Resilience Annotated Bibliography

SAMHSA's Partners for Recovery Initiative

March 2013

Introduction

A great deal of literature exists in both the mental and substance use disorder fields about building, enhancing, and activating resilience in persons at risk for and with mental and/or substance use disorders. Many of the resilience studies that have been conducted have focused on children, adolescents, and young adults—populations that are greatly influenced by family, peers, and social environments revolving largely around the individual's school, community, and neighborhood.

Resilience, as a concept and construct, is the context-specific ability to respond to stress, anxiety, trauma, crisis, or disaster. Resilience develops over time and is the culmination of multiple internal and external factors. For those who develop mental and/or substance use disorders, the influence of both internal development and external environments converge to either promote or restrict the development of personal resilience. The work of enhancing resilience for persons with mental and/or substance use problems has its greatest impact during the formative stages to prevent more severe conditions and to promote health. Additionally, although more research is needed to fully examine the possible effects, resilience is also critical in the recovery stage where life skills and other supports can be accessed to manage future stress. It is the interaction of risk and protective factors that plays the central role in the development, enhancement, and activation of resilience.

Protective factors, which may exist or be developed in individuals, families, communities, and environments, reduce the impact of risk factors and enhance one's ability to "bounce back." Protective factors can be defined as specific circumstances, experiences, and resources that ameliorate a person's reaction to a situation that, in ordinary circumstances, might lead to maladaptive behaviors and outcomes (Taylor, Karcher, Kelly, & Valescu, 2003). Protective factors may include:

- **Individual factors** such as development of a desirable personal identity; a feeling of power and control over one's life; a feeling of self-worth; a sense of social justice; a sense of cohesion with others; good self-regulation skills; close relationships with competent adults; ; connections to prosocial organizations; tolerance for delayed gratification; a sense of humor; development of good coping and problem-solving skills; an ability to see and set long-term goals; and a positive outlook for the future

- **Family factors** such as consistent, appropriate parental involvement, discipline, and supervision; good parenting skills; trusting relationships; a safe environment; well-defined and appropriate family roles and responsibilities; opportunities to learn to deal appropriately with criticism, rejection, and silence; prosocial values and ethics; and good goal-setting and decision-making skills exhibited by parents

- **Community factors** such as participation in school, work, and the community that create an environment in which an individual has opportunities to develop and practice social and cognitive skills, develop a sense of belonging, contribute to the work of the community,

develop a social network of peers, and learn to handle challenges and practice prosocial behavioral skills and self-efficacy (Tiet, Huizinga, & Byrnes, 2010)

Risk factors come in many different forms, but at their core they are attitudes, beliefs, or environmental circumstances that put an individual in jeopardy of developing a mental and/or substance use disorder (Moe, Johnson, & Wade, 2007). Depending on the source, risk factors may include:

- **Individual temperament characteristics** related to locus of control (external versus internal), poor self-control, negative emotionality, a need for immediate **gratification**, and even physical activity level (Wills & Dishion, 2004)

- **Family-related risk factors,** which may include parental and sibling drug use, poor child-rearing and socialization practices, ineffective parental supervision of the child, ineffective parental discipline skills, negative parent-child relationships, family conflict, marital discord, domestic violence, abuse and neglect, family disorganization, and family social isolation (Kumpfer & Bluth, 2004; Moon, Jackson, & Hecht, 2000; Rosenblum et al., 2005)

- **Community/environmental risk factors** or the social determinants of health, e.g., limited resources, low socioeconomic status, and **communities** that lack the knowledge, skills, and programming necessary to reach out to those in need of assistance

Although the impact of a single protective or risk factor may have little effect on the individual, a combination of risk factors, for example, can create multilevel stress events that can overwhelm individuals who do not have a well-developed resilience to stress and lack the coping, decision-making, and problem-solving skills necessary to bounce back.

Understanding the role of *risk* and *protective* factors resonate with current health reforms that focus on prevention and community wellness, which in turn influence the social determinants of health. The risk and protective factors involved in building, enhancing, and activating resilience in persons with or at risk for behavioral health conditions form the foundations of the social determinants of health.

Methodology and Results

Sixty-seven articles are included in this annotated bibliography. Studies included in this bibliography were identified by searches of electronic bibliographic databases (PsychINFO, PubMed), review of previous Partners for Recovery resources, as well as citations in published studies. Using keywords and established selection criteria related to resiliency and risk and protective factors of behavioral health problems, we conducted a computerized search of health, addictions, and mental health journals, which identified relevant studies. This paper includes a review of the research related to resiliency and risk and protective factors of mental and substance use disorders published in peer-reviewed journals and government publications since 2000. **Table 1** shows the topical focus of the articles presented in the annotated bibliography. (Note: Categories are not mutually exclusive.)

Table 1. Topical Focus of Reviewed Articles

Topic	Number of Articles	Percent of Articles
Substance use disorder	41	61%
Other	22	33%
Mental disorder	17	25%
Health	2	3%
Co-occurring disorder	1	1%

Keywords were specified by the articles' authors and from a review of the available abstracts. The 195 keywords were categorized, and preliminary analyses of the articles' keywords revealed descriptive data on the primary categories covered in "resiliency" articles (see **Table 2**). Each category is composed of multiple keywords, and some of those keywords consist of more than one term (e.g., "resilience, resiliency" and "substance, substance abuse/misuse/use, drug/drug use"). Similar keywords were combined into a single line item; for example, the "substance," "substance abuse," "substance misuse," "substance use," "drug," and "drug use" keywords were combined into a single term "substance, substance abuse/misuse/use, drug/drug use."

Table 2. Keyword Categories Noted in Resiliency Articles

Keyword Category	Number of Keywords in Category	Frequency of Keyword Mention
Risk Factor	40	78
Risk Factor, Protective Factor	37	44
Outcome	33	137
Protective Factor	26	69
Demographic Characteristics	24	85
Method	16	21
Intervention	11	14
Screening/Assessment	5	6
Risk Factor, Outcome	3	5

The Risk Factor and Risk Factor, Protective Factor categories had the highest number of keywords—each had 40 different keywords, with 78 and 49 mentions of the category's keywords, respectively. The Outcome category had 33 different keywords, with 137 mentions of the category's keywords.

Table 3 lists the top keywords; it does not include keywords found in only one ($n = 142$ keywords) or two ($n = 21$ keywords) articles (see full listing of keywords in the **Appendix**).

Table 3. Top Keywords

Keyword	Keyword Category	Frequency of Keyword Category in Articles	Percentage of Articles (*N* = 67)
Resilience, resiliency	Outcome	38	57%
Substance, substance abuse/misuse/use, drug/drug use	Outcome	34	51%
Early adolescence, adolescence/ adolescent, youth, young adult, teen	Demographic Characteristics	32	48%
Protective factor	Protective Factor	23	34%
Risk factor	Risk Factor	15	22%
Alcohol, alcoholism, alcohol use disorders	Outcome	12	18%
Prevention, prevention program, preventive intervention	Protective factor	12	18%
Child/children, early childhood, preschool children, preadolescence	Demographic Characteristics	8	12%
Depression	Outcome	8	12%
Gender, gender differences	Demographic Characteristics	8	12%
Family	Demographic Characteristics	7	10%
Mental health, mental disorders, mental illness	Outcome	7	10%
Tobacco, smoking	Risk Factor	6	9%
Children of alcoholics, children of substance/drug users	Risk Factor	5	7%
Ethnicity, minority	Demographic Characteristics	5	7%
Risk	Risk Factor	5	7%
Competence, competence skills	Protective Factor	4	6%
Intervention	Intervention	4	6%
Academic achievement, academic competence, academic performance	Outcome	3	4%
Addiction	Outcome	3	4%
African American	Demographic Characteristics	3	4%
Delinquency	Risk Factor	3	4%
Environment	Risk Factor, Protective Factor	3	4%
High-risk adolescents/youth/student	Risk Factor	3	4%
Longitudinal study	Method	3	4%
Marijuana	Outcome	3	4%
Mediation, mediator	Method	3	4%
Resiliency/resilient factors	Protective Factor	3	4%
Risk-taking/risky behavior	Risk Factor, Outcome	3	4%
Self-regulation	Outcome	3	4%
Violence	Risk Factor	3	4%
Well-being	Protective Factor	3	4%

The Outcome category included the two most frequently found keywords, "resilience/resiliency" (found in 38 articles, or 57 percent) and "substance, substance abuse/misuse/use, drug/drug use" (found in 34 articles, or 51 percent). The high frequency of the keyword "resilience, resiliency," is not surprising since the focus of the review was on resiliency articles. Rounding out the top three keywords was the keyword "early adolescence, adolescence/adolescent, youth, young adult, teen"; these terms were found in 32 articles, or 48 percent.

Articles

1. Afifi, T.O., & Macmillan, H.L. (2011). Resilience following child maltreatment: A review of protective factors. Canadian Journal of Psychiatry, 56(5), 266–272.

    Child maltreatment is linked with numerous adverse outcomes that can continue throughout the lifespan. However, variability of impairment has been noted following child maltreatment, making it seem that some people are more resilient. The researchers' review includes a brief discussion of how resilience is measured in child maltreatment research; a summary of the evidence for protective factors associated with resilience based on those studies of highest quality; a discussion of how knowledge of protective factors can be applied to promote resilience among people exposed to child maltreatment; and directions for future research. The MEDLINE and PsycINFO databases were searched for relevant citations up to July 2010 to identify key studies and evidence syntheses. Although comparability across studies is limited, family-level factors of stable family environment and supportive relationships appear to be consistently linked with resilience across studies. There was also evidence for some individual-level factors, such as personality traits, although proxies of intellect were not as strongly related to resilience following child maltreatment. The authors note that findings from resilience research need to be applied to determine effective strategies and specific interventions to promote resilience and foster well-being among maltreated children.

    Keywords: Child maltreatment; meta-analysis; protective factors

2. Aronowitz, T., & Morrison-Beedy, D. (2004). Resilience to risk-taking behaviors in impoverished African American girls: The role of mother-daughter connectedness. *Research in Nursing and Health*, *27*, 29–39.

    Rates of risk behaviors (e.g., violence, substance use) for impoverished girls are exceedingly high. Some view their future pessimistically, decreasing their resilience and thus their ability to avoid risky behaviors. Others are able to resist risky behaviors. Connectedness with an adult promotes this resilience, but how is unclear. The purpose of this secondary analysis was to investigate the relationships among connectedness to mother, time perspective, and resilience that enables them to avoid risk-taking behaviors in impoverished African American girls ages 11–15. Structural equation modeling was used to cross-validate this model. In contrast to the results found in earlier studies, no direct relationship emerged between maternal connectedness and resilience. Instead, future time perspective was the key mediator between connectedness and resilience. These findings suggest that an important aspect of interventions to foster resilience that helps young girls to avoid risk behaviors could be to assist their mothers in developing a connected relationship with their daughters that would promote a future time perspective.

Keywords: Early adolescence; impoverished youth; resilience; connectedness; time perspective; minority youth; mother-daughter relations; structural equation modeling; risk-taking behavior; substance use

3. Arthur, M.W., Hawkins, J.D., Pollard, J.A., Catalano, R.F., & Baglioni, A.J. Jr. (2002). Measuring risk and protective factors for substance use, delinquency, and other adolescent problem behaviors: The Communities That Care Youth Survey. *Evaluation Review*, *26*(6), 575–601.

Risk and protective factors predictive of adolescent problem behaviors such as substance abuse and delinquency are promising targets for preventive intervention. Community planners should assess and target risk and protective factors when designing prevention programs. This study describes the development, reliability, and validity of a self-report survey instrument for adolescents ages 11–18 that measure an array of risk and protective factors across multiple ecological domains and adolescent problem behaviors. The instrument can be used to assess the epidemiology of risk and protection in youth populations and to prioritize specific risk and protective factors in specific populations as targets for preventive intervention.

Keywords: Risk factor; protective factor; substance abuse; delinquency; preventive intervention; prevention program; youth

4. Austin, A.A. (2004). Alcohol, tobacco, other drug use, and violent behavior among Native Hawaiians: Ethnic pride and resilience. *Substance Use & Misuse*, *39*(5), 721–746.

This study includes data from a sample of 88 Native Hawaiians living in a rural community on an outer island. Alcohol, tobacco, and other drug (ATOD) use and violent behavior were examined, including age at first experience, lifetime and 30-day frequency of experience, and interference of one's life related to substance use, along with other resilience indicators such as self-reported health, happiness, and ethnic identity. The data suggested that age at first use was in the same period – at approximately age 16 for alcohol, tobacco and other drug. With respect to violent behavior, educational attainment was higher for individuals whose age at first victimization was later. Two relationships were found between ATOD use and violent behavior. First, the data suggest that the age at first use of alcohol was significantly correlated with lifetime frequency of violence exposure, including witnessing, perpetrating, and being a victim of violence. Second, age at first victimization was correlated with current marijuana use, while age at first perpetration of violence was correlated with current crystal methamphetamine use. Additionally, individuals reporting very strong ethnic pride had significantly fewer lifetime instances of witnessing, perpetrating, and being the victim of violence. Thirty-day frequencies of perpetrating and being the victim of violence were also significantly different between respondents who reported very strong ethnic pride and those who reported being less proud, suggesting that ethnic pride is an important protective factor against experiencing violent behavior and may encourage resilience in this group.

Keywords: Ethnic pride; protective factor; risk; violent behavior; Hawaiian; alcohol; drug; risk-taking behavior

5. Bartone, P.T., Hystad, S.W., Eid, J., & Brevik, J.I. (2012). Psychological hardiness and coping style as risk/resilience factors for alcohol abuse. *Military Medicine*, *177*(5), 517–524.

Growing numbers of individuals are being diagnosed with alcohol abuse in the military. This study evaluates the potential role of psychological hardiness, an individual resilience resource, in stress-

related problem drinking in a military population. The authors assessed the association of psychological hardiness and avoidance coping style with alcohol use patterns in a large national sample of Norwegian military defense personnel. Results show that low hardiness and high avoidance coping are significant predictors of alcohol abuse. Also, the challenge facet of hardiness predicts risk of alcohol abuse among respondents with recent deployment experience, and this effect is greater for those with harsh deployment experiences. Older defense workers are also at higher risk, suggesting that cumulative occupational stress may take a toll. This research indicates that hardiness and avoidance coping measures may serve as useful adjunct screening tools for alcohol abuse in the military.

Keywords: Alcohol; military; Norway; risk factor; deployment experience; hardiness; avoidance coping measures

6. Bonanno, G.A., Galea, S., Bucciarelli, A., & Vlahov, D. (2007). What predicts psychological resilience after disaster? The role of demographics, resources, and life stress. *Journal of Consulting and Clinical Psychology*, *75*(5), 671–682.

A growing body of evidence suggests that most adults exposed to potentially traumatic events are resilient. However, research on the factors that may promote or deter adult resilience has been limited. This study examined patterns of association between resilience and various sociocontextual factors. The authors used data from a random-digit-dial phone survey ($N = 2,752$) conducted in the New York City area after the September 11, 2001, terrorist attack. Resilience was defined as having one or zero posttraumatic stress disorder symptoms and as being associated with low levels of depression and substance use. Multivariate analyses indicated that the prevalence of resilience was uniquely predicted by participant gender, age, race/ethnicity, education, level of trauma exposure, income change, social support, frequency of chronic disease, and recent and past life stressors. Implications for future research and intervention are discussed.

Keywords: Trauma; social support; ethnicity; risk factor; protective factor; demographic factor; post-traumatic stress; depression; substance use

7. Bond, L., Toumbourou, J.W., Thomas, L., Catalano, R.F., & Patton, G. (2005). Individual, family, school, and community risk and protective factors for depressive symptoms in adolescents: A comparison of risk profiles for substance use and depressive symptoms. *Prevention Science*, *6*(2), 73–88.

This study examines the relationship between adolescent depressive symptoms and risk and protective factors identified for substance use. A questionnaire, developed to measure these factors in a young person's community, family, school, peer group, and individual characteristics for substance use, was used to assess associations with self-reported depressive symptoms. Data were provided by a representative sample of 8,984 secondary school students in Victoria, Australia. The prevalence of depressive symptoms was 10.5 percent (95 percent confidence interval [CI] 9.2; 12.0) for males and 21.7 percent (95 percent CI 20.3; 23.7) for females. Depressive symptoms were associated with factors in all domains, with the strongest associations in the family domain. Strong relationships were found between the number of elevated risk and protective factors and depressive symptoms, maintained after adjusting for substance use. Patterns of associations were similar for users and non–substance users. The findings indicate that prevention programs targeting factors for substance use have the potential to impact the onset of depression and depression symptoms.

Keywords: Adolescent; depression; protective factor; substance use; Australia; family; risk factor; prevention program

8. Burlew, A.K., Johnson, C.S., Flowers, A.M., Peteet, B.J., Griffith-Henry, K.D., & Buchanan, N.D. (2009). Neighborhood risk, parental supervision and the onset of substance use among African American adolescents. *Journal of Child and Family Studies*, *18*(6), 680–689.

The consequences of the early onset of substance use on later health and social outcomes are a public health concern. In this study, the researchers examined neighborhood risk factors as a possible predictor of the onset of substance use in adolescents. In addition, they assessed the potential buffering effects of parental supervision on the relationship between neighborhood risk and the onset of substance use. The participants included 95 abstinent, African American sixth graders (mean age = 11.5 years) who enrolled in one site of a national multisite study of high-risk youth participating in a federally sponsored program. In the sixth and eighth grades, the participants completed self-report measures regarding substance use, perceived negative neighborhood activities, and parental supervision. Logistic regression analyses demonstrated that both exposure to negative neighborhood activities and low parental supervision increased the onset of substance use by the eighth grade among African American adolescents. However, the results suggested that parents can protect their adolescents from the impact of exposure to adverse neighborhood factors by providing appropriate supervision.

Keywords: Substance use; drug onset; African American; adolescents; parental supervision; neighborhood; risk factor

9. Campbell-Heider, N., Tuttle, J., & Knapp, T.R. (2009). The effect of positive adolescent life skills training on long term outcomes for high-risk teens. *Journal of Addictions Nursing*, *20*(1), 6–15.

This paper reports on long-term followup data—12 months postintervention—from a clinical trial of an intervention designed to enhance teen resilience by supporting the development of social skills needed to make positive connections and overcome the influence of negative environmental influences. Sixteen adolescents ages 12–16 (10 boys and 6 girls) attending an inner-city urban secondary school participated in a 32-week intervention study. Subjects were randomly assigned within sex to two intervention groups: Teen Club only and Teen Club plus Positive Adolescent Life Skills (PALS). The Problem Oriented Screening Instrument for Teenagers (POSIT) was used to measure the dependent variables (problems related to substance use, health, mental health, family relations, peer relations, education status, vocational status, social skills, leisure and recreation, and aggression). The small sample size limited the ability to determine statistical differences between the POSIT subscale scores for the Teen-Club-only and the Teen-Club-plus-PALS interventions. Descriptive data suggest mixed results for both interventions and sex groups. Most important were reductions in mental health problems for all boys in both groups and slightly increased numbers in substance use problems for PALS boys and girls over time. Other trends by group and sex are reported.

Keywords: Resilience; teen; adolescent; connections; environmental factors; life skills training; screening tools; Positive Adolescent Life Skills (PALS); Problem Oriented Screening Instrument for Teenagers (POSIT); mental health; substance use

10. Cleveland, M.J, Feinberg, M.E., Bontempo, D.E., & Greenberg, M.T. (2008). The role of risk and protective factors in substance use across adolescence. *Journal of Adolescent Health*, *43*(2),157–164.

This study was conducted to compare the relative influence of risk and protective factors across several domains on adolescent substance use in a large sample of youth. Cross-sectional survey data were collected from students in grades 6, 8, 10, and 12 in Pennsylvania ($N = 91,778$). Generalized linear mixed models were estimated for each grade level to examine associations among indices of three risk factors (individual, peer, and family) and three protective factors (family, school, and community) and both recent and lifetime substance use. The risk factors were stronger predictors of substance use outcomes compared with the protective factors, regardless of grade level or substance use type. In particular, the individual and peer risk factors were strongly related to lifetime and recent use of cigarettes, alcohol, and marijuana. Among the protective factors, the strongest associations with substance use were found in the community domain. Several age-related differences in the associations were also found, suggesting that family and community factors were more salient among younger adolescents whereas peer and school factors were stronger among older adolescents. These findings provide support for the social development model, which proposes that adolescent substance use is associated with factors across multiple spheres of influence. Age-related differences in these associations suggest that effective interventions to reduce adolescent substance use may need to emphasize different domains of risk and protective factors at different stages of adolescent development.

Keywords: Adolescence; age differences; risk factors; protective factors; substance use; social development model; family; school; peer

11. Cohen, L., Ferguson, C., Harms, C., Pooley, J.A., & Tomlinson, S. (2011). Family systems and mental health issues: A resilience approach. *Journal of Social Work Practice*, *25*(1), 109–125.

In many cases the consumers of mental health information and support are the families of those with mental disorders. The aim of this project was to understand resilience in people who live with or support a family member with a diagnosed or undiagnosed mental illness. Participants were 15 caregivers (1 male, 14 female) who were clients of Community Link and Network Western Australia (CLAN WA). Semistructured interviews were transcribed and analyzed using content analysis. Eight recurring themes emerged: getting to CLAN WA; accessing help, including CLAN WA; impact of living with a person who has a mental illness or problematic behavior; family and cultural issues; communication within the family; coping strategies and evidence of resilience; social support; and notion of sacrifice. These themes indicated the challenges the caregivers faced and provided indications of the positive and negative personal, family, and social factors that had an impact on their lives. There is still considerable work to do in supporting people who live with or support a family member in these circumstances. The findings demonstrate that individuals living with adversity can do more than just survive the process.

Keywords: Resilience; family systems; caregivers; mental illness

12. Conway, A.M., & McDonough, S.C. (2006). Emotional resilience in early childhood: Developmental antecedents and relations to behavior problems. *Annals of the New York Academy of Sciences*, *1094,* 272–277.

The aim of this study was to examine whether maternal sensitivity and infant negative affect predict long-term emotional resilience and whether this was associated with preschool behavior problems. The authors used a sample of 181 mother-infant dyads to test the joint contributions of 7-month maternal sensitivity and infant negative affect to the prediction of 33-month emotional resilience

across the first 3 years of life. They found that (a) maternal sensitivity at 7 months, but not infant negative affect, longitudinally predicted emotional resilience during preschool and (b) emotional resilience was negatively associated with anxiety/depression in preschool (i.e., the more emotional resilience a preschooler had, the less anxiety and depression found).

Keywords: Emotional resilience; behavior problems; early childhood; maternal sensitivity; anxiety; depression

13. Cutuli, J.J., Chaplin, T.M., Gillham, J.E., Reivich, K. J., & Seligman, M.E. (2006). Preventing co-occurring depression symptoms in adolescents with conduct problems: The Penn Resiliency Program. *Annals of the New York Academy of Sciences*, *1094*, 282–286.

Children who exhibit elevated levels of conduct problems are at increased risk for developing co-occurring depression symptoms, especially during adolescence. This study tested the effectiveness of a manualized after-school intervention, the Penn Resiliency Program, for the prevention of depression symptoms among a subset of middle school–age students who exhibited elevated levels of conduct problems, but not depression symptoms, at the start of the study. Longitudinal analyses demonstrate that the program successfully prevented elevations in depression symptoms across early- to mid-adolescence compared with no-intervention control subjects.

Keywords: Prevention; intervention; conduct problems; depression; adolescence; co-occurring depression

14. Davydov, D.M., Stewart, R., Ritchie, K., & Chaudieu, I. (2010). Resilience and mental health. *Clinical Psychology Review, 30*(5), 479–495.

Resilience can be viewed as a defense mechanism that enables people to thrive in the face of adversity. Thus, improving resilience may be an important target for treatment and prophylaxis. Although resilience is a widely used concept, studies vary substantially in their definition and measurement. Above all, there is no common underlying theoretical construct to this very heterogeneous research, which makes the evaluation and comparison of findings extremely difficult. The varying multidisciplinary approaches preclude meta-analysis, so clarification of research in this area must first be conceptually unified. The authors attempt to collate and classify the available research around a multilevel biopsychosocial model, theoretically and semiotically comparable to that used in describing the complex chain of events related to host resistance in infectious disease. Using this underlying construct, the researchers attempt to reorganize current knowledge around a unitary concept in order to clarify and indicate potential intervention points for increasing resilience and positive mental health.

Keywords: Psychological resilience; mental health; mental disorders; classification method

15. Derissen, S., Quaas, M.F., & Baumgartner, S. (2011). The relationship between resilience and sustainability of ecological-economic systems. *Ecological Economics*, *70*(6), 1121–1128.

Resilience as a descriptive concept gives insight into the dynamic properties of an ecological-economic system, whereas *sustainability* as a normative concept captures basic ideas of intergenerational justice when human well-being depends on natural capital and services. Thus, resilience and sustainability are independent concepts. In this paper, the authors discuss the relationship between resilience and sustainability of ecological-economic systems. The study uses a

simple dynamic model where two natural capital stocks provide ecosystem services that are complements for human well-being, to illustrate different possible cases of the relationship between resilience and sustainability and to identify the conditions under which each of those will hold: (a) resilience of the system is necessary, but not sufficient, for sustainability; (b) resilience of the system is sufficient, but not necessary, for sustainability; (c) resilience of the system is neither necessary nor sufficient for sustainability; and (d) resilience is both necessary and sufficient for sustainability. The authors conclude that more criteria than just resilience have to be taken into account when designing policies for the sustainable development of ecological-economic systems, and, vice versa, the property of resilience should not be confused with the positive normative connotations of sustainability.

Keywords: Ecosystem resilience; dynamics; sustainability

16. Dishion, T.J., & Connell, A. (2006). Adolescents' resilience as a self-regulatory process: Promising themes for linking intervention with developmental science. *Annals of the New York Academy of Sciences*, *1094,* 125–138.

This article focuses on the concept of self-regulation as a measure of resilience in children and adolescents. The study collected measures of adolescent attention control from parents and youth, and a measure of self-regulation from teachers. The measures of effortful attention correlated highly with teacher ratings of self-regulation. The composite measure of self-regulation (youth, parent, teacher report) was found to moderate the impact of peer deviance on adolescent antisocial behavior, as well as the impact of stress on adolescent depression. These findings suggest that self-regulation is a promising index of adolescent resilience. The construct of self-regulation also provides an excellent target for strategies aimed to improve child and adolescent adjustment in problematic environments and stressful circumstances.

Keywords: Adolescence; resilience; self-regulation; antisocial behavior; depression; attention control

17. Enoch, M.A. (2006). Genetic and environmental influences on the development of alcoholism: Resilience vs. risk. *Annals of the New York Academy of Sciences*, *1094,* 193–201.

The physiological changes of adolescence may promote risk-taking behaviors, including binge drinking. Approximately 40 percent of alcoholics were already drinking heavily in late adolescence. Most cases of alcoholism are established by the age of 30 years, with the peak prevalence at 18–23 years of age. Therefore, the key time frame for the development, as well as for prevention, of alcoholism lies in adolescence and young adulthood. Severe childhood stressors have been associated with increased vulnerability to addiction, but not all stress-exposed children go on to develop alcoholism. Origins of resilience can be both genetic (e.g., variation in alcohol-metabolizing genes, increased susceptibility to alcohol's sedative effects) and environmental (e.g., lack of alcohol availability, positive peer and parental support). Genetic vulnerability is likely to be conferred by multiple genes of small to modest effects, possibly only apparent in gene-environment interactions. For example, it has been shown that childhood maltreatment interacts with a monoamine oxidase A (MAOA) gene variant to predict antisocial behavior that is often associated with alcoholism, and an interaction exists between early life stress and a serotonin transporter promoter variant that predicts alcohol abuse in nonhuman primates and depression in humans. In addition, a common Met158 variant in the catechol-O-methyltransferase (COMT) gene can confer both risk and resilience to alcoholism in different drinking environments. It is likely that a complex mix of gene(s)-

environment(s) interactions underlie addiction vulnerability and development. Risk and resilience factors can best be determined in longitudinal studies, preferably starting during pregnancy.

Keywords: Gene; resilience; adolescents; risk-taking behavior; binge drinking; child maltreatment; alcoholism

18. Fadardi, J. S., Azad, H., & Nemati, A. (2010). The relationship between resilience, motivational structure, and substance use. *Procedia Social and Behavioral Sciences*, *5,* 1956–1960.

Studies suggest that motivational structure and resilience play important roles in substance use. The authors studied the relationship among motivational structure, resilience, and substance use. Participants were university students ($N = 120$; 75 percent female, mean age = 21.5), who completed a demographic information sheet, the Personal Concerns Inventory (to measure motivational structure), and the Connor-Davidson Resilience Scale. The results showed that resilience and adaptive motivational structure were inverse predictors of substance abuse. The results of a mediation analysis showed that motivational structure was a full mediator of the relationship between resilience and substance use.

Keywords: Addiction; substance; drug; motivational structure; resilience; mediation

19. Fagan, A.A., Van Horn, M.L., Hawkins, J.D., & Arthur, M. (2007). Using community and family risk and protective factors for community-based prevention planning. *Journal of Community Psychology*, *35*(4), 535–555.

Research has identified risk and protective factors related to adolescent substance use using individual-level data, but it is uncertain whether these relationships exist when data are aggregated to a community level. The authors used data from adolescents in 41 communities to examine whether community-level family risk and protective factors predicted student prevalence rates of tobacco, alcohol, and marijuana use 2 years later. The findings support community-level prevention planning that uses epidemiological information on levels of community and family risk and protective factors to identify areas of elevated risk and low protection to be targeted for community-based preventive interventions.

Keywords: Risk factor; protective factor; community; tobacco; alcohol; marijuana; prevention

20. Fergus, S., & Zimmerman, M.A. (2005). Adolescent resilience: A framework for understanding healthy development in the face of risk. *Annual Review of Public Health*, *26,* 399–419.

Adolescent resilience research differs from risk research by focusing on the assets and resources that enable some adolescents to overcome the negative effects of risk exposure. The authors discuss three models of resilience—the compensatory, protective, and challenge models—and describe how resilience differs from related concepts. They describe issues and limitations related to resilience and provide an overview of resilience research related to adolescent substance use, violent behavior, and sexual risk behavior. The authors then discuss implications that resilience research has for intervention and describe some resilience-based interventions.

Keywords: Protective factors; alcohol; tobacco; illegal drugs; sexual behavior; violent behavior; adolescent; models of resilience

21. Gallo, L.C., Penedo, F.J., Espinosa de los Monteros, K., & Arguelles, W. (2009). Resiliency in the face of disadvantage: Do Hispanic cultural characteristics protect health outcomes? *Journal of Personality*, *77*(6), 1707–1746.

Hispanics living in the United States may face substantial adversity, given stresses of immigration and acculturation, low incomes, poor educational and occupational opportunities, inadequate access to health care, and exposure to discrimination. Despite these issues, the Hispanic population often shows equal or better health outcomes when compared with non-Hispanic Whites, a trend that has puzzled researchers and has been referred to as the ''Hispanic Paradox.'' Hispanics with non-U.S. nativity also tend to show better health than those born in the United States, although this advantage dissipates with increasing time spent in the United States. This article discusses the Gallo and Matthews' reserve capacity model as a potential framework for understanding how psychosocial risk and resiliency factors may contribute to health disparities associated with broad sociocultural factors, such as low socioeconomic status or minority ethnicity. In addition, the authors examine theory concerning features of the Hispanic culture that may enhance resilience (e.g., social resources, familism, religiousness) in the face of adverse circumstances. They summarize some of their recent work that has empirically tested effects of risk and resiliency factors in Hispanic health in the contexts of prostate cancer and cardiovascular disease. They conclude by discussing future directions and opportunities for researchers interested in culture-specific resiliency factors in relation to health outcomes.

Keywords: Hispanic; Hispanic Paradox; reserve capacity model; psychosocial risk factor; resilient factors; health disparities; demographic factors; health outcomes; culture-specific resiliency factors

22. Gance-Cleveland, B., & Mays, M.Z. (2008). School-based support groups for adolescents with a substance-abusing parent. *Journal of the American Psychiatric Nurses Association*, *14*(4), 297–309.

Adolescents with substance-abusing parents need interventions to reduce their risk for a variety of problems. School-based support groups (SBSGs) have been proposed to increase resilience in this population. The purpose of this study was to evaluate an SBSG for adolescents with substance-abusing parents. The randomized controlled study was conducted with high-school students ($N = 109$) to evaluate the impact of SBSGs on resiliency. Resiliency was operationalized as positive physical health, mental health, and risk behaviors in the presence of adverse life events. Data were collected pre- and postintervention. Significant improvements in knowledge of substance abuse were noted. Findings suggested gender differences in coping and health outcomes and positive trends in substance use. For health outcomes, boys had a significant increase in medical complaints and a decrease in social integration, while girls had an increase in social integration. Girls had a significant increase in all types of coping, while boys had no significant increase in coping. It was concluded that SBSGs may increase resilience in this at-risk population. However, there were gender differences in response to the intervention, and group facilitators should be aware that participants' gender may influence response to the groups.

Keywords: Children with substance-abusing parents; resiliency; substance abuse; gender differences; school-based support groups

23. Greenberg, M.T. (2006). Promoting resilience in children and youth: Preventive interventions and their interface with neuroscience. *Annals of the New York Academy of Sciences*, *1094,* 139–150.

Preventive interventions focus on reducing risk and promoting protective factors in the child as well as his or her cultural ecologies (family, classroom, school, peer groups, neighborhood, etc.). By improving competencies in both the child and their contexts, many of these interventions promote resilience. Although there are now a substantial number of preventive interventions that reduce problem behaviors and build competencies across childhood and adolescence, there has been little integration with recent findings in neuropsychology and neuroscience. This article focuses on the integration of prevention research and neuroscience in the context of interventions that promote resilience by improving the executive functions (inhibitory control, planning, and problem-solving skills, emotional regulation, and attentional capacities) of children and youth. Illustrations are drawn from recent randomized controlled trials of the Promoting Alternative Thinking Strategies (PATHS) curriculum. The discussion focuses on the next steps in transdisciplinary research in prevention and social neuroscience.

Keywords: Prevention; intervention; children; youth; risk factor; protective factor; resilience

24. Griffin, K.W., Botvin, G.J., Scheier, L.M., Epstein, J.A., & Doyle, M.M. (2002). Personal competence skills, distress, and well-being as determinants of substance use in a predominantly minority urban adolescent sample. *Prevention Science, 3*(1), 23–33.

Several previous studies have investigated the relationship between psychological distress and substance use among youth. However, less research has investigated the potentially protective role of psychological well-being on adolescent substance use, and the extent to which personal competence skills may promote well-being. This study examined personal competence skills, psychological distress and well-being, and adolescent substance use over a 3-year period in a predominantly minority sample of 1,184 urban students attending 13 junior high schools in New York City. Structural equation modeling indicated that greater competence skills predicted less distress and greater well-being over time. Although psychological well-being was associated with less subsequent substance use, distress did not predict later substance use. Findings indicate that competence skills promote resilience against early-stage substance use in part by enhancing psychological well-being and suggest that school-based prevention programs should include competence enhancement components to promote resilience.

Keywords: Substance use; urban; minority; competence; well-being; protective factor; adolescent; resilience

25. Griffin, K.W., Scheier, L.M., Botvin, G.J., & Diaz T. (2001). Protective role of personal competence skills in adolescent substance use: Psychological well-being as a mediating factor. *Psychology of Addictive Behaviors*, *15*(3), 194–203.

Adolescents who use a variety of cognitive and behavioral self-management strategies have been shown to report reduced rates of early-stage substance use, but little is known about how these personal competence skills may be protective. In a series of structural equation models, this study examined the association between competence skills and substance use over a 3-year period among 849 suburban junior high school students, and whether psychological distress, well-being, or both mediated the association. Findings indicated that well-being fully mediated the relationship between early competence and later substance use, but distress did not. Youth with good competence skills reported greater subsequent well-being, which in turn predicted less later substance use. Findings

suggest that competence skills protect youth by enhancing well-being and that prevention programs should aim to enhance competence in order to promote resilience.

Keywords: Mediation; well-being; adolescent; structural equation model; substance use; competence skills; protective factor; prevention; resilience

26. Hartman, J.L., Turner, M.G., Daigle, L.E., Exum, M.L., & Cullen, F.T. (2009). Exploring the gender differences in protective factors: Implications for understanding resiliency. *International Journal of Offender Therapy and Comparative Criminology*, *53*(3), 249–277.

Understanding the causes of why individuals desist from or are resilient to delinquency and drug use has become a salient social concern. Much research has centered on the effects that protective factors possess in fostering resiliency, but that research has not fully explored how the effects of protective factors might vary across gender. Using a sample of 711 individuals ages 16-23 who completed a valid interview in each of the six waves (1986 to 1996) of the National Longitudinal Survey of Youth, the authors investigate how individual protective factors vary across gender on two measures of resiliency that document the lack of involvement in serious delinquency and drug use. They also examine whether the accumulation of protective factors varies across gender in fostering resiliency. The findings suggest that although males and females rely on different individual protective factors to foster resiliency, the accumulation of protective factors appears to be equally important for males and females in promoting resiliency. The authors discuss theoretical and policy implications.

Keywords: Resiliency; gender; delinquency; drug use; protective factor

27. Hawkins, J.D., Van Horn, M.L., & Arthur, M.W. (2004). Community variation in risk and protective factors and substance use outcomes. *Prevention Science*, *5*(4), 213–220.

Communities are the context in which many prevention activities take place. One approach to community prevention is to identify the most elevated risk factors and most depressed protective factors for substance use in a community and then to select and implement preventive interventions to address these factors. This approach presumes that there are reliable differences between communities in risk and protection and that these differences relate to differences in substance use across communities. This article addresses these issues using data from 28,091 students in 41 communities across the United States. Intraclass correlation coefficients were used to assess the degree to which there are reliable and meaningful differences between communities in levels of risk and protective factors. The community means of the risk and protective factors were then correlated with levels of substance use. Findings indicate that there are meaningful differences between communities in levels of specific risk and protective factors and that those differences are related to different levels of substance use in these communities. These results provide an empirical foundation for tailoring community-wide efforts to prevent substance abuse to the specific profiles of risk and protective factors experienced by youth in different communities.

Keywords: Community prevention; risk factor; protective factor; substance use

28. Herrman, H., Stewart, D.E., Diaz-Granados, N., Berger, E.L., Jackson, B., & Yuen, T. (2011). What is resilience? *Canadian Journal of Psychiatry*, *56*(5), 258–265.

While everyone—including frontline clinicians—should strive to prevent the maltreatment and other severe stresses experienced by many children and adults in everyday life, psychiatrists and other

health professionals also need to consider how best to support, throughout the lifespan, those people affected by severe adversity. The first step in achieving this is a clear understanding of the definitions and concepts in the rapidly growing study of resilience. The authors review the definitions of resilience and the range of factors understood as contributing to it and consider some of the implications for clinical care and public health. This narrative review took a major Canadian report published in 2006 as its starting point. The MEDLINE and PsycINFO databases were searched for new relevant citations from 2006 up to July 2010 to identify key papers considering the definitions of resilience and related concepts. Definitions have evolved over time but, fundamentally, resilience is understood as referring to positive adaptation, or the ability to maintain or regain mental health, despite experiencing adversity. The personal, biological, and environmental or systemic sources of resilience and their interaction are considered. An interactive model of resilience illustrates the factors that enhance or reduce homeostasis or resilience. The two key concepts for clinical and public health work are (1) the dynamic nature of resilience throughout the lifespan and (2) the interaction of resilience in different ways with major domains of life function, including intimate relationships and attachments.

Keywords: Resilience; mental health; gene-environment interaction; life function domains

29. Hodder, R.K., Daly, J., Freund, M., Bowman, J., Hazell, T., & Wiggers, J. (2011). A school-based resilience intervention to decrease tobacco, alcohol and marijuana use in high school students. *BMC Public Health*, *11,* 722–731.

Despite schools theoretically being an ideal setting for accessing adolescents and preventing initiation of substance use, there is limited evidence of effective interventions in this setting. Resilience theory provides one approach to achieving such an outcome through improving adolescent mental well-being and resilience. A study was undertaken to examine the potential effectiveness of such an intervention approach in improving adolescent resilience and protective factor scores and reducing the prevalence of adolescent tobacco, alcohol, and marijuana use in three high schools. Researchers conducted a noncontrolled before-and-after study. Data regarding student resilience and protective factors and measures of tobacco, alcohol, and marijuana use were collected from students in grades 7–10 at baseline ($N = 1,449$) and 1 year following a 3-year intervention ($N = 1,205$). Significantly higher resilience and protective factor scores and significantly lower prevalence of substance use were evident at followup. The results suggest that the intervention has the potential to increase resilience and protective factors and to decrease the use of tobacco, alcohol, and marijuana by adolescents. Further rigorous research is required to confirm this potential.

Keywords: Adolescent; resilience; protective factors; tobacco; alcohol; marijuana; substance use

30. Kelly, A.B., O'Flaherty, M., Toumbourou, J.W., Connor, J.P., Hemphill, S.A., & Catalano, R.F. (2011). Gender differences in the impact of families on alcohol use: A lagged longitudinal study of early adolescents. *Addiction*, *106*(8), 1427–1436.

From the preteen to the midteen years, rates of alcohol use and misuse increase rapidly. Cross-sectional research shows that positive family emotional climate (low conflict, high closeness) is protective, and there is emerging evidence that these protective mechanisms are different for girls versus boys. The aim of this study was to explore gender differences in the longitudinal impact of family emotional climate on adolescent alcohol use and exposure to peer drinking networks. The study design was a three-wave two-level (individual, within-individual over time) ordinal logistic

regression, with alcohol use in the past year as the dependent measure and family variables lagged by 1 year. Adolescents completed surveys during school hours. The sample included a total of 855 Australian students (modal age 10–11 years at baseline) participating in the International Youth Development Study in Victoria, Australia. Measurements included emotional closeness to mother/father, family conflict, parent disapproval of alcohol use, and peer alcohol use. For girls, the effect of emotional closeness to mothers on alcohol use was mediated by exposure to high-risk peer networks. Parent disapproval of alcohol use was protective for both genders, but this effect was larger for boys than for girls, and there was no evidence that peer use mediated this effect. Peer drinking networks showed stronger direct-risk effects than family variables. It was concluded that family factors have a unidirectional impact on growth in adolescent alcohol use and that effects vary with child gender.

Keywords: Adolescent; alcohol; family; gender; longitudinal; pre-teen; Australia

31. Klebanov, P., & Brooks-Gunn, J. (2006). Cumulative, human capital, and psychological risk in the context of early intervention: Links with IQ at ages 3, 5, and 8. *Annals of the New York Academy of Sciences*, *1094,* 63–82.

This article examines the effects of risks for a sample of 228 low-birth-weight children (2,001–2,500 g and family income-to-needs ratio at 250% of the poverty threshold or less) using data from the Infant Health and Development Program, an experiment testing the efficacy of early intervention. Cognitive test scores (IQ) were assessed at 3, 5, and 8 years of age. Links with risks at each age point were examined using three different models—cumulative, human capital, and psychological risks. Similar decrements in IQ scores were found at all ages for the cumulative and human capital models but not for the psychological risk model. Treatment effects were found at 3 years of age (when the intervention ended) for all levels of risk and for all models. Sustained effects of the treatment were found at 5 and 8 years of age for children with moderate levels of human capital risk but were not found for any levels of psychological risk. Implications for early childhood intervention programs are discussed.

Keywords: Cumulative risk; low birth weight; early childhood education; IQ; psychological risk; human capital risk

32. Kumpfer, K.L., & Bluth, B. (2004). Parent/child transactional processes predictive of resilience or vulnerability to "substance abuse disorders." *Substance Use & Misuse, 39*(5), 671–698.

This article discusses implications of a theoretical model of resilience—the resilience framework—including the impact of parent/child transactional processes in moderating or mediating a child's biological or environmental risks and later substance misuse. Research is presented on behavioral and emotional precursors of substance use disorders in children of substance users. The authors describe detrimental processes within dysfunctional family environments and list strategies for increasing resilience in youth by improving family dynamics. The value in elucidating these interactive processes is to increase understanding of ways to reduce the impact of risk factors. Prevention providers should use these strategies as benchmarks for selecting or developing effective family-focused prevention programs. Then authors present resources for finding effective family interventions and an example of a family intervention based on resilience principles, the Strengthening Families Program. Recommendations are made for future research and better dissemination of evidence-based family interventions.

Keywords: Resilience; risk factors; vulnerability; protective processes; theoretical model; substance use; environmental risk; prevention; family intervention; evidence-base

33. Kumpfer, K.L., & Summerhays, J. F. (2006). Prevention approaches to enhance resilience among high-risk youth: Comments on the papers of Dishion & Connell and Greenberg. *Annals of the New York Academy of Sciences, 1094,* 151–163.

This article synthesizes research on resilience theory and its implications for prevention interventions to increase resilience in high-risk children and adolescents. In addition, this response to the articles by Dishion and Connell (see article 16 in this bibliography) and Greenberg (see article 23 in this bibliography) summarizes their key points. Those articles discuss the neuroscience substrate behind two major mediators of antisocial behaviors, namely, lack of self-regulation and executive function problems. In addition, the authors of this article present an overall resilience framework that will help the reader organize the aspects of resilience discussed by Dishon and Greenberg into a transactional process model. This article extends prior researchers' suggestion that resilience is the product of the interaction of genetic, biological, and environmental precursors to a further consideration of higher-level cognitive precursors, such as purpose in life and existential meaning. The relevance of resilience to the prevention of negative outcomes in high-risk children whose parents had substance use disorders is covered. Within this third wave of resilience research on prevention interventions, data are presented suggesting that family-strengthening approaches have the greatest impact on increasing resilience.

Keywords: Resilience; theory; prevention; substance abuse; high-risk adolescents; family

34. Lagasse, L.L., Hammond, J., Liu, J., Lester, B.M., Shankaran, S., Bada, H., Bauer, C., Higgins, R., & Das, A. (2006). Violence and delinquency, early onset drug use, and psychopathology in drug-exposed youth at 11 years. *Annals of the New York Academy of Sciences*, *1094,* 313–318.

In this study of violence and resilience in 517 youth exposed to cocaine and other drugs during pregnancy, the authors identified specific links between four types of violence and delinquency, drug use, and psychopathology in early adolescence. Positive and interpersonal attributes promoted resilience in the face of exposure to violence and other risks. This study provides new evidence for the impact of violence as well as resilience against disruptive forms of psychopathology and behavior.

Keywords: Prenatal drug exposure; cocaine; violence; preadolescence; delinquency; early drug use; psychopathology; resilience

35. Luthar, S.S., Sawyer, J.A., & Brown, P.J. (2006). Conceptual issues in studies of resilience: Past, present, and future research. *Annals of the New York Academy of Sciences*, *1094,* 105–115.

This article begins with an overview of the following critical conceptual issues in research on resilience: (1) distinctions between protective, promotive, and vulnerability factors; (2) the need to unpack underlying processes; (3) the benefits of within-group experimental designs; and (4) the advantages and potential pitfalls of an overwhelming scientific focus on biological and genetic factors (to the relative exclusion of familial and contextual ones). The next section of the article is focused on guidelines for the selection of vulnerability and protective processes in future research. From a basic science standpoint, it is useful and appropriate to investigate all types of processes that might significantly affect adjustment among at-risk individuals. If the research is fundamentally applied in nature, however, it would be most expedient to focus on risk modifiers that have high potential to

alter individuals' overall life circumstances. The final section of this article considers conceptual differences between contemporary resilience research on children versus adults. Issues include differences in the types and breadth of outcomes (e.g., the tendencies to focus on others' ratings of competence among children and on self-reports of well-being among adults).

Keywords: Resilience; protective processes; risk modifiers; interventions; children; adult

36. Mason, W.A, Hawkins, J.D., Kosterman, R., & Catalano, R.F. (2010). Alcohol use disorders and depression: Protective factors in the development of unique versus comorbid outcomes. *Journal of Child & Adolescent Substance Abuse*, *19*(4), 309–323.

This study examined protective factors for young adult alcohol use disorders, depression, and comorbid alcohol use disorders and depression. Participants were recruited from all fifth-grade students attending 18 Seattle elementary schools. Of the 1,053 students eligible, 808 (77 percent) agreed to participate. Youths were surveyed when they were 10 years old in 1985 and followed to age 21 in 1996 (95 percent retention). Protective factors were measured at age 14. Young adult disorders were assessed with the Diagnostic Interview Schedule. Alcohol refusal skills, academic skills, school and family bonding, parental rewards, school rewards, and family cohesion at age 14 were associated with decreased risk for comorbidity at age 21.

Keywords: Adolescence; adulthood; alcohol use disorders; comorbidity; depression; protective factor; youth; young adult

37. Masten, A.S., & Obradović, J. (2008). Disaster preparation and recovery: Lessons from research on resilience in human development. *Ecology and Society*, *13*(1), 9–25.

Four decades of theory and research on resilience in human development have yielded informative lessons for planning disaster response and recovery. In developmental theory, resilience following disaster could take multiple forms, including stress resistance, recovery, and positive transformation. Empirical findings suggest that fundamental adaptive systems play a key role in the resilience of young people facing diverse threats, including attachment, agency, intelligence, behavior regulation systems, and social interactions with family, peers, school, and community systems. Although human resilience research emphasizes the adaptive well-being of particular individuals, there are striking parallels in resilience theory across the developmental and ecological sciences. Preparing societies for major disasters calls for the integration of human research on resilience with the theory and knowledge gained from other disciplines concerned with resilience in complex, dynamic systems, and particularly those systems that interact with human individuals as disaster unfolds.

Keywords: Resilience; disaster; human development; children; recovery

38. Moe, J., Johnson, J.L., & Wade, W. (2007). Resilience in children of substance users: In their own words. *Substance Use & Misuse*, *42*(2–3), 391–398.

Understanding what children of alcoholics and other substance users experience has dominated the scientific literature and popular press for the past several decades. To date, the empirical studies have relied primarily on quantitative data to understand the individual and environmental factors associated with the lives, the developmental trajectories, and the growth of children of alcoholics and other substance users. Many of these studies focus on their risks, and very few of them focus on their strengths. Additionally, very few studies have used qualitative techniques to collect data. Although

quantitative studies have provided helpful insight, a great deal more can be learned from children's perception of their strengths, or resilience, and what they think it takes to grow into happy, healthy adults. For this reason, this study presents data from the interviews of 50 children of substance users who present their views on resilience.

Keywords: Children of substance users; resilience; qualitative data; family; child views on resilience

39. Moon, D.G., Jackson, K.M., & Hecht, M.L. (2000). Family risk and resiliency factors, substance use, and the drug resistance process in adolescence. *Journal of Drug Education, 30*(4), 373–398.

Two models have been developed to explain risk and resiliency approaches to drug prevention. One model posits that separate elements make up each set of factors; the other model posits that a single factor can be either a risk or a resiliency factor depending on, for example, if it is present (resiliency) or absent (risk). This study tested these two models and attempted to compare the effects of risk and resiliency across gender and ethnicity. Results support the model in which risk and resiliency are discrete sets of factors and demonstrate that, overall, resiliency factors play a larger role than risk factors in substance use and drug resistance processes. However, gender proved to be an important moderator of these effects. For adolescent males, resiliency has an indirect effect on overall substance use through age of first use, whereas risk has a direct effect on overall substance use. For adolescent females, resiliency has a direct effect on overall substance use and risk has an indirect effect through age of first use. This indicates that although early interventions are important for both genders, resiliency factors must be dealt with before initiation of substance use for males. Findings did not differ substantially across ethnicity, although the small African American sample size may have limited power to detect differences.

Keywords: Family risk factors; prevention; resiliency factors; gender; ethnicity; substance use

40. Myers, L.L. (2013). Substance use among rural African American adolescents: Identifying risk and protective factors. *Child and Adolescent Social Work Journal*, *30*(1), 79–93.

Substance use continues to be a significant problem among youth in our society, particularly in rural communities. The purpose of the current study was to identify the possible risk and protective factors that may be affecting the rates of alcohol and illegal drug use among a population of African American adolescents living in a rural, Southern community. The following were identified as possible risk factors: being an older adolescent (15 years of age or older), spending afternoons after school with friends, having friends or family members who use alcohol or illegal drugs, being raised by nonfamily members, and having plans to enter the military after high school. The following characteristics were associated with less alcohol and illegal drug use and were identified as possible protective factors: being raised by parent(s) or other family members, spending afternoons after school with parents, having parents who talk to youth about dangers of drug and alcohol use, having parents who disapprove of their child using drugs or alcohol, being involved in extracurricular church-related activities, and having plans to work or attend college or technical school after high school. The following characteristics that have been associated with drug and alcohol use in previous research were not associated with use in the current study: being male, peer pressure to use alcohol or illegal drugs, grades in school, and involvement in any extracurricular activities. Implications for developing effective community programs aimed at reducing substance use among youth are discussed.

Keywords: Substance use; youth; risk factor; protective factor; alcohol use; substance use; African American; adolescent

41. Nomura, Y., Chemtob, C.M., Fifer, W.P., Newcorn, J.H., & Brooks-Gunn, J. (2006). Additive interaction of child abuse and perinatal risk as signs of resiliency in adulthood. *Annals of the New York Academy of Sciences*, *1094,* 330–334.

To find the biological basis of resilience, the authors exploited data from a longitudinal community-based study of 1,748 adult children, followed from birth to adulthood. Results showed that those with both abuse and perinatal problems demonstrated synergistically impaired well-being, a higher rate of school dropout, lower sense of success, and lower income. Among abused adult children ($n = 271$), the authors found that, relative to those with perinatal problems, those without perinatal problems had lower risk for adult psychopathology. An examination of the biological base of resilience could be added in a multidimensional/multifactorial model to help researchers identify ways to promote resiliency even before birth.

Keywords: Childhood abuse; low birth weight; preterm birth; psychopathology; resiliency

42. Oades-Sese, G.V., & Esquivel, G.B. (2006). Resilience among at-risk Hispanic American preschool children. *Annals of the New York Academy of Sciences*, *1094,* 335–339.

This study combined cognitive (i.e., intelligence), psychosocial (i.e., inhibition, activity level, negative emotionality, emotion regulation, autonomy), and cultural-linguistic factors (i.e., level of acculturation and bilingualism) to determine patterns of resilience and vulnerability among 207 economically disadvantaged Hispanic American preschool children from 50 early childhood classrooms, as gauged by their social competence during peer play. Person-oriented analysis yielded six distinct profiles, with two of these identified as resilient and one identified as vulnerable. Results of this study revealed within-group differences in resilience among these children and the significant role bilingualism and maintenance of the home language play in their social-emotional development.

Keywords: Resilience; preschoolers; temperament; bilingualism; acculturation; social competence

43. Obradovic, J., Burt, K.B., & Masten, A.S. (2006). Pathways of adaptation from adolescence to young adulthood: Antecedents and correlates. *Annals of the New York Academy of Sciences*, *1094,* 340–344.

This study examined longitudinal change using a person-centered approach to differentiate patterns of adaptive functioning from adolescence to adulthood. Data were drawn from a 20-year longitudinal study of competence and resilience in the lives of 205 schoolchildren (29 percent minority). Results indicate five distinct pathways of adaptation: low-declining, low-improving, middle-improving, middle-declining, and consistently high. The study also compared the five groups on childhood risks and resources and on longitudinal assessment of competence and adversity. Interestingly, the most dramatic changes in pathways of adaptation were found to occur during the period of emerging adulthood.

Keywords: Adaptation; competence; risk; adversity; resilience

44. Otto, M.W., Powers, M.B., & Fischmann, D. (2005). Emotional exposure in the treatment of substance use disorders: Conceptual model, evidence, and future directions. *Clinical Psychology Review*, *25*(6), 824–839.

In this article, the authors review research on the nature and treatment of panic disorder and apply these findings to a discussion of the role of internal cue exposure in the treatment of substance use disorders. Two features of panic treatment were used as a model for interventions for substance use disorders: (1) exposure to internal (interoceptive) cues rather than reliance on external (environmental) exposure alone and (2) use of cue exposure to try to inoculate individuals against future maladaptive patterns. Specifically, the authors emphasized the role of exposure to internal, largely emotional cues, as a way to enhance resilience related to cues for relapse in individuals with substance use disorders. Hypothesized moderators and mediators of this treatment approach are discussed, as are similarities between this research agenda and an increasing focus on the role of emotional acceptance/tolerance in cognitive-behavioral treatments.

Keywords: Substance abuse; emotional avoidance; emotional acceptance; cognitive-behavioral therapy; resilience; moderator; mediator

45. Payton, J.W., Wardlaw, D.M., Graczyk, P.A., Bloodworth, M.R., Tompsett, C.J., & Weissberg, R.P. (2000). Social and emotional learning: A framework for promoting mental health and reducing risk behavior in children and youth. *Journal of School Health*, *70*(5), 179–185.

Many programs have been developed to help schools enhance students' health and reduce the prevalence of drug use, violence, and high-risk sexual behaviors. How should educators choose among these? This article describes selection criteria based on theory, research, and best educational practice that identify key social and emotional learning (SEL) competencies and program features. The SEL competencies for students include 17 skills and attitudes organized into four groups: awareness of self and others, positive attitudes and values, responsible decisionmaking, and social interaction skills. The 11 program features critical to the success of school-based SEL programs emphasize curriculum design, coordination with larger systems, educator preparation and support, and program evaluation. Developed by the Collaborative to Advance Social and Emotional Learning, the SEL framework can be used to guide selection of research-based prevention programs that address health, substance abuse, violence prevention, sexuality, character, and social skills.

Keywords: Social and emotional learning competencies; research-based prevention; adolescent; high-risk behavior; drug use; violence

46. Rajendran, K., & Videka, L. (2006). Relational and academic components of resilience in maltreated adolescents. *Annals of the New York Academy of Sciences*, *1094,* 345–349.

This study examines the components of resilience in adolescents (ages 11–15 years; *N*= 816) who were referred to the child welfare system for maltreatment. Data from a national probability study of children and families in the child welfare system showed that adolescents faced a number of risk factors such as maltreatment, poverty, and exposure to violence in the community. Social competence, academic achievement, and a sense of relatedness to a caregiver were fit in a structural equation model as components of latent resilience. Social competence and the quality of relationship with a caregiver were strongly linked to latent resilience.

Keywords: Competence; resilience; psychological resilience; adolescents; maltreatment; child welfare; sexual abuse; physical maltreatment; neglect; violence; stressors; risks; academic competence; social competence; relationship with parent; closeness to caregiver

47. Randolph, K.A., Fraser, M.W., & Orthner, D.K. (2004). Educational resilience among youth at risk. *Substance Use & Misuse, 39*(5), 747–767.

Educational experts and others recognize the importance of early school experiences on later educational outcomes. Following a sample of youth over time based on 692 files from low-income, single-parent families from one urban school district in the Southeastern United States, 1989–1990 to 1996–1997, the researchers applied event history analytic techniques to examine the relationship between first-grade retention and completing high school. The findings indicate that being retained in the first grade increases the risk of dropping out of high school years later. The results also show a link between retention, extracurricular activity participation, and high school completion. The risk of dropping out is lower for those youth who were retained and were involved in activities during high school. The implication is that educational trajectories can be redirected such that positive educational outcomes can occur.

Keywords: Grade retention; risk; event history analysis; high-risk youth; educational resilience

48. Ratrin Hestyanti, Y. (2006). Children survivors of the 2004 Tsunami in Aceh, Indonesia: A study of resiliency. *Annals of the New York Academy of Sciences*, *1094,* 303–307.

This exploratory study used qualitative methodology to investigate factors contributing to resiliency of children ages 11–15 years who were survivors of the 2004 tsunami in Aceh, Indonesia. A series of participative observation and interviews with children, parents, and local social workers were conducted. A group of 50 children from three camps of the tsunami-affected areas in Banda Aceh and Great Aceh were observed through several psychosocial activities conducted in coordination with local social workers in the community. Resilient children were identified based on criteria developed from the context of the tsunami-affected children in Banda Aceh and Great Aceh. Six children were identified as resilient. They showed absence of clinically significant levels of trauma-related symptoms as measured by Trauma Symptom Checklist for Children—A. They were able to live normally, as demonstrated by participation in school activities, playing with friends, performing daily chores, being involved in religious activities, and developing healthy relationships with caregivers and peers. They were also perceived as cooperative in psychosocial activities. Findings in internal protective factors of these children include strong internal motivation to recover, good heart, openness to other people, high motivation to bond to religiosity, self-responsibility, sense of humor, and easygoingness. Contributing external factors include availability of support from significant others, ability to routinely practice religion, opportunity to learn traditional dance in groups, opportunity to be involved in structured play/psychosocial activities, and having access to natural resources for recreation (e.g., a river).

Keywords: Tsunami; child survivors; child resiliency; factors of resiliency; Acehnese children; Indonesia; well-being; environment; psychological factors; children

49. Rosenblum, A., Magura, S., Fong, C., Cleland, C., Norwood, C., Casella, D., Truell, J., & Curry, P. (2005). Substance use among young adolescents in HIV-affected families: Resiliency, peer deviance, and family functioning. *Substance Use & Misuse, 40*(5), 581–603.

This study examined the association of risk and protective factors with substance use among 77 early adolescents (ages 11–15) with an HIV-infected parent who were interviewed in 2000–2001 in the South Bronx, a HIV high-prevalence area of New York City. The subjects were 49 percent female, 53 percent African American, and 30 percent Hispanic; mean age was 13 years old. A face-to-face

interview was used to administer a battery of instruments representing community, family, peer, and resiliency factors. Forty percent reported ever using tobacco, alcohol or drugs; 71 percent were aware of their parent's HIV seropositivity. An age-adjusted path analytic model showed that (1) family functioning predicted resiliency (a composite measure of psychological adjustment and personal competencies), (2) positive community factors and resiliency predicted less affiliation with deviant peers, and (3) poorer family functioning and affiliation with deviant peers predicted substance use. These results underscore the need for interventions that address social influence factors among vulnerable early adolescents with HIV-positive parents.

Keywords: HIV; adolescents; substance use; family; resiliency; risk factor; protective factor; resiliency factors; path analysis; community factors; social influence

50. Sameroff, A.J., & Rosenblum, K.L. (2006). Psychosocial constraints on the development of resilience. *Annals of the New York Academy of Sciences*, *1094,* 116–124.

Although resilience is usually thought to reside in individuals, developmental research is increasingly demonstrating that characteristics of the social context may be better predictors of resilience. When the relative contributions of early resilience and environmental challenges to later child mental health and academic achievement were compared in a longitudinal study from birth to adolescence, indicators of child resilience such as the behavioral and emotional self-regulation characteristic of good mental health and the cognitive self-regulation characteristic of high intelligence were found to have contributed to later competence. However, the effects of such individual resilience did not overcome the effects of high environmental challenge, such as poor parenting, antisocial peers, low-resource communities, and economic hardship. The effects of single environmental challenges become very large when accumulated into multiple risk scores even affecting the development of offspring in the next generation.

Keywords: Resilience; adaptation; risk; mental health; intelligence; longitudinal studies; child; environment

51. Shapiro, V.B., & Lebuffe, P.A. (2006). Using protective factors in practice: Lessons learned about resilience from a study of children aged five to thirteen. *Annals of the New York Academy of Sciences*, *1094,* 350–353.

There are many advantages of using resilience as a framework to guide the screening, assessment, and promotion of social-emotional health in children. This article reviews which individual attributes are most important for the resilience of elementary school–age children, as primarily determined by the positive attribute's ability to discriminate between typically developing children and those with disciplinary, mental health, and/or special education referrals or services. This research lends itself to a practical framework to scientifically measure and utilize individual social-emotional strengths for the purposes of fostering resilience in all children.

Keywords: Resilience; protective factor; assessment; social- emotional; strength; screen; prevention; mental health

52. Skinner, M.L., Haggerty, K.P., Fleming, C.B., & Catalano, R.F. (2009). Predicting functional resilience among young-adult children of opiate-dependent parents. *Journal of Adolescent Health, 44*(3), 283–290.

This study describes the adversities experienced by a sample of children of opiate-dependent parents, examines criteria for young adulthood functional resilience, and tests parent, child, and school predictors of resilience. The Focus on Families (FOF) project was a randomized trial of a family-focused intervention with opiate-dependent individuals in methadone treatment and their children. Analyses were conducted on data from the children in treatment and control families during the original study (1991–1995) and a long-term followup interview (2005–2006). Although all participants had an opiate-dependent parent, 70 percent experienced two or more and 20 percent experienced four or more additional types of childhood adversity. Twenty-four percent met the following criteria for functional resilience at the time of their young-adult interview: (1) working or being enrolled in school, (2) no history of substance abuse or dependence, and (3) no adult criminal charges in the prior 5 years. The FOF intervention did not significantly predict functional resilience. Girls were approximately four times more likely to exhibit resilience than boys. Experiencing a wider range of adversities in addition to having an opiate-dependent parent did not reduce the likelihood of functional resilience. Of the five child, family, and school predictors tested, only externalizing or internalizing problems in childhood were significantly associated with the likelihood of functional resilience (odds ratio = .30, p = .04) as a young adult. These findings suggest that early intervention with families with opiate-dependent parents to prevent and reduce internalizing and externalizing problems in their children holds the most promise of supporting resilient adaptation in early adulthood.

Keywords: Resilience; children of drug abusers; addiction; at-risk; adolescent; functional resilience; gender; family factors; early intervention

53. Stajduhar, K.I., Funk, L., Shaw, A.L., Bottorff, J.L., & Johnson, J. (2009). Resilience from the perspective of the illicit injection drug user: An exploratory descriptive study. *International Journal of Drug Policy*, *20*(4), 309–316.

Illicit injection drug use and its attendant harms are a key health and social concern. Resilience-based strategies have the potential to complement existing approaches, but there is a paucity of research on resilience. This study identified and explored manifestations of resilience among illicit drug users, including indicators of cognitive transformation at key "turning points" and protective factors associated with enhanced resilience. A secondary analysis was conducted on data collected from a larger qualitative study involving 41 injection drug users and 45 service providers and community leaders. A conceptualization of resilience as a relative and dynamic process manifesting at key turning points provided a lens to frame the analysis, which was also informed by other authors resilience models were also identified. Analytic techniques of constant comparison and open coding were used. Key turning points reflecting resilience were captured by two themes. First, participants described how "getting to the point of change" involved particular cognitive and emotional mechanisms encompassed within this theme: "recognizing it's not worth it", "getting scared" and "recognizing an inner desire to quit." The second manifestation of resilience centered on the enactment of hope in goal setting and entailed "envisioning a better future." In contrast, descriptions of the need to dull past and present hopelessness and pain suggested the suppression of resilience. Hope and a sense of control were particular manifestations of resilience. Other factors (physical or emotional pain, frightening experiences, witnessing or experiencing negative costs) were protective for some individuals but suppressed resilience in others. The findings support the usefulness of the concept of resilience in understanding cognitive and behavioral change among illicit drug users and provide a promising direction for future research.

Keywords: Resilience; injection drug use; addiction; qualitative inquiry

54. Stone, A.L., Becker, L.G., Huber, A.M., & Catalano, R.F. (2012). Review of risk and protective factors of substance use and problem use in emerging adulthood. *Addictive Behaviors*, *37*(7), 747–775.

This review examines the evidence for longitudinal predictors of substance use and abuse in emerging adulthood. Nationally representative data from the 2007 National Survey on Drug Use and Health suggest that many substance use problems reach their peak prevalence during emerging adulthood (usually defined as the period from age 18 to age 26). This stage of development is characterized by rapid transitions into new social contexts that involve greater freedom and less social control than experienced during adolescence. Concurrent with this newfound independence is an increase in rates of substance use and abuse. Understanding the risk and protective factors associated with emerging-adult substance use problems is an important step in developing interventions targeting those problems. Although multiple reviews have examined risk and protective factors for substance use during adolescence, and many of these earlier predictors may predict emerging-adult substance use, few studies have focused primarily on the emerging-adult outcomes examining predictors from both adolescence and emerging adulthood. This review used the PubMed and PsycInfo databases to identify articles pertaining to longitudinal predictors of substance use problems in emerging adulthood, building from the conceptual framework presented in a previous review on risk and protective factors for adolescent substance abuse. Predictors identified as predictors of substance use in adolescence sometimes decreased in strength and in one case reversed direction. Unique predictors in emerging adulthood were also identified. The authors discuss implications for prevention science during adolescence and emerging adulthood as well as suggestions for future research.

Keywords: Young adult; risk factor; protective factor; substance use/abuse; predictors

55. Tandon, D.S., & Solomon, B.S. (2009). Risk and protective factors for depressive symptoms in urban African American adolescents. *Youth & Society*, *41*(1), 80–99.

There is limited understanding of risk and protective factors associated with depression among African American adolescents living in impoverished, urban settings. A cross-sectional study was conducted to identify a range of risk and protective factors associated with depressive symptoms among low-income urban African American adolescents. The sample (*N* = 467) comprised African American adolescents from three high-poverty urban neighborhoods in Baltimore, Maryland. A self-administered read-aloud survey completed by adolescents assessed depressive symptoms as well as various individual- and environmental-level risk and protective factors. Multivariate analyses indicated that female gender, living with an adult with a substance abuse problem, greater exposure to physical violence, and greater peer delinquency were associated with higher depressive symptoms. Greater home assets and self-awareness were associated with lower depressive symptoms. Future interventions to prevent and treat depression among urban African American adolescents should focus on minimizing their risk factors while enhancing those factors found to be protective.

Keywords: Adolescent; depression; risk factors; protective factors; African American; income; gender

56. Taylor, E.R., Karcher, M.J., Kelly, P.J., & Valescu, S. (2003). Resiliency, risk, and substance use among Hispanic urban juvenile detainees. *Journal of Addictions and Offender Counseling*, *24*(1), 46–64.

A study of resiliency was conducted among 236 urban juvenile detainees. It was found that resiliency processes related differently to risk and protective factors, differed among ethnic groups, and varied by age and gender among juvenile detainees.

Keywords: Resilience; risk; substance use; ethnicity; gender; age

57. Thai, N.D., Connell, C. M., & Tebes, J.K. (2010). Substance use among Asian American adolescents: Influence of race, ethnicity, and acculturation in the context of key risk and protective factors. *Asian American Journal of Psychology*, *1*(4), 261–274.

This article examines the relative influence of race/ethnicity, acculturation, peer substance use, and academic achievement on adolescent substance use among different Asian American ethnic groups and U.S. racial/ethnic groups. Data from the Wave I in-home sample of the National Longitudinal Study of Adolescent Health was used to examine lifetime use of alcohol, tobacco, and marijuana in a full adolescent sample of all racial/ethnic groups ($N = 20,745$) and a subsample of Asian American adolescents ($n = 1,248$). Path analysis was used to examine the hypothesized relationships of peer substance use and acculturation as risk factors and academic achievement as a protective factor for racial/ethnic groups. When Asian American adolescents were compared with other major U.S. racial/ethnic groups, peer use and acculturation were both found to be significant mediators of smoking, drinking, and marijuana use, and academic achievement mediated each type of use at a trend level. For Asian American ethnic groups, peer use is a risk factor and, to a lesser extent, academic achievement is a protective factor for substance use. Also, although acculturation is a predictor of substance use, when peer use and academic achievement are taken into account acculturation—like ethnicity—no longer predicts use. Mediation analyses indicated that peer substance use mediates smoking, drinking, and marijuana use; academic achievement does not; and acculturation mediates substance use for some substances and some Asian American ethnic groups. The results are discussed in terms of their implications for understanding how culturally specific approaches can inform preventive interventions.

Keywords: Race; ethnicity; substance use; peer; academic achievement; acculturation; adolescent; Asian American; tobacco; alcohol; marijuana

58. Tiburcio, N.J., Twiggs, R., & Dunlap, E.E. (2009). Hurricane changes: Examining enhanced motivation to change drug using behaviors among Katrina evacuees. *Anuario de Investigación en Adicciones*, *10*(1), 79–95.

Substance use disorders are credited with greater amounts of death and illness than all other preventable health problems. Billions of dollars are spent on efforts to control drug supplies and fund various treatment approaches, but relatively little resources have been directed toward investigating how environmental conditions can contribute to or detract from a substance user's individual motivation to change behavior. Hurricane Katrina caused untold property damage and upheaval, in addition to the vast numbers of people whose lives it drastically affected. This article examines how surviving this ordeal, subsequent evacuation, and eventual resettlement in New Orleans or relocation to a different city (in this case, Houston) affected individuals' motivation to change their substance use patterns and behaviors. This article's approach is grounded in the values of the social work profession and examines (1) the role of life events in motivating change of substance-using behaviors in the absence of formal treatment interventions and (2) participant resilience in overcoming the adversities inherent to this disaster.

Keywords: Substance abuse; recovery; heroin; individual motivation; disaster recovery; life event; resilience

59. Tiet, Q.Q., Huizinga, D., & Byrnes, H.F. (2010). Predictors of resilience among inner city youths. *Journal of Child and Family Studies*, *19,* 360–378.

Prior studies have suggested that living in high-risk neighborhoods is associated with youth maladjustment. Youth who maintained favorable outcomes, despite being exposed to such neighborhood risks, were considered resilient. Using structural equation modeling techniques, longitudinal data of 877 youth from the Denver Youth Survey were examined to identify predictors of resilience, longitudinal interrelations among predictors, and bidirectional relationships between resilience and life context factors. Resilience was longitudinally predicted by bonding to family and teachers, involvement in extracurricular activities, lower levels of parental discord, fewer adverse life events, and being less involved with delinquent peers. A positive feedback loop was found, in which resilience predicted further resilience. Early intervention to strengthen traditional bonding, decrease involvement with delinquent peers, and reduce the effects of adverse life events and parental discord may be essential in enhancing functioning of high-risk youth.

Keywords: Resilience; risk factors; protective factors; drug use; delinquency; parental discord and adverse life events; bonding to family and teachers; inner city; high-risk neighborhoods; structural equation modeling

60. Vanderbilt-Adriance, E., & Shaw, D.S. (2006). Neighborhood risk and the development of resilience. *Annals of the New York Academy of Sciences*, *1094,* 359–362.

The purpose of this study was to advance understanding of resilience by studying multiple protective factors associated with positive adjustment among an ethnically diverse sample of 310 low-income boys followed prospectively from ages 1.5 to 12 years, using neighborhood quality to define risk status. The results indicated that child and family protective factors measured in early childhood were all significantly associated with positive adjustment at 11 and 12 years of age. However, these results were qualified by risk level, such that parent-child relationship quality was only significantly related to positive outcomes in the context of low levels of risk.

Keywords: Resilience; neighborhood risk; protective factors; family; parent-child relationship

61. Velleman, R.D., Templeton, L.J., & Copello, A.G. (2005). The role of the family in preventing and intervening with substance use and misuse: A comprehensive review of family interventions, with a focus on young people. *Drug and Alcohol Review*, *24*(2), 93–109.

The family plays a key part in preventing and intervening with substance use and misuse, both through inducing risk and through encouraging and promoting protection and resilience. This review examines a number of family processes and structures that have been associated with young people commencing substance use and later misuse. There is significant evidence for family involvement in young people's taking up, and later misusing, substances. The review explores and appraises interventions aimed at using the family to prevent substance use and misuse among young people. The authors conclude that there is a dearth of methodologically sound research in this area, but the research that has been conducted does suggest strongly that the family can have a central role in preventing substance use and later misuse among young people.

Keywords: Family; alcohol; drugs; substance misuse; prevention; intervention

62. Veselska, Z., Geckova, A.M., Orosova, O., Gajdosova, B., van Dijk, J.P., & Reijneveld, S.A. (2009). Self-esteem and resilience: The connection with risky behavior among adolescents. *Addictive Behaviors*, *34*(3), 287–291.

The aim of this study was to explore the association of self-esteem and resilience with smoking and cannabis use among adolescents, separately for gender. A sample of 3,694 adolescents (mean age = 14.3 years) from elementary schools in Slovakia filled out the Rosenberg Self-Esteem Scale and the Resiliency Scale and answered questions about cigarette and cannabis use. Logistic regression models showed associations between negative self-esteem and risky behavior, but only among boys. Regarding resilience, structured style and family cohesion were associated with a lower probability of smoking and cannabis use among both boys and girls. In contrast, social competence increased the probability of smoking and cannabis use among both groups. Negative self-esteem seems to play an important role regarding smoking and cannabis use among boys. Resilience seems to have mixed effects, some aspects being protective while other aspects increase the likelihood of smoking and use of cannabis. These results imply that the prevention of substance use should target not only specific individual characteristics but also the possible risk or protective influences of the social environment, namely, the family and social network.

Keywords: Self-esteem; resilience; smoking; cannabis use; adolescent; gender; risky behavior

63. Wang, Y., Nomura, Y., Pat-Horenczyk, R., Doppelt, O., Abramovitz, R., Brom, D., & Chemtob, C. (2006). Association of direct exposure to terrorism, media exposure to terrorism, and other trauma with emotional and behavioral problems in preschool children. *Annals of the New York Academy of Sciences*, *1094,* 363–368.

This study examined the differential impact of various types of trauma exposure on emotional and behavioral problems in preschool children. Participants were 95 mothers of children ages 1–4 years in Israel. Results suggest a differential pattern of associations between the types of trauma exposure (i.e., direct exposure to terrorism, media exposure to terrorism, and other trauma) and children's internalizing and externalizing problems. This line of research is important for the identification of risk factors and the development of effective prevention and intervention strategies to promote resilience in preschool children exposed to specific type(s) of trauma.

Keywords: Direct exposure to terrorism; media exposure to terrorism; other trauma; preschool children; differential associations; emotional and behavioral problems

64. Werner, E.E., & Johnson, J.L. (2004). The role of caring adults in the lives of children of alcoholics. *Substance Use & Misuse*, *39*(5), 699–720.

Longitudinal studies of children of alcoholics in a community context are rare, but are of special interest because they provide the opportunity to study families with alcoholic parents who do not reach clinical settings and with offspring who do not receive professional help. This article reports on the 65 offspring of alcoholics who participated in the Kauai Longitudinal Study. The extensive data on these analyses included questionnaires and interviews of both children and adults that were collected over a 30-year period. The data showed that individuals who coped effectively with the trauma of growing up in an alcoholic family and who became competent adults relied on a

significantly larger number of sources of support in their childhood and youth than did the offspring of alcoholics with coping problems by age 32.

Keywords: Children of alcoholics; resilience; protective factors; at-risk; vulnerable; self-esteem; longitudinal study

65. Wills, T.A., & Dishion, T.J. (2004). Temperament and adolescent substance use: A transactional analysis of emerging self-control. *Journal of Clinical Child and Adolescent Psychology, 33*(1), 69–81.

This article presents a conceptual framework linking the construct of temperament with environmental factors that covary with the onset and escalation of substance use. The authors propose that transactions between temperament characteristics of the child in family and peer contexts influence the development of self-control ability, a mediating factor for onset and possible transition to abuse in later adolescence. Risk-promoting dimensions may influence the emergence of self-control by amplifying relationship processes that detract from competence development. Emergence of good self-control can serve as a resilience factor and is linked with health-promoting cognitions. The authors also suggest that temperament and self-control moderate links between parenting, peer associations, and substance use. Implications of the transactional model for clinical intervention and research are discussed.

Keywords: Temperament; environmental factors; substance use; self-control ability; resilience

66. Wong, M.M. (2008). Perceptions of parental involvement and autonomy support: Their relations with self-regulation, academic performance, substance use and resilience among adolescents. *North American Journal of Psychology*, *10*(3), 497–518.

This study examined the effects of perceived parental involvement and autonomy support on academic performance and substance use among 171 adolescents. Participants reported their perceptions of parental involvement and autonomy support, reasons for doing schoolwork, ability to control their attention and behavior, school grade, classroom disruptive behavior, and substance use. Teachers and school administrators provided information about students' academic performance. Self-regulation variables mediated the effects of perceived parental involvement and autonomy support on academic performance and classroom disruptive behavior in both low- and high-risk students. Among high-risk students only, classroom disruptive behavior was significantly related to greater substance use. A higher level of perceived parental involvement and autonomy support and greater self-regulation predicted better outcomes for all students.

Keywords: Perceived parental involvement; autonomy; academic performance; substance use; adolescents; high-risk student; self-regulation

67. Wong, M.M., Nigg, J.T., Zucker, R.A., Puttler, L.I., Fitzgerald, H.E., Jester, J.M., Glass, J.M., & Adams, K. (2006). Behavioral control and resiliency in the onset of alcohol and illicit drug use: A prospective study from preschool to adolescence. *Child Development, 77*(4), 1016–1033.

This study examined the developmental trajectories of behavioral control and resiliency from early childhood to adolescence and their effects on early onset of substance use. Behavioral control is the tendency to express or contain one's impulses and behaviors. Resiliency is the ability to adapt flexibly one's characteristic level of control in response to the environment. Study participants were 514

children whose parents were alcoholics and matched control subjects from a longitudinal community sample (Time 1 age in years: mean = 4.32, standard deviation = 0.89). Children with slower rates of increase in behavioral control were more likely to use alcohol and other drugs in adolescence. Children with higher initial levels of resiliency were less likely to begin using alcohol.

Keywords: Behavioral control; resiliency; adolescent; substance use; children of alcoholics; longitudinal study; alcohol

Appendix: List of Keywords, Category, and Frequency, by Number of Keywords

#	Keyword	Category	Number of Keywords	Percentage of Articles
1	Resilience, resiliency	Outcome	38	57%
2	Substance, substance abuse/misuse/use, drug/drug use	Outcome	34	51%
3	Early adolescence, adolescence/ adolescent, youth, young adult, teen	Demographic Characteristics	32	48%
4	Protective factor	Protective Factor	23	34%
5	Risk factor	Risk Factor	15	22%
6	Alcohol, alcoholism, alcohol use disorders	Outcome	12	18%
7	Prevention, prevention program, preventive intervention	Protective Factor	12	18%
8	Child/children, early childhood, preschool children, preadolescence	Demographic Characteristics	8	12%
9	Depression	Outcome	8	12%
10	Gender, gender differences	Demographic Characteristics	8	12%
11	Family	Demographic Characteristics	7	10%
12	Mental health, mental disorders, mental illness	Outcome	7	10%
13	Tobacco, smoking	Risk Factor	6	9%
14	Children of alcoholics, children of substance/drug users	Risk Factor	5	7%
15	Ethnicity, minority	Demographic Characteristics	5	7%
16	Risk	Risk Factor	5	7%
17	Competence, competence skills	Protective Factor	4	6%
18	Intervention	Intervention	4	6%
19	Academic achievement, academic competence, academic performance	Outcome	3	4%
20	Addiction	Outcome	3	4%
21	African American	Demographic Characteristics	3	4%
22	Delinquency	Risk Factor	3	4%
23	Environment	Risk Factor, Protective Factor	3	4%
24	High-risk adolescents/youth/student	Risk Factor	3	4%
25	Longitudinal study	Method	3	4%
26	Marijuana	Outcome	3	4%
27	Mediation, mediator	Method	3	4%
28	Resiliency/resilient factors	Protective Factor	3	4%
29	Risk-taking/risky behavior	Risk Factor, Outcome	3	4%
30	Self-regulation	Outcome	3	4%
31	Violence	Risk Factor	3	4%
32	Well-being	Protective Factor	3	4%
33	Adaptation	Protective Factor	2	3%
34	Adulthood, adult	Demographic Characteristics	2	3%
35	Age, age differences	Demographic Characteristics	2	3%
36	Antisocial behavior	Risk Factor	2	3%
37	At-risk	Risk Factor	2	3%
38	Child maltreatment	Risk Factor	2	3%
39	Connectedness, connections	Protective Factor	2	3%
40	Demographic factor	Demographic Characteristics	2	3%
41	Environmental factors	Risk Factor, Protective Factor	2	3%

#	Keyword	Category	Number of Keywords	Percentage of Articles
42	Inner city, urban	Demographic Characteristics	2	3%
43	Neighborhood risk	Risk Factor, Protective Factor	2	3%
44	Peer	Risk Factor, Protective Factor	2	3%
45	Problem Oriented Screening Instrument for Teenagers (POSIT)	Screening/Assessment	2	3%
46	Protective processes	Protective Factor	2	3%
47	Psychological resilience	Outcome	2	3%
48	Psychopathology	Risk Factor, Protective Factor	2	3%
49	Recovery	Outcome	2	3%
50	Self-esteem	Risk Factor, Protective Factor	2	3%
51	Structural equation model/modeling	Method	2	3%
52	Violent behavior	Risk Factor	2	3%
53	Vulnerability, vulnerable	Risk Factor	2	3%
54	Acculturation	Protective Factor	1	1%
55	Acehnese children	Demographic Characteristics	1	1%
56	Adversity	Risk Factor, Protective Factor	1	1%
57	Anxiety	Outcome	1	1%
58	Asian American	Demographic Characteristics	1	1%
59	Assessment	Screening/Assessment	1	1%
60	Attention control	Protective Factor	1	1%
61	Australia	Demographic Characteristics	1	1%
62	Autonomy	Protective Factor	1	1%
63	Avoidance coping measures	Risk Factor, Protective Factor	1	1%
64	Behavior problems	Risk Factor	1	1%
65	Behavioral control	Risk Factor, Protective Factor	1	1%
66	Binge drinking	Outcome	1	1%
67	Bonding to family and teachers	Protective Factor	1	1%
68	Cannabis use	Outcome	1	1%
69	Caregivers	Demographic Characteristics	1	1%
70	Child resiliency	Outcome	1	1%
71	Child survivors	Risk Factor, Protective Factor	1	1%
72	Child views on resilience	Protective Factor	1	1%
73	Child welfare	Risk Factor	1	1%
74	Childhood abuse	Risk Factor	1	1%
75	Closeness to caregiver	Protective Factor	1	1%
76	Cocaine	Outcome	1	1%
77	Cognitive-behavioral therapy	Intervention	1	1%
78	Community	Risk Factor, Protective Factor	1	1%
79	Community factors	Protective Factor	1	1%
80	Community prevention	Intervention	1	1%
81	Comorbidity	Outcome	1	1%
82	Conduct problems	Risk Factor, Outcome	1	1%
83	Co-occurring depression	Outcome	1	1%
84	Culture-specific resiliency factors	Protective Factor	1	1%
85	Cumulative risk	Risk Factor	1	1%
86	Delinquency	Outcome	1	1%
87	Deployment experience	Risk Factor	1	1%
88	Differential associations	Risk Factor, Protective Factor	1	1%
89	Direct exposure to terrorism	Risk Factor	1	1%
90	Disaster	Intervention	1	1%
91	Disaster recovery	Risk Factor, Protective Factor	1	1%

#	Keyword	Category	Number of Keywords	Percentage of Articles
92	Drug onset	Outcome	1	1%
93	Dynamics	Method	1	1%
94	Early drug use	Outcome	1	1%
95	Early intervention	Intervention	1	1%
96	Ecosystem resilience	Outcome	1	1%
97	Educational resilience	Outcome	1	1%
98	Emotional acceptance	Protective Factor	1	1%
99	Emotional and behavioral problems	Outcome	1	1%
100	Emotional avoidance	Risk Factor	1	1%
101	Emotional resilience	Outcome	1	1%
102	Environmental risk	Risk Factor	1	1%
103	Ethnic pride	Protective Factor	1	1%
104	Event history analysis	Method	1	1%
105	Evidence-base	Intervention	1	1%
106	Factors of resiliency	Outcome	1	1%
107	Family factors	Risk Factor, Protective Factor	1	1%
108	Family intervention	Intervention	1	1%
109	Family risk factors	Risk Factor	1	1%
110	Family systems	Risk Factor, Protective Factor	1	1%
111	Functional resilience	Outcome	1	1%
112	Gene	Demographic Characteristics	1	1%
113	Gene-environment interaction	Risk Factor, Protective Factor	1	1%
114	Grade retention	Risk Factor, Protective Factor	1	1%
115	Hardiness	Risk Factor, Protective Factor	1	1%
116	Hawaiian	Demographic Characteristics	1	1%
117	Health disparities	Outcome	1	1%
118	Health outcomes	Outcome	1	1%
119	Heroin	Outcome	1	1%
120	High-risk behavior	Risk Factor	1	1%
121	High-risk neighborhoods	Risk Factor	1	1%
122	Hispanic	Demographic Characteristics	1	1%
123	Hispanic Paradox	Demographic Characteristics	1	1%
124	HIV	Demographic Characteristics	1	1%
125	Human capital risk	Risk Factor	1	1%
126	Human development	Method	1	1%
127	Illegal drugs	Outcome	1	1%
128	Impoverished youth	Risk Factor	1	1%
129	Income	Risk Factor, Protective Factor	1	1%
130	Individual motivation	Protective Factor	1	1%
131	Indonesia	Demographic Characteristics	1	1%
132	Injection drug use	Outcome	1	1%
133	Intelligence	Risk Factor, Protective Factor	1	1%
134	Life event	Intervention	1	1%
135	Life function domains	Risk Factor, Protective Factor	1	1%
136	Life skills training	Intervention	1	1%
137	Low birth weight	Risk Factor, Protective Factor	1	1%
138	Maltreatment	Risk Factor	1	1%
139	Maternal sensitivity	Risk Factor, Protective Factor	1	1%
140	Media exposure to terrorism	Risk Factor	1	1%
141	Meta-analysis	Methods	1	1%
142	Military	Demographic Characteristics	1	1%

#	Keyword	Category	Number of Keywords	Percentage of Articles
143	Minority	Demographic Characteristics	1	1%
144	Minority youth	Demographic Characteristics	1	1%
145	Models of resilience	Method	1	1%
146	Moderator	Method	1	1%
147	Mother-daughter relations	Risk Factor, Protective Factor	1	1%
148	Motivational structure	Risk Factor, Protective Factor	1	1%
149	Neglect	Risk Factor	1	1%
150	Neighborhood	Risk Factor, Protective Factor	1	1%
151	Norway	Demographic Characteristics	1	1%
152	Other trauma	Risk Factor	1	1%
153	Parental discord and adverse life events	Risk Factor	1	1%
154	Parental supervision	Risk Factor, Protective Factor	1	1%
155	Parent-child relationship	Risk Factor, Protective Factor	1	1%
156	Path analysis	Method	1	1%
157	Perceived parental involvement	Protective Factor	1	1%
158	Physical maltreatment	Risk Factor	1	1%
159	Positive Adolescent Life Skills	Screening/Assessment	1	1%
160	Post-traumatic stress	Risk Factor, Outcome	1	1%
161	Predictors	Risk Factor, Protective Factor	1	1%
162	Prenatal drug exposure	Risk Factor	1	1%
163	Preterm birth	Risk Factor	1	1%
164	Psychological factors	Risk Factor, Protective Factor	1	1%
165	Psychological risk	Risk Factor	1	1%
166	Psychosocial risk factor	Risk Factor	1	1%
167	Qualitative data	Method	1	1%
168	Qualitative inquiry	Method	1	1%
169	Race	Risk Factor, Protective Factor	1	1%
170	Relationship with parent	Risk Factor, Protective Factor	1	1%
171	Research-based prevention	Protective Factor	1	1%
172	Reserve capacity model	Method	1	1%
173	Risk modifiers	Risk Factor, Protective Factor	1	1%
174	School	Risk Factor, Protective Factor	1	1%
175	School-based support groups	Intervention	1	1%
176	Screen	Screening/Assessment	1	1%
177	Screening tools	Screening/Assessment	1	1%
178	Self-control ability	Protective Factor	1	1%
179	Self-regulation	Protective Factor	1	1%
180	Sexual abuse	Risk Factor	1	1%
181	Sexual behavior	Risk Factor	1	1%
182	Social and emotional learning competencies	Intervention	1	1%
183	Social competence	Protective Factor	1	1%
184	Social development model	Method	1	1%
185	Social influence	Risk Factor, Protective Factor	1	1%
186	Social support	Protective Factor	1	1%
187	Social-emotional	Risk Factor, Protective Factor	1	1%
188	Strength	Protective Factor	1	1%
189	Stressors	Risk Factor	1	1%
190	Sustainability	Outcome	1	1%
191	Temperament	Risk Factor, Protective Factor	1	1%
192	Theoretical model	Method	1	1%
193	Theory	Method	1	1%

#	Keyword	Category	Number of Keywords	Percentage of Articles
194	Trauma	Risk Factor	1	1%
195	Tsunami	Risk Factor	1	1%

Acknowledgments