabilities are helpful to any child.

**Internal Self Resiliency Factors**

A review of the literature produced many overlapping resiliency traits or factors within a child associated with successful adaptation under negative life circumstances or stressors. Individuals considered more resilient in research studies have been found to have significantly more of the characteristics mentioned below. It should, however, be mentioned that because these characteristics were examined in many different studies, resilient individuals do not necessarily possess all of the following mentioned cognitive styles and coping skills (see Figure 3). These internal personality or cognitive capabilities have been organized according to the prior mentioned resilience framework for self factors into five major cluster variables: (1) Spiritual or Motivational Characteristics, (2) Cognitive Competencies, (3) Behavioral/Social Competencies, (4) Emotional Stability and Emotional Management, (5) Physical Well-Being and Physical Competencies. Each of these areas of internal competencies and related coping or life skills will be discussed below in separate sections in depth because they constitute the core of the resilient traits which most prevention specialists are attempting to foster in their high-risk youth.

**Spiritual or Motivational Characteristics**

The spiritual or motivational cluster of resiliency characteristics include primarily cognitive capabilities or belief systems which serve to motivate the individual and create a direction for their efforts. Success
depends on direction or focus. Hence, the variables hypothesized for inclusion are the following:

- Dreams and Goals (Bandura, 1989; Quinton et al., 1993; Rutter & Quinton, 1984)
- Purpose in Life (Neiger, 1992)
- Existential Meaning for Life (Frankel, 1959)
- Spirituality (Dunn, 1994; Gordon & Song, 1994).
- Belief in Uniqueness or in Oneself (Gordon & Song, 1994).
- Internal Locus of Control (Luthar, 1991a; Murphy & Moriarty, 1976; Parker, Cowen, Work, & Wyman, 1990; Werner & Smith, 1992).
- Hopefulness and Optimism (Seligman, 1975)
- Determination and Perseverance (Bandura, 1989; Werner, 1986)

**Dreams/Goals and Purpose in Life.** One very important psychological characteristic of resilient children living in high-risk environments is their ability to dream (Bandura, 1989; Rutter & Quinton, 1984; Quinton, Pickles, Maughan, & Rutter, 1993), create plausible fantasies for themselves and to develop a mission or purpose for their lives (Bernard, 1991; Richardson, Neiger, Jensen, & Kumpfer, 1990). Surviving difficult childhoods often was achieved by a sense of uniqueness or specialness and spiritual belief that they are here for some cosmic purpose—often a general commitment to making the world a better place for similar types of children.

This purpose in life or existential meaning (Frankel, 1959), helps these resilient individuals to endure hardships, because they believe they must survive to complete their mission. Beardslee's research (1983; 1989) on civil rights workers in South and Segal's research (1986) on prisoners of war discovered that a predominant characteristic of resilient individuals was having a purpose in life related to helping others. Creating a perceived purpose for their pain and suffering (Beardslee, 1989; Segal, 1986) and healing through helping or caring for others (Werner, 1986; Segal, 1986) helps individuals to regain environmental mastery and perceived control (Taylor, 1983) which has been found critical to maintaining hope in adverse life threatening situations (e.g., concentration camps, prisons, war zones, acute care hospital units, and abusive families). Neiger (1991) confirmed in a structural equations modeling study of college students in South Carolina that resiliency was the final pathway to positive life adaptation. The most predictive variable in his multifactorial resiliency cluster was life purpose, next was problem solving, followed by self-efficacy.
Spirituality. Hypothesizing that purpose in life may be part of a larger latent construct called spirituality, Dunn (1994) used structural equation modeling procedures, but a much more comprehensive testing battery to test a variation of Kumpfer's Resiliency Model. The results confirmed that "spirituality" (including life purpose) was a major predictor of resilience and later positive life adaptation in a large national sample of working and non-working mothers. Using the same testing battery, Walker (1995) was able to replicate these results with a national sample of adult children of alcoholics. For all three of these samples, spirituality has been highly predictive of positive life adaptation.

Based on a review of longitudinal and cross-sectional studies, Masten (1994) concluded that an important individual resilience factor is religious faith or affiliation. Qualitative, retrospective studies of successful adults from very high risk environments frequently mention the importance of a strong religious belief system in positive life adaptation. Being adopted or having foster parents with strong religious beliefs, when lacking in the biological family, were mentioned by some resilient subjects as helpful. More than half of the Gordon and Song (1994) sample mentioned following strong religious beliefs that significantly impacted their lives positively. According to Gordon and Song (1994), "A belief system seems to provide anchorage and stability in the face of faith-challenging experiences. When questioned about religion, most of the subjects expressed the sense of community, direction, and fellowship typically associated with African Americans, and a traditional affiliation with religiosity" (p. 38).

Belief in Uniqueness or in Oneself. Additional cognitive processes or traits that tend to motivate resilient individuals towards positive achievement is belief in oneself and one's uniqueness or specialness (Gordon & Song, 1994). Religious instruction or parental/other adult support tend to reinforce this specialness. Cameron-Bandler (1986) found that the critical variable for resilient children of alcoholics was their "sense of a compelling future", which helps these high-risk youth to "subordinate immediate gratification for a more fulfilling later gratification, or to save ourselves from some intensely unpleasant future experience."

Independence. Success against the odds was also found to be related to an autonomous, self-directedness in resilient subjects in Gordon and Song's (1994) retrospective, qualitative study. They describe them as autonomous/maverick types who would avoid negative peer pressure so as to participate in goal-directed activities, such as going to a museum or library and saving illegal earnings to buy real estate rather than go partying.
internal Locus of Control, Hopefulness, and Optimism. Related to life purpose and planning ability is the concept of internal locus of control or the perception of being able to influence their current environment and future destiny (Rotter, 1954). Resilient individuals have more internal locus of control (Campbell, Converse & Rodgers, 1976; Luthar, 1991; Murphy & Moriarty, 1976; Parker, Cowen, Work, & Wyman, 1990; Werner & Smith, 1992) and are more hopeful about their ability to create positive outcomes for themselves and others. This sense of hopefulness and optimism is a direct contrast from Seligman’s (1975) learned helplessness concept so often found in high-risk youth lacking in positive experiences. These positive life experiences and adaptation are dependent on congruence between objective life circumstances and control beliefs (Christensen, Turner, Smith, Holman, & Gregory, 1991). Hence, the ability to give up attempts to control that which is not controllable is also characteristic of resilient individuals. The “ability to know the difference” is a major recovery goal in Alcoholics Anonymous and for children of alcoholics.

An external locus of control or unknown locus of control can result when infants or children experience powerlessness due to unresponsive caregiving. In such children, failure is attributed to self, but success is attributed to chance or powerful others. Baldwin and associates’ (1993) regression analysis results suggest that low unknown locus of control, intelligence, and self-esteem predict mental health, but could also be considered alternative measures of mental health. Possibly, one of the most powerful predictors of positive life adaptation against environmental odds is a sense of powerfulness and an ability to modify one’s negative life circumstances through direct actions or soliciting help from others. Past successes lead to increased hopefulness and optimism, versus hopefulness. Therefore, increasing opportunities for youth to demonstrate self-direction and to be successful is important in prevention programming. A self-efficacy cycle includes multiple achievements developed by “building on small steps with high probability for success.” (p. 14). With time resilient children develop with time an “optimistic bias” and latch “on to any excuse for hope and faith in recovery” (Murphy, 1987).

Determination and Perseverance. In order to be successful in their chosen mission or direction, resilient youth are described as being perseverant (Bandura, 1989) and determined (Werner, 1986) in their cognitive style. Coping skills needed to achieve their goals include practicality, and life skills or many competencies and talents (Garmezy, 1985). They are also creative (Flach, 1988) and street smart (Wolin, 1989). While long-range planning abilities and determination are important to resilient individuals in achieving their mission in life (Bandura, 1989; Wolin, 1989), flexibility in
planning and the ability to create new or alternative plans also characterizes resilient individuals. If it appears that original plans are not likely to be successful given new information or changes in the environment, resilient youth rebound by developing new goals and plans.

**Cognitive Competencies**

This cluster of individual resiliency characteristics include cognitive abilities that help a person to achieve their dreams or goals, namely:

- Intelligence (Masten, 1988; Kandel et al., 1988; Kaufman & Zigler, 1989; Kolvin, Miller, Fleetng, & Kolvin, 1988; Leng & Vaillant, 1984; White, Moffit, & Silva, 1989).
- Academic Achievement and Homework Skills (Masten, Garmezy, Tellegen, Pellegrini, Larkin, & Larsen, 1988).
- Ability to Delay Gratification (Garmezy & Masten, 1991; Rutter & Quinton, 1984)
- Reading Skills (Luthar & Zigler, 1992)
- Moral Reasoning (Coles, 1989; Wolin & Wolin, 1993)
- Insight (Flach, 1988; Wolin & Wolin, 1993)
- Interpersonal Awareness (Luthar, 1991; Doernberger, 1992).
- Self-esteem and the Ability to Restore Self-esteem (Bandura, 1989).
- Planning Ability (Anthony, 1987; Rutter & Quinton, 1984)
- Creativity (Jacobs & Wolin, 1991)

**Intellectual Competence and Academic and Job Skills.** As mentioned earlier, many studies have found more resilient children generally have higher intellectual and academic abilities than less resilient children (Garmezy, 1985; Masten, Garmezy, Tellegen, Pellegrini, Larkin, & Larsen, 1988; Werner, 1985). Intelligence is a major protective factor (Garmezy & Masten, 1991) that is influenced by both genetics, postnatal biological variables, such as nutrition, physical trauma, drug abuse, and learning experiences. Intelligence helps to buffer or reduce life stress (Masten et al., 1988). In addition, resilient children generally do better in school academically than their intelligence scores will predict. Hence, they tend to be more overachievers than underachievers. They are described as being achievement oriented (Werner, 1986) and capable of delaying gratification (Rutter & Quinton, 1994) in order to be successful. School or achievement motivation serves as a protective factor and major pathway to later job and life success (Masten, 1994; Werner & Smith, 1982, 1992; Stouthamer-Loeber, et al., 1993).

As mentioned earlier, some high-risk youth in inner cities with high
intelligence dramatically underachieve in school performance if they have a low internal locus of control or poor ability to delay gratification (Luthar & Zigler, 1992). Unfortunately, some ethnic youth (particularly African-American boys) equate academic achievement to “acting White”, because of few concrete role models of success through the traditional academic achievement (Fordham & Ogbu, 1986). High verbal skills are critically important for success in early grades of elementary school, unfortunately, children of substance abusers and children of deprived families tend to have lower verbal scores on standardized tests (Kumpfer, 1987). Increasing verbal competence by teaching phonetic reading, spelling, and encouraging reading will help disadvantaged youth. High verbal and reading skills tend to help resilient children to learn about the world outside of their family and neighborhoods (Luthar & Zigler, 1992). Fairy tales and children’s stories frequently portray disadvantaged children overcoming the odds, hence exposing children to these cultural stories can increase dreams and belief in achievement against the odds. Girls, however, often experience a downward academic performance trajectory in middle school related to sex-role socialization processes sometimes promoted by traditional cultural stories, teacher’s differential response to girls, and an increasing social orientation that sometimes overwhelms academic priorities. Maternal educational achievement and role modeling tends to help girls to achieve.

Moral Reasoning. A product of higher intellectual thought is the higher moral reasoning levels these children are capable of attaining and demonstrating. Jacobs and Wolin (1991) suggest that resilient children separate themselves from the value systems of their families by becoming their own moral guardians. Coles (1989) has also discussed the importance of “moral energy” in resilient children from impoverished homes around the world. Moral energy creates a life-sustaining force that can move resilient children towards positive lives. Wolin and Wolin (1993) consider morality as one of seven resiliencies in their Resilience Mandala, which defines morality as an informed conscience that extends wishes of a good personal life to all of humankind. Cognitive aspects of morality include judging right and wrong, developing internal images or standards for the way things should be or what is normative, valuing compassion, fairness and decency, and serving others. Kagan’s (1984) research suggests that children develop by two years of age internal images or standards about how things or events should be. By age seven, Selman (1980) reports children have a good idea about how parents should treat them—with sensitivity to their feelings and with generosity.

Insight and Intrapersonal Reflective Skills. Resilient children have been described as “mini-psychologists” capable of a quality of “early
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knowing” (Wolin, 1989) and personal insight (Flach, 1988). According to Wolin and Wolin (1993), insight is the number one resiliency. Insight is the mental habit of asking penetrating questions of oneself and subsequently, providing honest answers. Resilient children from dysfunctional parents often are aware very early in life that they are different from and stronger than their sick parent. While empathetic and caring, they develop “adaptive distancing” to protect their sense of healthy separation from the parent’s maladaptive coping skills and life patterns. This failure to identify with their dysfunctional parent and to find more successful role models is adaptive for these children (Beardslee & Podorefsky, 1988). Adaptive distancing has been found to be a crucial mechanism in children of alcoholics (Bennett, Wolin, Reiss, & Teitelbaum, 1987; Berlin & Davis, 1989).

The capability to analyze one’s psychological and physical strengths and compare them to others takes a certain level of intrapersonal and interpersonal reflective skill, which not all children possess. For some reason only a few children excel in analyzing their intrapersonal skills and judging their strengths and limitations, whereas others living in similar family and peer environments are completely unaware of these psychological differences. Possibly, the early development of certain conceptual centers in the brain make this type of relational thinking possible in resilient youth.

Self-Esteem and Ability To Restore Self-Esteem. Resilient youth have higher self-esteem associated with an accurate appraisal of their increased strengths and capabilities. They have resilient self-efficacy (Bandura, 1977; 1989) and the ability to restore self-esteem (Flach, 1988) after failure or disruption in homeostasis. Self-efficacy is a self-perception about competence to perform specific behavioral tasks (Bandura, 1977) and influences choice of tasks or challenges attempted, the degree of effort employed, and emotional reactions to threat of failure (Lawrence & McLeroy, 1986).

Youth who avoid opportunities to master challenges because of low self-esteem or specific task self-efficacy will have a more difficult time developing resilience (Schunk & Carbonari, 1984). Bandura (1989) believes that overcoming stressors or taking on challenges is necessary for the development of self-efficacy. Children who are overprotected or shy in accepting challenges are hindered in developing self-efficacy and competencies. He has written: “If people experience only easy successes, they come to expect quick results and their sense of efficacy is easily undermined by failure” (p. 1179). Perseverance and determination are possible by-products of resilient self-efficacy that in turn lead to increased self-efficacy when youth are successful in “sticking it out through tough times” (p. 1179).

Planning Ability. Another cognitive skill probably related to intelligence is planning ability, which has been found related to resilience in high-
risk youth (Anthony, 1987; Rutter & Quinton, 1984). Ability to foresee consequences of choices and to plan a bright future are characteristics of individuals who successfully overcome negative environments. According to Quinton and associates (1993), planful competence is the ability to think ahead and consider the future. Planful competence affects the direction of the life course from adolescence onward and maintains a certain continuity in personality features (Clausen, 1991). Studies (Mann, Harmoni, & Powers, 1989) suggest that planful behavior can be successfully taught. Youth are less likely to succumb to negative peer pressure to engage in behaviors with life-long negative consequences, such as teen sexuality, early marriage, and drug use, if they have planning abilities and internal locus of control to use these abilities. A recent study by Quinton and associates (1993) found planful behavior was the primary internal cognitive characteristic of individuals that helped them to avoid assortative pairing with conduct disordered mates. Resilient, institutionally-reared women had been found in earlier studies (Rutter & Quinton, 1984) to demonstrate planning in their choice of supportive partners and careers.

Creativity. Creativity in children at risk allows them the opportunity of improving their self-esteem through creating new things (ideas, objects, music, tools, software) which others value or prize. Jacobs and Wolin (1991) believe that creativity in children of alcoholics allows them to express and resolve inner conflicts through painting, photography, dance, music and writing. Freud (1908) interprets the creative urge as individual ability to control a troubled past. Wolin and Wolin (1993) state “In adolescence, many resilient survivors dabble in writing, music, painting, or dance to break the constraints of their troubled families and their own hurt feelings” (p. 163).

Behavioral/Social Competencies

While very similar to cognitive competencies because they build on them, behavioral and social competencies differ because they require behavioral action, not just thoughts. Cognitively competent youth may know what they need to do to become popular, but lack the necessary social skills or talents to accomplish these aims. Aspects of the behavioral and social competencies domain or cluster to be discussed in this review are:

- Social Skills (Platt, Belding, & Husband, in press)
- Street Smarts (Garmezy & Masten, 1986)
- Problem Solving Skills (Platt, Belding, & Husband, in press)
- Communication Skills (Wolin, 1991)
- Peer Resistance Skills (Pentz et al., 1989)
• Multi-cultural Competencies (Burial, Classified, & Vasquez, 1982; Oetting & Beauvais, 1990).
• Bi-gender Competencies (Dunn, 1994)
• Talents (Garmezy, 1985)
• Capacity for Intimacy (Wolin & Wolin, 1993)

Social Skills and Street Smarts. Social and behavioral competence or effective functioning within different environments, sometimes called "street smarts" (Garmezy & Masten, 1986) has been found to be associated with resilience. A number of behavioral skills or life skills are related to resilience, including problems solving skills, communication skills, and peer resistance skills which are frequently addressed in substance abuse prevention programs.

Problem-Solving Skills. Many researchers have reported that problem-solving ability is a component of resilience (Anthony, 1987; Neiger, 1991; Rutter & Quinton, 1994). It is likely that individuals who are more confident in their plans or direction are those who have experienced considerable success in the past due to excellent problem solving abilities. Wolin and Wolin (1993) provide an example of the importance of problem solving in increasing self-efficacy and willingness to tackle challenges in their description of the enjoyment in solving each life threatening problem arising for a Mt. Everest climber. Ability to focus on the goal and chip away at each problem as they arise leads to increased initiative, belief in personal control, and optimism.

Two types of problem solving have been found effective in increasing resilience to AOD use in high-risk youth: 1) general problem solving skills useful in any new problem situation and 2) specific problem solving skills that relate primarily how to solve specific types of problems related to alcohol and drug use.

General problem solving involves the ability to: 1) be interested and motivated to solve problems through a generalized cognitive-affective-behavioral response set, 2) accurately identify the problem, 3) generate a wide variety of possible solutions, 4) consider the consequences of each possible solution and consider all possible resources, 5) choose the best solution, and 6) implement the best solution and verify the results to learn better strategies for later problems (D’Zurilla & Nezu, 1990; Spivack, Platt, & Shure, 1976). Flexibility, originality and creative problem solving have been considered a hallmark of resilient children (Flach, 1988; Demos, 1989; Cohler, 1987; Murphy & Moriarty, 1976). Halverson and Waldrup's (1974) research on pre-schoolers found the children who are capable change agents from an early age tend to be successful in grade school.
Prevention programs that explicitly teach general problem-solving have found increased positive outcomes in their participants, including reductions in precursors of substance use (DeMarsh & Kumpfer, 1986; Kumpfer, 1991; Spivack & Shur, 1982). Botvin and associates (1990) have also reported reductions in tobacco use (Botvin & Tortu, 1988) and alcohol use (Botvin, Baker, Renick, Filazzola, & Botvin, 1984) following a generic life skills or social problem solving skills program including advertising analysis, decision making, goal-setting, stress management, communication and dating skills. Follow-up studies (Botvin, Baker, Dusenbury, Tortu, & Botvin, 1990) replicated these positive effects in seventh to ninth graders by providing booster sessions over three years. The exception to positive findings of the study was that, although the prevalence of self-reported intoxication was reduced, the quantity and frequency of alcohol use was not.

Specific problem solving strategies for the resistance of alcohol and other drugs, such as peer refusal skills, assertiveness training, advertising or peer appeal analysis, consequences analysis have been popular substance abuse prevention interventions. Specific problem solving skills are often scripted and taught through cognitive behavioral techniques involving modeling, role playing, behavioral reversal often involving repeated practice, audio or video feedback and reinforcement for new skills.

Increased resilience to initiation to tobacco (Biglan et al., 1985) and lower prevalence rates for weekly tobacco, alcohol and marijuana use (Pentz, 1983; Pentz et al., 1989) were found after two years of intervention using these specific skill training strategies in combination with other multicomponent education, parent and community strategies. After three years, the positive results for reduced alcohol use in participants was no longer supported (Johnson et al., 1989), which is a common finding for many specific skills training programs. Reducing alcohol use in youth appears to be much more difficult. However, Dieelman and associates (Dieelman, Schope, Leech, & Butchard, 1989) have had success in reducing the increasing rate of alcohol misuse in students who began using alcohol with their peers in unsupervised settings. Their specific skills training program also reduced the rate of increase in susceptibility to peer pressure.

Unfortunately, many of the specific substance abuse resistance skill training programs do not directly and independently test the efficacy of the skills training in reducing alcohol and other drug use. Several exceptions are the Ketchel and Bieger (1989) study and the Kim, McLeod, and Palmgren (1989) study which both found increased intentions to not use alcohol and other drugs, and decreased substance use. It has been hypothesized that these positive drug use changes may be due more to reinforcement of the existing school or peer non-use norms (Kumpfer, Moskowitz & Klitzner, 1986), or to recent changes in the social climate towards tobacco and other
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Drug use or the informal social control climate (Moskowitz, 1983). Hansen and Graham (1991) have empirical evidence that changing the perceptions of AOD norms is more salient than specific resistance skills training in reducing AOD use in youth.

**Multi-Cultural and Bi-Gender Competencies.** Research studies have also found multicultural or bicultural competence as related to less substance use in youth (Oetting & Beauvais, 1990; Buriel, Calzada, & Vasquez, 1982). Youth who are capable of acting competently in several cultures if needed are more successful. Additionally, bi-gender competence is related to increased resilience and life success in women (Dunn, 1994).

**Empathy and Interpersonal Social Skills.** Another hallmark of resilient children is their sense of responsibility for others, willingness to care for others, and ability to be empathetic of the needs of others (Werner, 1985; 1986). Related coping skills include interpersonal social skills (Platt, Belding, & Husband, in press), an engaging personality, good listening and communicating skills (Wolin, 1991), and politeness (Kumpfer, 1990a,b). Resilient children are responsive and active in their relationships with others and elicit more positive responses from their associates even from infancy (Demos, 1989; Werner & Smith, 1982). Because of their increased social skills, resilient children are popular and have increased choice of friends allowing them to establish friendships with positive, prosocial peers if they desire (Berndt & Ladd, 1989).

When combined with the availability of social support (Rutter, 1987) and the willingness to use external supports (Schwartz, Jacobson, Hauser, & Dornbush, 1989), resilient children are capable of getting the social supports they need to buffer stressors and teach them even more coping skills. Jacobs and Wolin (1991) report that resilient children of alcoholics even as young children sought “oases of health in interacting with the healthiest parts of their troubled families” (p. 111). By middle childhood, these children are connecting with neighbors, teachers, and other substitute parents. Werner (1985) also identified attachment to community institutions and positive role models of youth leaders as important. Felsman (1989) found in his study of resilient Colombian street children that they were skillful in locating existing social supports and using them to their advantage. Children of mothers who are willing to use social agency support are reported to have more competencies (Musick, Scott, Spencer, Goldman, & Cohler, 1984), possibly because of the effective role modeling of the mother, increased resulting resources or increased social contact.

Wolin and Wolin (1993) report resilient individuals have a capacity for intimacy. In addition, they are careful in their choice of intimates. Rutter
and Quinton (1994) found the more resilient females living in institutions married better than their less successful cohorts. They choose more prosocial and supportive spouses and friends.

**Emotional Stability and Emotional Management**

Characteristics of resilient individuals that could be considered primarily within the domain of emotional characteristics and skills would be:

- Happiness (versus Depression)
- Recognition of Feelings
- Emotional Management Skills and Ability to Control Anger and Depression
- Ability to Restore Self-Esteem
- Humor (Masten, 1982; Wolin & Wolin, 1993)
- Hopefulness

**Happiness.** Resilient individuals are characterized as reasonably happy people, at least they are not prone to depression or negative appraisals of reality characteristic of depressed individuals. The ability to be hopeful and optimistic may occur because of mastery experiences but also because of good mental health practices, avoiding psychotropic drugs, eating well, reducing stress and getting exercise. After all, Garmezy (1974) has noted that resilient people work well and play well.

**Emotional Management Skills.** A primary characteristic of resilient children is their optimism and positiveness about life. Resilient individuals recognize feelings and can control undesirable feelings such as fear, anger and depression. For children of alcoholics and drug abusers, learning to recognize feelings may be more difficult. Special exercises are developed in prevention programs to help these children learn to recognize their feelings, however, nothing is as effective as having parents who daily discuss feelings with the child. Learning to recognize and control destructive impulses based on these feelings are learned through role modeling and transactions between a parent and a child.

**Humor.** Many clinical and research descriptions of resilient individuals mention them as happy, energetic people who frequently use humor as a coping strategy. The ability to use humor to reduce tension and stress and restore perspective is a skill of many resilient children. The ability to find the comic in the tragic, to make themselves and others laugh, is considered by Wolin and Wolin (1993) as one of several basic resiliencies in children.
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of alcoholics. Humor is also a useful interpersonal skill that helps to establish and maintain social standing and friendships. Masten (1982) found highly stressed, but resilient kids had higher scores on humor generation than less competent, but high stress kids. Werner (1991) has found in her longitudinal study that a positive temperament, including an optimistic outlook on life, is one of five major clusters of resiliency characteristics. These children have “faith that the odds could be overcome.” Happiness is related to good neurotransmitter balance, good nutrition, and exercise. Hence, genetic and biological factors can influence whether a youth has a generally happy disposition.

Physical Well-Being and Physical Competencies

Variables that have been included in resilience studies that correlate with resiliency include the following:

- Good Health (Werner & Smith, 1982, 1992)
- Health Maintenance Skills (exercise, good diet, sleep)
- Physical Talent Development (Masten, 1994)
- Physical Attractiveness (Kaufman & Zigler, 1989)

Studies have demonstrated that good physical status is predictive of resiliency. Children with few physical problems, good sleep patterns, and physical strength may internalize this physical strength and interpret themselves as “strong” psychologically as well. Better physical health during infancy and childhood has been found related to resilience in the children of Kauai (Werner, 1989; Werner & Smith, 1982, 1992). In the St. Louis Risk Research Project (Anthony, 1987) childhood measures of visual-motor coordination predicted mental health.

The development of physical talents or accomplishments valued by others and the child are considered by Masten (1994) as three or four resilience factors that can be impacted by the child rather than by others. Becoming an excellent athlete, dancer, musician or artist increases self-efficacy and self-worth. Additionally, having a teacher or a coach increases the child’s opportunities for role modeling and support.

Physical attractiveness has been found related to positive life adaptation, particularly if associated with charm and social skills (Kaufman & Zigler, 1989). The mechanism for this effect is not difficult to predict. Children who are more attractive are generally more liked and valued by parents or find it easier to attract caring others. In the Oakland Growth Study (Elder, Caspi, & van Nguyen, 1986), fathers were more supportive and less harsh with more attractive daughters.

Risk researchers have discovered that the more risk factors youth have,
the more likely they are to use drugs (Bry, 1983; Bry, McKeon, & Pandina, 1982; Newcomb, Maddahian, Skager, & Bentler, 1987; Rutter, 1979; Rutter, 1990). Just as with risk factors, future research is likely to discover that the more resiliency traits youth have, the more resilient they are likely to be over time. Actually, a more probable scenario is that those youth with many risk factors and few resiliency factors are those with increased likelihood of becoming drug abusers.

**Resiliency Processes**

The final process that occurs to predict a positive outcome associated with resilient youth is the interaction between the internal characteristics of the person and the final outcome. Most resiliency researchers (Rutter, 1987; Werner, 1993) agree that the final stage of resiliency research, sometimes called Stage Three research, must address those processes that develop resiliency in youth. It will never be enough simply to identify protective factors in the environment or resiliency factors in the youth; we need to know how to create these resiliency factors through designing and encouraging resiliency building processes in the transaction of the youth with his or her environment.

**Resilience as Ability to Bounce Back**

Garmezy (1991) has defined resilience as “the capacity for recovery and maintained adaptive behavior that may follow initial retreat or incapacity upon initiating a stressful event” (p. 459). Despite an early emphasis on studies that focused on this process of recovering from stressful events, little research except in the stress-coping literature addresses the ability to bounce-back. More resilience research focuses on predictive factors in the environmental context (risk and protective factors) and individual resiliency traits or competencies.

**Resilience Process Model**

Most of the resiliency field agrees that we need to understand better the processes that help to develop resiliency characteristics or ego-strength in individuals. Part of that process is modifying the environment to remove stressors and find a better goodness-of-fit. People, however, will always experience acute stressors that are not predictable or they may actually choose to face challenges at which they might fail. Baldwin and associates (1993) write: “Children develop in a dialectical process of meeting challenges,
resolving them, and then meeting new ones. If the challenge is too severe, the developmental process breaks down. Resilience is a name for the capacity of the child to meet a challenge and use it for psychological growth." (p. 743). When a person does fail, but develops as a stronger person in the process, some type of resiliency process is occurring. As a beginning step to understanding the micro concept of a resiliency process, Richardson elaborates on the application of a Resiliency Process Model (Richardson, Neiger, Jensen, & Kumpfer, 1990) for use in the resilience field. This process model is useful in conceptualizing the stress-diathesis model discussed by Tarter and Mezzich (1992).

The Resiliency Model shows that stressors or life challenges not balanced by external envirosocial protective processes or biopsychospiritual resiliency factors within the individual can lead to imbalances in homeostasis or disruption (Flach, 1988). Disorganization of the individual occurs which can be relieved and result in reintegration of homeostasis if envirosocial supportive processes occur. This model also proposes several different levels of reintegration can occur based on envirosocial reintegrating processes:

1. Resilient reintegration, or a higher state of resiliency and strength
2. Homeostatic reintegration or the same state before the stressor
3. Maladaptive reintegration, or a lower state of reintegration
4. Dysfunctional reintegration or a major reduction in positive reintegration

This model proposes that the positiveness of the level of homeostasis does change over time, which should match any clinician’s observations of clients who have experienced a crisis in their lives. Some clients appear to grow from the experience and look on the positive nature of the disruption, whereas others decompensate into depression and negativism.

Another way that this model is useful to the prevention field is that it proposes four different intervention points in the resiliency process. The first point, envirosocial protective processes, help to prevent the youth from ever experiencing disruption. The other three processes:

1. Enviro social enhancing processes
2. Enviro social supportive processes
3. Enviro social reintegrating processes support resilient integration

Conducting research on the mini-processes or transactions between the child and the environment that encourage resilient reintegration is the basis for designing more effective prevention programs. This is the wave of the future in the prevention business. Every parent, teacher and youth
worker struggles with what they can do to help youth to learn competen-
cies or skills and to become stronger or more resilient. Increased research
on how much to challenge youth and how much to support them would
help these people dedicated to creating youth with more self-esteem,
confidence, self-efficacy and psychological hardiness to better judge what is
in the best interest of the child.

Responsible parents are continually struggling with decisions on how
much to challenge their children. Should they push their children into activi-
ties or challenges which they are not inclined to choose themselves? Con-
versely, if their children want to undertake an experience, which the parents
think they are likely to fail at, should they be given the opportunity anyway?
Often caretakers must make decisions on the basis of intuition, traditional
family child rearing practices, and resource available. It would be useful
to have basic scientific research to help inform these critical child rearing
decisions.

**Positive Life Outcomes**

Defining a successful outcome that demonstrates resilience can be
difficult because this judgement is so value-laden and culturally-relative. Resilience research generally begins with a search for resilient children who
are successful despite the odds. Conducting this research outside of one’s
culture is fraught with differences in the definition of successful across cul-
tures. For instance, resilience research being conducted with Native Amer-
ican youth has had to begin with ethnomethodological research on people
that the local tribe consider “successful” despite negative life events. Pre-
liminary results suggest a very different definition of success that does
not involve competence in schools and jobs, but more in family and tribal
relations (Evans, 1996). Similarly, resilience and coping research with
African-American children suggest culturally different definitions of
success or definitions of success adapted to stressful environments (Bar-
barin, 1993).

**Implications for Prevention Strategies**

Because research on resilience is relatively new, principles for guiding
the design and implementation of prevention programs are just being sum-
murized (Bernard, 1993; Turner, 1995; Kempfer, in press). The research lit-
erature suggest there are many opportunities to increase resilience in a
planful manner in designing more supportive environments for children.
Figure 3. The Resiliency Process Model.
The primary implication of resiliency research for prevention programming with high-risk youth is that prevention programs should focus more directly on the development of the primary resilient characteristics identified in this review. These resilient traits can be developed by modifying the external environment to increase protective processes, employing small challenges, creating opportunities for involvement and the demonstration of competence, and increasing involvement, bonding and attachment to prosocial groups. Interventions should strive to improve the quality of caregiving, teaching parents and youth workers how to increase resiliency characteristics in children, reducing environmental inequities and stressors for children in high-risk or unhealthy environments. Some interventions should work directly with children and youth to increase personal power and resilience. Assessments of personal and academic competence could provide information for tailored resilience interventions, possibly through computer interactive programs or video tapes for caretakers and families.

**Summary**

Why is it that we have invested so much into material and scientific technology to build better material goods, yet we know so little about how to build better children? The future success of our country depends on increasing our technology and interest in building better children. For this reason, increased research into this field of resilience and child development is critical to the prevention field and our nation’s prosperity and well-being. Promoting resilience in youth holds promise for creating more effective prevention programs. As can be concluded from this extensive review of research, there are no simple formulas for instilling resilience. Research on resilience, while holding much promise for the alcohol and drug prevention field, is also plagued by a number of definitional issues and research limitations. This review suggests that virtually all aspects of a child’s personality and environment as well as transactional relationships between the child and his/her environment influence positive life adaptation. Determining the most salient variables is complicated by gender, culture, history, local environmental issues and developmental appropriateness. A number of caveats on the quality of the research have been discussed including issues in theoretical paradigms, definitions, measurement, designs and statistical analysis procedures. Because of the increasing willingness to see behaviors of individuals as influenced by dynamic transactions with significant others and the environment, studying the predictors of resilience have become much more complicated. Additional transactional, cross-lagged prospective studies are needed including multivariate data collec-
Factors and Processes Contributing to Resilience

The Resilience Framework is discussed to organize the findings of many cross-sectional and longitudinal resilience studies. This theoretical framework includes six major predictors of resilience: initiating stressors, environmental risk and protective mechanisms, person-environmental transactional processes, internal individual resiliency factors (spiritual, cognitive, behavioral, emotional, and physical), resiliency processes, and the positive outcome. The results of this review suggest that there are many opportunities or possible targets for increasing resilience in a planned manner in designing more supportive environments for children living in at-risk families.

In order to increase drug prevention effectiveness with high-risk youth, selective and indicated prevention interventions, as recently defined by the Institute of Medicine (Mrazek & Haggerty, 1994), should be designed with a special focus on promoting resilience. The prevention field is not far from this goal. By and large prevention programs currently focus on increasing protective processes and factors. They use risk factor assessments primarily to determine high-risk status only. While prevention interventions often focus on increasing protective and resilience processes, the evaluations often primarily assess reductions in risk factors. While increasing protective factors and resilience theoretically should reduce risk factors, the degree of change in resilience and protective processes should also be measured. Empirically tested etiological models including both risk and protective/resilience factors and processes should be developed through prevention studies. Such multivariate studies should increase the field's information about protective and resilience building processes and hence, better inform prevention program methodology on ways to increase effectiveness with high-risk youth.

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Longitudinal Research in the Social and Behavioral Sciences:
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Edited by
MEYER D. GLANTZ
and
JEANNETTE L. JOHNSON
Resilience and development: positive life adaptations / Meyer D. Glantz and Jeannette L. Johnson, eds. P. cm. -- (Longitudinal research in the social and behavioral sciences)
ISBN 0-306-48123-4
HV4998.R47 1999 362.29--dc21 99-38203 CIP

ISBN 0-306-46123-4

233 Spring Street, New York, N.Y. 10013

10 9 8 7 6 5 4 3

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