Final Corrections 6/7/06

In Press: The American Behavioral Scientist. Please do not copy or quote from, without permission of one of the authors.

Psychic Plasticity, Resilience And Reactions To Media Violence: What Is The Right Question?

By

Stuart W. Twemlow MD

Professor of Psychiatry, Menninger Department of Psychiatry, Baylor College of Medicine, Houston Texas, Director Peaceful Schools and Communities Project and Medical Director, HOPE program, The Menninger Clinic, Houston Texas.

Tanya Bennett, MD

Instructor of Psychiatry, Menninger Department of Psychiatry, Baylor College of Medicine, Houston, Texas, and Staff Psychiatrist, Eating Disorders Program, The Menninger Clinic, Houston, Texas.

This article seeks to develop some answers to the question: "Are there psychiatric processes or some general psychological predisposition, that make non diagnosed people susceptible to media violence consumption in a way that would lead to lifelong aggressive behavior?"[1] We will begin this paper with a brief discussion of the assumptions we are making about what this question is trying to answer. We will then review some of the factors known to precipitate destructive aggressiveness. We hope to make clear that environmental exposures such as violence in the media are but a small part of a very long list of precipitants. We will discuss neuroplasticity; the study of how the brain interacts with and is structurally and functionally altered by the environment and introduces the notion of resilience, that seems to enable some individuals to respond functionally to trauma and others less so. We will mention some of our own work that has examined exposure to violence within schools and the impact it has on school climates and vulnerable children, in order to illustrate the importance of social factors relating to aggression. We will conclude by reformulating the question to allow human psychopathological reactions to be seen in their glorious non-parsimonious complexity.

Comment: Deleted material moved to "Resilience" heading.

Assumptions

August Aichhorn (1878-1949) once said,

> Every child begins his life as an asocial being, insisting that his or her . . . wishes . . . be fulfilled, without taking into account the wishes and demands of those around him. This is considered normal conduct for a young child, but asocial or dyssocial when the child is

older. The child needs to be educated into a state of prosocial adjustment, a task that only

can be fulfilled if the child's emotional development proceeds normally.

Although Aichhorn typifies an early psychoanalytic view of the human condition based

on drives and defenses, the general tenor of his ideas provides us with a cartography for looking

at the complicated question addressed in this volume, because from this perspective, every

newborn is already potentially abnormal! This position may seem extreme, but asocial

impulsivity does characterize all human behavior at times. There is not one of us who has not at

one time or another said or done something aggressive, insensitive, or significantly hurtful in

nature. All of us have had deep moments of reflection suggesting that the degree to which such

impulses can be interrupted is largely determined, not by factors connected with the pathology of

the brain itself, but by factors that are cultural (a socially acceptable level of aggressiveness),

environmental (e.g., substances of abuse, including alcohol, which can release or even promote

violent impulsivity) and political (such as a climate which can enable the social sanction of

murder, as when war is declared).

The Philosophical Complexity of the Problem: A Participatory Reality

To further elucidate this problem we turned not to the literature on virtual or play

violence but instead to the effect of actual exposure to real violence in community contexts have

been in promoting psychological distress in adolescents. Wilson and Rosenthal (2003)

conducted an extensive meta-analysis to illustrate the size of this relationship a twenty-year

literature survey yielded 37 samples with 17,322 adolescents. A significant effect size of .25

(low medium), was found for exposure to observed, but not experienced violence, but accounted

for only 6 percent of the variance in the sample. That is, as the authors say, "Not all adolescents

with high levels of exposure (to community violence) manifest high levels of distress, there must

exist individual differences in levels of sensitivity to the experience of the exposure or resistance

to the development of distress." The authors highlighted a number of individual factors, including domestic violence and sexual and physical abuse. Clearly this study indicates the necessity to define causation rather carefully, and suggests that the physically closer the experience of violence is to the individual, the greater the chance of impact.

Another aspect muddying the waters is how cause is defined: whether a cause is good and sufficient in itself in the Aristotelian sense or must be added to others before it becomes a sufficient cause, suggests Freud's concept of overdetermination (Waelder, 1930). More than likely, sets of good and sufficient causes may change over time, some remaining consistent while others vary with age, developmental stages, vulnerabilities and idiosyncratic factors affecting an individual's health. We should keep in mind Kant's caveat in *Critique of Pure Reason* (Smith translation: p. 97): "To know what question may be reasonably asked, is already a necessary proof of sagacity." We feel that a careful redefinition of the question will enable the creation of answerable research hypotheses that take into account the complex way in which the answer can change according to how reality is defined, the stage of development, neuroplasticity and social and cultural conventions regarding the limits of normal behavior.

Further, how "what is really real" is defined must be clear. Gabbard and Twemlow (1984) considered reality, as a participatory phenomenon, determining that whether or not an event is really real, is largely dependant on the exploration one makes of it, which also depends on the reality perception of the investigator. Gabbard and Twemlow concluded, "Reality is a participatory experience in which the perceiver determines to a large extent the nature of his or her own perceptions" (p. 226). This point of view is strongly supported by Polanyi (1965); that is, the nature of reality is colored by an individual's wishes, fears, preexisting beliefs, attitude to prejudices, fantasies and past experiences with similar figures. This subjectification of

objectivity strongly shapes how different individuals perceive reality in different cultures. We believe there are four principle elements involved in determining this reality:

1) The belief system of the observer: We are not likely to see that in which we do not believe; we are likely to focus on aspects presented to us that are consonant with the way we believe about matters. For example, if a patient's psychotherapy was heavily influenced by oedipal components, there is a strong likelihood that if he/she saw a production of *Hamlet* after such a treatment, he/she would see many oedipal determinants of Hamlet's dilemma that were not perceived before.

2) The observer's state of consciousness: As findings from quantum mechanics suggests, the world of appearances is not the only possible or valid reality; it is simply one among many. The world of appearances manifests in a variety of ways, depending upon the observer's mindset. Tart (1972), proposed the development of what he calls "state specific sciences". He applied his ideas particularly to altered states of consciousness, such as hypnosis, meditation or religious experience. Many mind-altering compounds like nicotine, caffeine and over-the-counter remedies, which affect our perception and remembering of reality, influence our actual daily experiences. Because such realities are specific to the state in which the memory is laid down, what triggers emotional reactions like flashbacks is related to memory traces laid down in the associational memory connected specifically to the unique circumstances when those experiences occurred. For example, cravings for drugs and alcohol may occur only when passing a bar.

3) The explanatory usefulness of the percept: Klein (1973) pointed out that we look for "coherences" in what we perceive to make the percept understandable. In other words, we look for clues to explain the reason for the event or experience we call reality. Klein considers that:

We make an occurrence reasonable by explaining it. In this sense the coherence that we

call "chair" is actually less real for the microphysicist than its atomic structure, for

"chair" as an object to sit on has little relevance to the physicist's domain of variables.

(p. 118)

Unless he wants to sit on one.

4) The narcissistic investment in a particular paradigm of explanation: When the scientist

is confronted with new observations or fresh data, s/he will often focus primarily on those

aspects, which confirm his or her narcissistic investment in the paradigm. Trefil (1983) studied

the rejection of scientific claims, concluding that, scientists tend to reject those, which conflict

with their own biases. Rosenthal and Jacobson (1968), in their classic study of educational

practices, demonstrated that children whom teachers considered retarded were taught as if they

were, even though they had normal intelligence.

In contrast to this formulation of a participatory reality, we feel that it is important to note

the extent to which Western science has been preoccupied with ideal states. Scientists are prone

to conceptualize perfect states that cannot and do not exist. Erikson (1962) defined scientific

reality as a phenomenologically describable world free from personalized distortion, which can

be consensually validated. He contrasts this reality with what he calls actuality that participatory

experience characterized by mutual activation between perceiver and percept. This participatory

reality does not artificially separate percept from perceiver, but describes it as a process, which

will bring to light in a dialectical fashion what is really real. Consistent with Erikson, our view is

Comment: Au: Would "dialogical" be more appropriate?

that such a scientific reality is not real at all, but a nonexistent idealized construct of a particular

philosophy of knowledge. Erikson's concept of actuality comes closer to our view of reality.

The relevance of this philosophical discussion is to highlight the context of the question

and how it is posed, enabling us to restate it with more sagacity, in Kant's sense. In a

participatory reality thus defined, the impact of media violence on the individual would greatly depend on the credibility (in the sense of these elements of a participatory reality), assigned to the depiction of violence and to the state of consciousness of the individual being exposed to the media.

What is known about how such a participatory reality is determined by the biology of the brain? Recent developments in neurosciences have emphasized the importance of associational memory networks in this complex process (Westen & Gabbard, 2002 a, b). The associative memories are subtypes of implicit memory (memories that we are not aware of when activated or deactivated), involving unconscious links between cognitive, affective, and other psychological processes that have become associated through experience. This experience is unique and inherently unpredictable. For example, an individual who is bitten by a dog may or may not develop a phobia of dogs, depending on many other factors associated with the bite, including inherent capacities to respond fearfully, the presence of other individuals and circumstances that make the person feel safe and protected, prior experience of being able to cope with pain in a way that does not produce feelings of desperation, etc. Such memories, then, affect ongoing conscious mental activity and behavior without awareness of that impact. From this perspective, the impact of media violence on an individual with his or her unique collection of implicit unconscious networks of memories is also inherently unpredictable.

There is strong evidence that our mind represents experiences as unique memories, which are more or less integrated into self-concepts over time. These representations, according to Gabbard (2003), are not things stored in memory but connections among mental units (ideas, memory, sensations, affects, etc.) that he considers "representations . . . potentials for reactivation—that is, patterns of neural firing that occur under certain conditions based on their prior levels of activation. Representation that plays a recurrent role in the patient's psychic life . . .

. is a potential that has been activated many times before (and perhaps recently, which increases its level of activation) and hence exists in a heightened state of potential.

Gabbard also notes that "if circumstances are powerful enough, . . . they can activate 'regressive' dynamics even in well analyzed (healthy), patients" (p. 829). Thus, neuroscience and contemporary cognitive research provide a more satisfying explanation for the individual-in-a-large-group response since statistical and other methodological limitations of technique have made it difficult to sort out individual from group differences, allowing mainly only group responses to be studied accurately. From a philosophical perspective, the question now becomes: *What are the internal and external conditions under which any individual could potentially be traumatized by an influence such as media violence in our culture?*

Defining Maladaptive Aggression

Since aggression etymologically means to approach, to step, as well as to attack, we cannot assume that aggression is always destructive, but is at times, merely a motivating energy expressing an impulse. Maladaptive aggression must be carefully defined both quantitatively and qualitatively. Connor, Melloni & Harrison, (1998), Connor, Steingard, Cunningham, & Anderson, (2004), define maladaptive aggression in terms of a response out of synch with the social context or social cues. For example, a school bully who has experienced childhood physical aggression modeled by parents demonstrates aggression that is disproportionate to its causes in intensity, frequency, duration, and/or severity, and may under- or overestimate his/her degree of aggressiveness. Similarly, someone who remains angry after an apology displays aggression that does not terminate appropriately after its cause has ameliorated. In the brain, aggression is mediated through the nuclei of the amygdala, a part of the brain down regulated through the cerebral cortex. The amygdala is also central in the regulation of the fear reaction (Solms & Turnbull, 2002). Qualitative subtypes of aggression include instrumental aggression,

which is proactive, relatively emotionless or associated with positive emotions like satisfaction, and is planned with an anticipated outcome determined by the aggressor. Examples include actions aimed at obtaining food and those of planned killers (criminals or during wartime). In contrast, affective or reactive aggression has a defensive and impulsive quality, is always accompanied by negative emotions such as fearfulness, anger, and sadness, and has an unplanned and negative outcome. Aggressive responses can occur as a conditioned response to fear, fear and anger or often intermixed emotional states; repetition of fear and anger can produce a kindling effect in which only a disproportionately small stimulus is necessary to trigger the response.

In summary, when aggression is not pathologized, the context for aggression will determine the degree, appropriateness, and type of response. There are many "ingredients" that can be combined in various ways, strengths and proportions to create a potential for maladaptive aggression in a specific individual context, and the end product—a potential act of violence— may take many forms. Meloy (1988) defines aggression in terms of affective and predatory trajectories in a manner consistent with how Connor et al. (2004) differentiate reactive from proactive aggression. Ruths and Steiner (2004), define RADI (reactive-affective-defensive-impulsive) versus PIPP (proactive-instrumental-planned-predatory) modes of aggression. Meloy differentiates violence as a specific type of maladaptive aggression in which a person is purposefully injured for secondary gain (rather than self-preservation or defe This constitutes a huge spectrum of behaviors from a preschooler hitting another child over a toy, to bullying or bystander violence in an elementary school, to acts of homicide or combined homicide-suicides, such as school shootings (Twemlow, Fonagy, Sacco, Gies, Evans & Ewbank, 2001). Given the vast number of studies that have researched media violence focusing on different media (TV and movies, including cartoons and human subjects, video games, and more

Comment: Have we lost the participatory element in this sentence?

Comment: Is there a switch here between non-pathologized and pathologized aggression? If so we need a transition. If not then we need to make clear that we are still talking about adaptive and maladaptive aggression.

Comment: One of the problems in the literature is the conflation of aggression and violence. Is there a border defining concept in these various definitions? Media violence studies incorporate everything from aggressive thoughts to more physical play in a contact sport to violent crime. This range seems excessive.

recently the internet) employing different definitions and outcome measures of aggression in different respondent populations, it is not surprising that the wide variety of conclusions shed more heat than light on the question.

<div align="center">**Risk and Protective Factors: A Complex Equation**</div>

Each individual is unique in the way he or she responds to trauma, and yet there are also consensus responses shared by groups of people with specific vulnerabilities. Consequently, a set of specific traumas may or may not produce psychopathology, depending on the impact of other factors that put vulnerable groups at risk.

Extensive research concerning these risk factors for violent behavior, suggests that perhaps the question, *What **isn't** a potential risk factor for violent behavior?* would be easier to answer. In the following section, we have grouped the established risk factors into four general categories for the purpose of discussion: biologic, individual, environmental (immediate physical and interpersonal) and sociocultural. Most risk factors, in fact, do not fit neatly into any one category, but interact and overlap in a complex, cumulative and perhaps even synergistic, rather than merely additive, manner. We then discuss the established protective factors, introduce the concept of resiliency and suggest it be added to this list. Finally, we propose that youth is in and of itself most likely a risk factor, and those developmental considerations such as cognitive, affective and moral maturity, as well as language development, the nature of play and reality versus fantasy distinctions must also be considered.

Biological risk factors for violence include genetic factors and predispositions. Males are consistently more aggressive than females regardless of age and culture (Omark, Omark, & Edelman, 1974, 1973; Whiting & Edwards, 1988). This is reflected in studies of roughness of childhood play (Maccoby, 1974) as well as adulthood violent crime (FBI, 1998). Testosterone plays a key role in the masculinization of the human brain *in utero*, which, in turn, influences

behavior post-natally. Although "neurosteroids" such as testosterone have been implemented in gender-based behavioral differences (Kelly, Ostowski, & Wilson, 1999), no direct correlation between androgen levels and violent behavior has been definitively established. In addition, testosterone levels reportedly vary depending on social and cultural contexts such as a victorious combat experience (Gilligan & Lee, 2004).

The roles of neurochemicals such as serotonin, norepinephrine, dopamine, vasopressin and nitrous oxide in violent behavior have also been studied. Many studies suggest a correlation between low levels of cerebrospinal fluid 5-HIAA, a serotonin (5-HT) metabolite, and impulsive aggression toward self and others (Brown, Goodwin, & Ballenger, Goyer, Major, 1979; Linnoila, Virkkunen, Scheinin, Nuutila, Rimon, & Goodwin, 1983; Linnoila & Virkkunen, 1992, Krakowski, 2003). However, this relationship remains unclear despite decades of investigation. Unis, Cook, Vincent, Gjerde, Perry, Mason, & Mitchell, (1997) found a positive correlation between serum 5-HT levels and levels of aggressiveness in adolescents with conduct disorders; those with early-onset conduct problems had higher 5-HT levels when compared to those with later onsets. Likewise, Van der Vegt, Lieuwes, & Cremers, de Boer, & Koolhaas, (2003) found a positive correlation between cerebrospinal fluid 5-HIAA and normal (versus impulsive) aggression in rats. Low serotonin levels, then, may be correlated specifically with impulsive, violent aggression (Krakowski, 2003) or more generally as an indicator of general psychopathology in which intermittent impulsive aggression occurs (Balaban, Alper, & Kasamon, 1996).

Genetic predispositions to certain mental illness may also contribute to one's risk of violence. Substance abuse and antisocial personality disorder appear to be most consistently linked to violent behavior (Steadman, Mulvey, Monahan, Robbins, Appelbaum, Grisso, Roth, Silver, 1998, Wallace, Mullen, Burgess, Palmer, Ruschena, & Browne 1998, Swanson, Holzer,

Comment: Semi-colons in citation lists

3rd, Ganju & Jono, 1990). Volavka (1997) found an overall 20.6 percent rate of criminal assault

by schizophrenic patients in 10 countries, and a Danish birth cohort study (Brennan, Mednick, &

Hodgins, 2000) of hospitalized schizophrenic patients revealed higher arrests rates for violent

crime when compared to non-patients. However, other studies researching types of delusions

have found no link between these psychotic symptoms and an increased risk for violence

(Applebaum, Robbins & Monahan, 2000). Lewis (2002) highlights the difficulty of diagnosing

problematic behaviors in childhood, the possibility of misdiagnosing conduct disorder or

antisocial behaviors, and the importance of considering that the child may be manic or

hypomanic. A detailed behavioral and family psychiatric history is crucial. Although there may

be a genetic component to violent, antisocial behavior (Cadoret, Leve & Devor, 1997) and

antisocial traits that predispose one to violent behavior, such as callousness, appear to be

heritable (Davis, Luce & Kraus, 1994), to date there has been no study identifying a specific

genetic predisposition to violence.

Individual risk factors have to do with personality traits, temperament and distinct

behaviors. Conduct disorder in childhood has been linked to the presence of irritability,

impulsivity and hyperactivity in infancy (Moffit, 1993). Gilligan and Lee (2004) outline many

individual factors for youth violence that may or may not be classified as pathologic, depending

on additional symptomatology, clustering and/or comorbidity. These include: lack of impulse

control, affective lability (mood swings), suicidal or homicidal thoughts or acts, overwhelming

shame and humiliation, grandiosity, lack of capacity for feelings of guilt/remorse regarding

harming or neglecting others, disproportionate anger/tantrums, conduct disorder/oppositional

behaviors, psychosis and premature and/or excessive alcohol use. A combination of lack of

impulse control, affective labiality, grandiosity and possible psychosis may suggest a manic

episode. Likewise, the inability to empathize, feel remorse or a general callousness, especially

when combined with a history of conduct disorder and/or homicidal thoughts or acts, are suggestive of psychopathy.

Gilligan and Lee (2004) list additional factors such as being a "loner," "black and white" perceptions of others/self who are loved or hated in an "all or nothing" manner, an external moral value system that is authority based and grounded in the conviction that "might is right," poor school or social performance and head traumas/brain injury. Clearly, many of these factors are "red flags", not merely in terms of psychiatric diagnoses but social maladaptation or behavioral problems in general. In addition, such "individual" risk factors also have biologic and environmental implications. As mentioned earlier, aspects of antisocial behavior such as callousness appear to be genetic in origin (Davis, Luce, & Kraus, 1994). In terms of environment, an impulsive, angry, conduct disordered child may trigger parenting interactions that intensify, reinforce and perpetuate the maladjusted behavior.

Temperament refers to the biologically-based, inheritable qualities that emerge early in life and characterize various internal states and means of interacting with the world. Initial temperament is shaped by development, experience and environment, and cannot really be detected without these influences except, perhaps, in early infancy. As such, it could be listed under biological, individual, interpersonal and/or environmental categories. American adolescents with temperaments characterized by low levels of autonomic arousal, a high degree of sociability and little fear of novelty, may either become leaders and successful professionals, or delinquents or criminals, depending on the homes, neighborhoods and cultural contexts in which they are raised (Kagan, 2002). It has been postulated that violent criminals share a rare, unique temperament. Fifteen-year-old male adolescents with low heart rate and less frequent skin conductance reactions (minimal autonomic reactivity) were more likely to be engaged in criminal behavior at age 24 when compared to equally asocial 15 year-olds with normal

autonomic reactivity (Raine, Venables, & Williams, 1990). Most likely, only a small percentage

of antisocial youth are born with such a temperament that predisposes them to an increased risk

of violence (Kagan, 2002).

Environmental risk factors, encompassing one's immediate interpersonal as well as

physical environment, begin before birth. It has been well-documented that *in utero* exposures to

maternal substance abuse, infections, anxiety and stress can adversely affect a child pre- and

postnatally. Several studies have correlated perinatal complications with delinquent versus

nondelinquent populations (Lewis & Shanok, 1977; Lewis, Shanok, & Balla, 1979; Levine,

Larniski, Palfrey, Meltzer, & Fenton, 1985). Pre- and perinatal environments could even affect

temperament during early infancy, a time period usually believed to reflect primarily genetic

traits. The absence of proper prenatal care, malnourishment during a pregnancy, living

conditions such as prisons and even a mother's knowledge that she is planning to have her child

adopted by another, could all realistically predispose children to numerous maladaptive

behaviors. Maternal cortisol levels that increase secondary to stress have been postulated to

increase postnatal aggression (Lewis, 2002).

Once a child is born (although the effect may have started prior), the parental or primary

caregiver relationship is of paramount importance. Attachment pattern, parent-child interactions,

and abuse potential (sexual, physical and/or emotional, family violence, and/or neglect) are

major influences on behavioral outcome. Nurturing by a primary caregiver affects both

temperament and behavior. During the first two years of life, the human brain is actively

developing and growing. Brain cells readily proliferate and more synaptic connections are

formed than will ever be used. Early experiences, such as attachment to a mother or caregiver,

greatly affect which synapses will survive or ultimately disappear by means of disuse (Singer,

W. 1995). It has been proposed that there are "sensitive periods" in brain development during

which a certain stimulus is necessary for normal development to continue (Hubel & Wiesel, 1979; Scarr, 1993).

During the second year of life, the frontal lobes, the areas of the brain involved with "higher" social functioning such as reasoning, judgment, behavior and affect regulation, continue to grow (de Haan, Luciana, Malone, Matheny, & Richards, 1994; Thatcher, 1994; Glaser, 2000), but the infant remains essentially unable to regulate or control affect or behavior during this time. Maternal interactions characterized by the mother figure responding to her infant's stress by reestablishing a sense of security and safety in a consistent, timely and appropriate manner, appear to be vital for healthy brain development.

Attachment research clearly demonstrates how mother-infant interactions affect subsequent childhood aggressive behavior (Lyons-Ruth, 1996). Mothers who cannot adequately sense their infants' needs, and/or respond in a manner that lacks tenderness, is intrusive, or reflects suppressed anger, when the infant turns to her during times of perceived stress, foster insecure and avoidant attachments. Such attachment patterns have been related to subsequent aggressive behaviors in elementary school age boys (Renken, Egeland, Marvinney, Mangelsdorf & Sroufe, 1989).

Likewise, disorganized attachment patterns, characterized by disturbed and depressed mothers whose infants were unable to develop consistent means for coping with stress, have been correlated with early childhood aggression (Lyons-Ruth, Repacholi, McLeod, & Silver, 1991; Lyons-Ruth, 1996; Lyons-Ruth & Jacobovitz, 1999). Attachment affects development as well. Lyons-Ruth also found that infants with disorganized attachment patterns lagged in their cognitive development, and this combination was associated with aggression at age seven. Additionally, disorganized attachment is associated with an increased rate of maltreatment, including physical, sexual and emotional abuse as well as neglect (Cichetti & Barnett, 1991).

Such abuse, is, in turn, both common in children with conduct problems (Cichetti & Toth, 1995), and a risk factor for several psychiatric disorders including conduct disorder and oppositional defiant disorder (Flisher, Kramer, Hoven, Greenwald, Alegria, Bird, Canino, Connell, & Moore, 1997).

The relationship between attachment patterns and subsequent violent behavior is not clear-cut. It has been proposed that maladaptive attachment may simply reflect inadequate parenting. More likely, it represents an interplay between infant temperament and mothering that predisposes children to general difficulties with (negative) affect regulation and interpersonal skills that may, in turn, lead to behavioral difficulties including the increased risk of violent behavior.

Comment: This is one of those gendered words that causes some readers grief. Is there an acceptable substitute available?

In terms of parent-child interactions, five factors are clearly associated with the development of antisocial behavior: 1) poor supervision, 2) erratic and harsh discipline, 3) parental disharmony, 4) rejection of the child and 5) lack of involvement in the child's activities (Farrington, 1994). In addition, Patterson (Patterson, 1982; Patterson, Reid, & Dishion, 1992) describes a cycle of coercive parental-child interactions in which maladaptive and ineffective management strategies regarding preschool disobedience actually reinforce, perpetuate and model aggressive behavior. It has been noted that such parents appear insensitive to their child's emotional needs in a similar way to those with a disorganized pattern of attachment (Solomon & George 1999). Likewise, this coerciveness appears to be specific to the parent-child relationship, rather than due to either the parent or the child. Additional parental factors have also been implemented including parental alcohol and substance abuse (Wills, Schreibman, Benson, & Vaccaro, 1994), maternal depression (Cummings & Davies, 1994) and parental antisocial behavior (Frick,Van Horn, Lahey, Christ, Loeber, Hart, Tannenbaum & Hanson, 1993).

The association between child abuse and subsequent aggression is well established in the literature (Cicchetti & Carlson, 1989). Abuse affects essentially every aspect of a child's being. Neurochemically, abuse and the associated severe emotional stress actually alter brain structure and function. Stress-related catecholamine and cortisol release result in neuronal loss and decreased dendritic branching in the hippocampus (Sapolsky, Krey, & McEwen, 1985; Wooley, Gould, & McEwen, 1990). Glucocorticoids inhibit neurogenesis, and stress-related decreases in brain-derived neurotrophic factor messenger ribonucleic acid (mRNA) independent of this effect have also been reported (Sapolsky, 2000).

Neuroanatomically, the cerebral volumes of abused children with posttraumatic stress disorder are 7 percent smaller than controls (De Bellis, Keshavan, Clark, Casey, Giedd, Boring, Frustaci, Ryan, 1999). Such pathology clearly must impact intellectual achievement and behavioral functioning in terms of hyperarousal, aggressive responses, dissociative reactions, executive functioning difficulties and educational underachievement (Glaser, 2000). Additionally, direct injury to the central nervous system can cause deficits in thinking and judgment associated with the inability to plan ahead, understand consequences of actions and inhibit impulses. Compared to uninjured children, they are more likely to respond aggressively to stimuli such as interpersonal conflicts or violent TV shows (Lewis, 2002).

Psychologically, abused children perceive their environment differently; they become hypervigilant and misinterpret ambiguous stimuli as threatening (Dodge, Murphy & Buchsbaum, 1984; Rieder & Cicchetti, 1989). Likewise, paranoia most significantly differentiates violent from nonviolent psychiatric patients (Yesavage, 1983a, 1983b). In addition, abused children exhibit expressive and verbalization deficits. Not only are such toddlers unable to identify and verbalize their negative feelings, they are less empathetic towards other children (Main & George, 1985, Cicchetti & Beegly, 1987).

Finally, abuse models the behavior, which plays a crucial role in perpetuating aggressive behavior (Bandura, 1973). Severe and physical parental punishment has been shown to reinforce children's aggressive behaviors (Patterson, 1977) and precede latter aggressive delinquency (Farrington, 1978). The repeated infliction of pain is an established powerful stimulus to violence, particularly in animal models (Berkowitz, 1984). Painfully physically abused children behave more aggressively versus nonabused peers (Cicchetti & Carlson, 1989; Widom, 1989), in much the same manner a physically maltreated pit bull, perhaps in the name of training, becomes hypervigilant, vicious and a "good" fighting dog. Lewis (2002) summarizes: "child abuse is the most powerful generator of child, adolescent and adult violence that we know" (p. 393).

Additional interpersonal environmental risk factors for youth violence are outlined by Gilligan and Lee (2004) and include: recent loss or rejection, involvement with bullying as a perpetrator or victim, an antisocial peer culture, isolation from family, school and community, authoritarian parental discipline style including shaming and corporeal punishment, parental neglect or failure to set limits, unresolved family conflicts, and, of course, family violence. Bullying behavior and association with "the wrong" crowd are worthy of additional comment. Maladaptive social interactions in the school setting most likely reflect those in the home. Coercive parental interactions extend to peers and teachers, and a child may become inappropriately and/or impulsively aggressive with teachers and peers (a bully) (Farrington, 1993, Olweus, 1992; Smith, Twemlow, & Hoover, 1999), which in turn can lead to social rejection, educational problems and exacerbate parent-child interactions (Patterson, Reid, & Dishion, 1992;Pope & Bierman, 1999).

Although aggression is increasingly viewed as an intrinsic part of many childhood peer relationships or dyads (Dodge, Price, Coie, & Christopoulos, 1990), individuals rather than relationships or systems have been the focus of most marginally successful interventions to

reduce violence and bullying. Using whole school approaches that do not pathologize children, researchers have found that increasing mentalizing and awareness of power issues can convert a pathologically aggressive social system into a harmonious one, with significant improvement in academic performance **(**Twemlow, Fonagy, & Sacco, 2004**;** Twemlow et al, 2001**;** Fonagy, Twemlow, Vernberg, Sacco & Little, in press, 2005**)**.

> **Comment:** No date with in press—one or the other

Social rejection occurs in about 50 percent of physically aggressive elementary school children (Bierman, Smoot, & Aumiller, 1993; Coie, Terry, Lenox, Lochman & Hyman, 1996). Rejected children seek out others like themselves (Dishion, Andrews & Crosby, 1995); shunned bullies are more likely to establish friendships with oppositional, aggressive and generally less well-behaved peers (Coie, Lochman, Terry & Hyman, 1992; Tremblay, Masse, Vitaro, & Dobkin, 1995). Such deviant peer associations represent a major risk factor for resultant delinquency, which, though not inevitable, is closely related to adult criminality (Farrington, 1995). Rejected aggressive boys may display proactive aggressive behavior similar to their accepted aggressive peers, but may also display maladaptive and reactive behavioral patterns such as tantrums, outbursts and whining, that suggest an inability to regulate negative affect in the context of a social relationship (Bierman, Smoot & Aumiller, 1993; Pope & Bierman, 1999). This, again, is highly suggestive of a generalized disorganized attachment pattern. An early, nurturing dyadic relationship with the primary caregiver is essential to the development of a child's ability to recognize, constructively communicate and modulate one's internal state (affect regulation) (Gergely & Watson, 1996).

In addition to problems with attachment, other factors leading to the establishment of deviant peer relationships include parental conflict, parental substance abuse, parental criminal behavior, childhood sexual abuse, early conduct difficulties, smoking and drug use (Fergusson & Horwood, 1999). As Lewis (2002) states, "school-age experiences and the quality of care during

early adolescence do affect adaptation. However, all things considered, a major, if not the major, influence on behavioral outcome seems to be the nature of early mothering" (p. 391).

Sociocultural risk factors include specific community and neighborhood factors, as well as the historical and social context of the country in which a child is raised. Media is included in this category. Gilligan and Lee (2004) describe "ecological" risk factors for youth violence, including neighborhood violence and violent role models, the presence of gangs, illegal drug dealers and alcohol, access to weapons, especially handguns, underemployment, high levels of transiency, overcrowding, unsafe housing, low socioeconomic status and experiences causing overwhelming arousal [exposure to excessive noise, heat, media violence and antagonistic sports (those which foster aggressiveness rather than technical skill)].

Different societies and different locales within societies have different rates of violent crime. Despite fluctuations in violent crime rates, including a recent decrease in serious juvenile violence from 1994-1999 (Farrington & Loeber, 2000), the United States is clearly the most violent developed nation. Even in its decline, the U.S.'s high rate of juvenile homicide is particularly disturbing; other Western countries have shown increases in violence in this age range but not in terms of such severe offenses as homicide (Currie, 2000). Courtwright (1998) discusses our country historically and metaphorically in terms of its frontier roots, and our continued national investment in defining "a manly man" as "someone with a gun and an attitude" (p. 4). He compares urban ghettos to frontier society, citing such factors as the high percentage of young, single men, racism, alcohol abuse, lack of religious practices and beliefs and a code of honor combined with ineffective law presence. He emphasizes, "the total *amount* of violence and disorder in society is negatively related to the percentage of males in intact families" (p. 247). He defines families as the "first best defense against violent and

> **Comment:** We are now in an 11-year decline in violent crime.

disorderly behavior" (p. 279) in this context, and emphasizes the protective value of stable families and good parenting.

Urban, versus rural settings (Farrington & Loeber, 2000), availability of guns and material poverty combined with extreme economic inequality are also associated with higher incidences of violence (Currie, 2000). Poverty in and of itself does not appear to be a risk factor. However, numerous risk factors such as poor attachment, brain dysfunction, mental illness and child abuse are more common in impoverished communities. In addition, unstable family structures that lack the capacity to care for and nurture children in a basic, consistent manner create an environment in which the main goal for the child is simply staying alive (Currie, 1998). This also appears relevant in the rash of homicides attributable to white affluent middle class children, who do not have any of the socioeconomic, psychiatric or behavioral earmarks of an impending problem, but are from dismissive families who do not appear responsive to the psychological needs of their children in spite of affluence (Twemlow, Fonagy, & Sacco; Twemlow, 2000; Twemlow, 2003).

Resilience and other Protective Factors

We began this review by reposing the question of what causes aggression to what doesn't cause aggression. Lewis (2002) offers this insight:

> A useful way to conceptualize the influences on aggression is as follows: Anything that increases irritability, discomfort, fearfulness, suspiciousness, and impulsivity lowers the threshold for aggression and increases the likelihood of violent behavior. Anything that impairs reality testing, judgment, foresight, self-esteem, empathy, self-control, and the ability to verbalize feelings rather than act on them also lowers the threshold for violence and enhances aggressiveness . . .. Anything that increases self-control, enhances

Comment: Deleted material has been moved to the next heading.

judgment and foresight, increases self-esteem and a sense of security, increases the ability

to recognize one's own feelings and the feelings of others, and increases the ability to

express these feelings verbally rather than behaviorally raises the threshold for aggression

and diminishes the likelihood of violent behavior. (p. 395)

Protective factors can frequently be deduced by recognizing the "flip-side" of the

corresponding risk factor.   In this manner, biologic protective factors would include female

gender, normalized neurotransmitter levels, and the absence of mental illness. Gilligan and Lee

(2004) describe individual protective factors, including the capacity to delay gratification and an

effective internal locus of control (opposite of impulsivity); a sense of belonging and capacity for

relationships; affective stability; capacity for ambivalence (whole object relatedness) and

recognition of moral complexity; treatment of stressors/disorders that lead to suicidal or

homicidal thoughts/acts; moral maturity with capacity to take the point of view of others as well

as of self); reality-based sense of self-esteem and –worth; awareness of one's limitations;

capacity for reality-based, appropriate feelings of guilt, remorse and responsibility (the opposite

of callousness); capacity to modulate anger; capacity to cooperate with respect for the rights of

others; academic success and social competence; treatment of psychosis; prevention or proper

treatment of brain damage and availability of substance abuse treatment. In addition, a

temperament characterized by appropriate autonomic responses to stimuli, lack of impulsivity

and prosocial traits would be considered somewhat protective given an environment in which

such a temperament could be reinforced and flourish.

Environmental protective factors start with a healthy *in utero* and perinatal experience.

The most important protective factors appear to be a consistent, nurturing attachment to the

primary care giver and the absence of abuse and neglect of any kind. Again, Lewis summarizes,

"there is something about early, nurturant mothering, fostering secure bonds . . . that enables

securely attached children to withstand subsequent adverse environments better than children who have not experienced secure attachment" (p. 391). Gilligan and Lee (2004) outline additional interpersonal protective factors for youth violence including: availability of support during times of loss; terminating and preventing bullying; healthy integration of peer, family, school and community bonds (versus an antisocial peer group); love-oriented parents who facilitate self-discipline by using reason and respect rather than violence; parents who care and set appropriate limits; good conflict resolution in the family; family stable with mutual respect and caring (versus abuse).

Sociocultural protective factors include (ideally) living in a nonviolent country, society and culture (or at least, neighborhood), nonviolent role models, the absence of gangs, no access to weapons; no illegal drug dealers or alcohol, employment opportunities, environmental stability, prevention of overcrowding and other social deprivations; middle to upper socioeconomic status; and minimization of exposure to excessive noise and heat, media, violence and antagonistic sports (Gilligan & Lee, 2004).

> **Comment:** This is a repeat. Can we rephrase?

In addition to the numerous protective factors mentioned above, we propose one more potentially crucial protective factor: resilience, a concept originally discussed by psychiatrist Frederic Flach (1990) in relation to trauma:

"Resilience should provide the tools whereby the extent of the natural disruption that follows is kept within reasonable boundaries, if at all possible. This does not preclude the possibility, however, that if the stressful situations are of sufficient intensity and meaning, the consequent chaos may not assume dramatic proportions. When reintegration takes place, the homeostatic condition that is shaped should be to some degree different from that which existed prior to the events. Moreover, it should represent a higher, more complex, more adaptable level of organization."

In his work with combat stress and combat-related post-traumatic stress disorder (PTSD), Flach (1990), noted that "those with insight into the emotional impact of what they had just been through and who were able to express their feelings to another immediately following the event" were best able to cope with the trauma. In addition, he outlines multiple factors that reflect temperament as well as life experience and contribute to psychological resiliency: insight into oneself and others, a supple sense of self-esteem, the ability to learn from experience, a high tolerance for distress, a low tolerance for outrageous behavior, open-mindedness, courage, personal discipline, creativity, integrity, a keen sense of humor, a constructive philosophy of life that gives it meaning and a willingness to dream dreams that can inspire and provide genuine hope.

This ability to "bounce back" is clearly more challenging for a chronically abused and bullied child living in a series of foster homes in a drug infested neighborhood than for a successful, adaptive, prosocial adult with one isolated, albeit traumatic, life event. Allen (1995) states that not only does prolonged early trauma interfere with the development of resiliency, but also to aspire to define the disorder (complex PTSD) as an opportunity to move beyond the symptoms to a "higher…level of organization" while attempting to cope with the trauma is indeed challenging, to say the least.

Developmental considerations thus must be considered in addition to risk and protective factors. Three year-olds, five year-olds, and 11 year-olds act, think and feel very differently; research drawing broad conclusions from studies of "children" and/or "adolescents" is intrinsically problematic. A three year-old who is taken to R-rated movies and is exposed to prime-time TV, a five year-old who watches four hours of music videos after kindergarten each weekday and Saturday morning cartoons as a form of substitute child care, and an 11-year old who plays possibly violent video games while listening to hard rock music alone in his room for

an undetermined amount of time every day because his or her parents are relatively absent, should *not* be grouped together due to numerous differences in exposure types and lengths as well as infinite developmental and experience-based considerations. Cognitive and affective maturity, language skills, reality versus fantasy distinctions, responses to fear/trauma and moral and social development must be considered.

In this context, "youth" itself may be a risk factor. Paik and Comstock (1994) analyzed over 200 studies (1957-1990) researching television violence and antisocial behavior and found a significant positive correlation between TV violence and aggressive behavior, irrespective of age (3-70 year-olds, 85 percent between ages 6-21). The greatest effect size was in preschool children; however, this aggression was most likely to be dismissed as secondary to age and size. The authors cautioned about this minimization. An out-of-control four year-old may be "managed" to some extent by an adult; however, if the etiology of the maladaptive behavior is not addressed, the problem will persist, and it is not as simple to enforce a "time out" in the same child 10 years and 100+ pounds later. One can speculate about "invisible" effects that are misattributed to "normal" age-related behaviors, especially in the youngest children who cannot yet communicate effectively.

Children process information differently at different ages. In general, as children get older they become less concrete and better able to understand abstract concepts, including fantasy versus reality. When young children are "warned" that a situation they are about to see is "not real," there is no resultant fear reduction (Wilson & Weiss, 1991). In terms of reassuring children when a threat is real, studies have shown that it is very difficult to explain that "this probably will not happen to you" once young children are already fearful (Hoffner & Cantor, 1990).

Cognitively, first graders (age 5-6) are primarily egocentric and define "scientific" observations in idiosyncratic ways whereas fifth graders (age 10-11) have flexible operational skills and a sense of general laws of nature (Combrinck-Graham & Fox, 2002). Cantor, J., Mares, & Oliver, (1993) surveyed the parents of first, fourth, seventh and eleventh graders regarding news coverage of the Persian Gulf War. Prevalence of intense negative emotional reactions did not vary with age; however younger children were more upset by what they saw, whereas the abstract, conceptual aspects of the coverage upset older children. Although parents of toddlers and preschoolers were not part of this study, it is safe to assume that they too are being exposed to such coverage. Given their limited cognitive, and in particular, language skills, how they are being affected and whether or not it is viewed as maladaptive depends entirely on researchers' considerations of what it means to be two or four. A toddler's negative emotional reaction may be defined by becoming very quiet, crying and/or acting out, or wetting a bed, all of which could be completely overlooked or simply attributed to their age.

Comment: Indeed they were. I was working with pre-school teachers at the time. The children (3-5) were increasingly agitated and expressed concerns over the war as their parents followed the real-time coverage. Gulf war II had different coverage patterns and different consequences in the classroom.

Responses to trauma may typically include bad dreams and nightmares, anxious feelings, being afraid of being alone, withdrawing from friends and missing school. In a study looking at trauma symptoms and television watching, almost 2,500 children in grades 3-8 who watched TV more than six hours per day reported more trauma symptoms and more violent behaviors (Singer, Anglin, Song, & Lunghofer, 1995). Likewise, moderate to high levels of exposure to media violence was correlated with trauma symptoms, such as those outlined above, in over 700 high school students (Joshi & Kaschak, 1998). These results were in older children who could communicate their symptomatology, but what about children who can not yet communicate their needs, let alone their fears in a way that is recognized as a trauma-response?

PTSD can present as a conduct disorder and has been associated with episodic extreme violence (Lewis, 2002; McFall, Fontana, Raskind, & Rosenheck, 1999). A study that looked at

children's self-reports of worry after exposure to a movie depicting traumatic events (house fire or a drowning) found that they reported related avoidant symptoms, part of the criteria for PTSD (Cantor & Omdahl, 1991). The duration of these symptoms was not measured, but part of the study involved talking to the children about what they had seen and how it might have affected them to prevent long-term distress. This emphasizes the importance of responsible adult intervention, and raises questions about children with years of accumulated fear and worry who have no such help

     Morally, 5-6 year-olds define right and wrong in terms of punishment, pain and/or personal and idiosyncratic rationales versus 10-11 year-olds, who have internalized principles of right and wrong and can, empathize with others (Combrinck-Graham & Fox, 2002). In general, moral development progresses from a highly externalized and rigid set of standards to a more flexible, personalized one that reflects not just society and family but an emerging sense of self and can account for exceptions and justifications. Play becomes increasingly social, shifting from an emphasis on self to consideration of peers and their perceived senses of self. A first grader is involved in interactive play with externally derived rules, and creative play is imitative. Peers are judged by whether or not they are nice to the child. In contrast, a fifth grader participates in games and activities increasingly independent of adult supervision, and is usually able to create a game and its rules by taking others into consideration. Peers are judged based on their individual traits. (Combrinck-Graham & Fox, 2002) Small children are not as influenced by a victim's expression of pain, and will continue to act aggressively compared to older children or adults, who are more likely to stop when seeing another's suffering (Patterson, Littman & Bricker, 1967). Leifer and Roberts (1992) researched children of different ages' chosen endings to viewed beginnings of violent films. Younger children chose violent endings; older children considered whether or not the violence depicted was justified before choosing an ending.

The Role of Media Violence

Studies regarding the influence of violent media are, succinctly put, inconclusive. The

question, as mentioned earlier, is intrinsically problematic, and no direct general causality is

likely to be found. Like any other exposure risk, different children respond differently, and no

two children are exactly alike. However, several general conclusions may be drawn from the

literature: the possible link between violent media and violent behavior is stronger with very

vulnerable children (Lagferspetz, 1989); and violent children tend to prefer more aggressive

films and respond differently to them when compared to nonviolent peers (Brown & Pennell,

2000).

Media have the capacity to influence behavior by many means including desensitization,

modeling, disinhibition, aggressive arousal, and reinforcing risk-taking (Derksen & Strasberger,

1996, Huesman, Moise, & Posolski, 1997). The relationship between what is viewed and the

viewer is most likely a dynamic one.   Both news coverage and films, in direct and indirect ways,

respectively, reflect the violence in a society and perpetuate this image. Viewers with a

propensity for violence seek this out in the media, which reinforces their interest (Groebel &

Hinde 1989). In this "frontier" society in which freedom in all respects is greatly treasured, such

unlimited and uncensored access to information has great worth but also inherent risks.

The National Television Violence Study examined over 10,000 hours of cable and non-

cable programming at all hours of the day for the three-year period from 1994-1997 (Federman

1996, 1997, 1998). The three resultant volumes concluded:

1. Television violence contributes to antisocial effects on viewers.

2. Three primary effects arise from viewing TV violence:

   a. Learning of aggressive behaviors and attitudes

   b. Desensitization to violence

      c.   Fear of being victimized by violence

   3.   Not all violence poses the same degree of risk of these harmful effects.

The factors that lead to the greatest impact in terms of learned aggression included attractive

perpetrators, use of weapons and humor accompanying the violence. Desensitization was

predicted by graphic violence and humor, and fear of being victimized was most associated with

graphic and realistic violence.

     The media are everywhere: homes, schools, workplaces, cafes, and malls. Its content is

clearly violent: the nightly news, primetime movies, cable, music videos, video games, and the

Internet. Children are exposed to it practically from birth: TV ads are directed to 1-2 year olds,

computer classes start in preschool, and violent video games such as *Doom*, a game (or version

thereof) used by the US military to train soldiers to kill effectively, are part of daily school-aged

life (Grossman, 1996; Anderson & Dill, 2000; Olsen 2004). The level of violence depicted on

TV over the last two decades has reportedly remained constant (Bloom, 2001). One may

seriously question if this finding still holds true in our current post-9/11 "war on terrorism"

society. Cultural, environmental, and political influences are undeniably more violent; no

studies have specifically focused on this time period in its historical context to date. While

writing this paper, Weird Al Yankovic, who has made his reputation by satirizing both the good

and the bad in our culture, debuted his latest music video, "Elmo's Got a Gun." In brief, Elmo

walks down Sesame Street with a .44 Magnum shooting and then decapitating assorted Sesame

Street characters. Such a video incorporates all the factors that lead to high-impact learned

aggressive behaviors and attitudes, and desensitization to violence, as outlined by Federman

above. The choice of a perpetrator that is a symbol of all that is warm and fuzzy to generations

of American preschoolers is clearly disturbing. Children of all ages will undoubtedly be exposed

to this video. Older children will "get" the satire. The computer-savvy among them will view it

---

Comment: Media certainly are ubiquitous and children can be ambushed by particular content. But children also have well-developed strategies and techniques by which they manage exposure and the intensity of effect. They leave the room, cover their eyes, mute the program in very sophisticated ways. While children can strategize their response to abuse, the abuser can physically take control of the situation. Media can not. I worry that these elements might be equated thereby trivializing child abuse—oh, it's just like TV.

Comment: This conclusion seems disconnected from what has led up to it. Shouldn't the conclusion be that most children will have the resilience to deal with this content but some, (given conditions of increased vulnerability, will suffer temporary trauma and others may have permanent effects. This conclusion is an important conclusion. (And one that could be applied to any arousing content.) Don't let it get lost in fear mongering.

Comment: http://www.dumpalink.com/media/1113732396

in its entirety on the Internet. Younger children will not connect at all with the satire. Most may

be resilient enough to buffer psychiatric sequelae. There is no doubt, however, that some will be

temporary traumatized, and others seriously and more permanently affected.

It continues to be a mystery about what combination of traumas impact individual

children. In this article we have tried to nuance the multiple complex factors involved but the

formula for the individual child is not known. One of us, SWT, in his Child Psychotherapy

practice was regularly referred children who were terrified of Freddy Kruger, but at the same

time would tolerate movies like, "Beetle Juice" and Lemony Snicket, depicting numerous and

highly deformed and bizarre monsters, and much violence and many disasters. Freddy Kruger

approaches a reality of fear, which comes out of a dream created in the mind of the child who

find dreams frightening anyway. For the modern parent, who is aware of the importance of their

presence for the well being and health of their child, the natural question comes up, "What can I

do to promote my child's resilience given the likely ongoing impact of highly potentially

traumatizing media depictions in the foreseeable future?"

Promoting Resilience in our Children

Ingredients of successful resilience programs include and emphasize consistently the

importance of the role of the primary caregivers, often but not always mothers or fathers.

Skowron (2005) examined resilience in 55 low income urban families finding that what

predicted the best personal and academic functioning of children was the "mother's

differentiation of self scores. " These scores predicted children's cognitive skills, even after

controlling for parent level of education. So the secure presence of the caregiver and the

capacity of the caregiver to allow the child to function as a separate entity are know to be very

important in the resilience programs. The methodology of such programs often involves

relatively straight forward parent education and counseling and therapy to allow mother's to handle the stresses of being poor in a violent neighborhood retain their equanimity. Alvord, (2005), describes a program that involves identification of protective factors with children and uses free play and behavioral rehearsal training and relaxation and self-control techniques, with active involvement of parents to improve resiliency.

Besides the stability and security of the primary caregiver, a second critical factor in these models is providing child with the cognitive and social skills necessary to create solutions to often-unexpected problems, through for example enhancement of the imagination through free play and the anticipation of problems through behavioral rehearsal. There are many programs that suggest that depressed mothers produce children who lack resilience. One model, Van Doesum, (2005), reported on a Dutch Community Mental Health Program, where depressed mothers with babies, were helped to become more aware of the way their depressed mood effects children. An innovative study by McDermott, & Graham, (2005), studied a group of young British working class mothers who developed unique methods for proper care taking of their children. These innovative techniques came out of a series of values that these mothers seem to share including "investment in the "good" mother identity," maintaining kin relations where possible, and prioritization of the mother-child dyad, suggesting once more that the quality depth and security of the caregiver-child relationship is a key to resiliency.

Coates, & Schechter, (2004), studied post-traumatic stress reactions after terrorist attack, car accidents or traumatic medical interventions, in a series of children demonstrating quite clearly the secure attachment relationships protects against traumatic reactions and promotes resilience. A key to the security of the attachment is the degree in which the parent figure can organize a response to trauma. In our own work in   post 911 schools it was quite clear that the

more disturbed responses of school children was directly related to how their teachers and parents coped with the trauma. In the younger children K-3, this effect was particularly dramatic.

In an Australian study Stewart, Sun, Patterson, Lemerle, & Hardie, (2004) describes an innovative multi-strategy health promotion project using a whole school approach, to primary age children in family, community and school settings in urban and rural Australia. Staff, parents and children were involved in the study, which showed that the school environment does make a major contribution to the psychological resilience of children. Children who felt more positive about adult, peer relationships and networks, and felt connected to adult, peers and to the school and able to act independently or autonomously in those setting, had much higher self rated resilience than students who did not. This was further enforced by the high concurrence between parents and caregivers, regarding perceptions of the school environments. Such schools rated higher in health promoting attributes and principles, including shared decision making, planning community participation and providing support of physical and social environment, with good school community relations, clearly articulated health policies and access to appropriate health services. This experiment is not unlikely the Comer program (1980) used in hundreds of schools in the United States. Comer emphasizes parent, teacher, and student cooperation in the governance of schools and in decision-making within the school. Our own program the Peaceful Schools project, (Twemlow, Fonagy, & Sacco, 2005a,b), trains staff and children in a whole school approach emphasizing autonomy, mentalization (reflective self and other empathy), and helpfulness, (pragmatic altruism). Such schools have been shown in a randomized control trial to provide a learning environment with improved academic achievement and with less victimization (bullying), and more helpfulness for other children. The Peaceful Schools model highlights the importance of the parent surrogate (the teacher) and of social skills to cope with violence.

Schools should thus be an obvious focus for resiliency programs, since of course there is there a captive audience where children are six to eight hours a day in one place. Although modern schools tend to over emphasize academic performance, schools can be a laboratory for resilience programs.

In Conclusion

No one seriously questions the power of the media to influence human behavior or debates whether or not media content is often violent. The very complexity of the relationship between media violence and violent behavior also appears undisputed. Referring to combat stress, Flach (1990) states, "The real question should not be, Why did some fall apart? But rather, Why on earth didn't they *all* fall apart . . . " The work reviewed in our paper suggests that an answer to this question depends entirely on how the individual child processes media violence at the time of the exposure. We suggest that in psychology, a given set of factors not good and sufficient individually, may   collectively determine a symptomatic response at one point in time, with however at another point in time in the same individual, may not be causal. Psychopathology is thus always overdetermined and the causal chain might be quite idiosyncratic, rather than comparable to cause in the physical sciences. For example depiction of a violent dog attack in the media, might trigger a PTSD flashback in one individual with prior exposure and sensitization, and yet be of little consequence to someone else not so exposed. The vast range of risk and protective factors suggests that any search for a manageable number of factors which invariably produce psychopathology in the child, might well be a fruitless search, because it asks the question in a far too simplified manner. There is no such list ! The complex risk, protective and developmental considerations summarized in the table, cover the entire range from genetic, including neurobiological idiosyncrasies and strengths, parenting styles and psychopathology, social and individual trauma, cultural and social mores and consequences of

growth and developmental with many vulnerabilities specific to stages of development. There is

promising early evidence that specific training can promote resiliency, giving the child the best

chance to cope with an ever changing world.   It is most likely that programs developing

resilience will be better accepted in open democracies than laws, which limit and restrict what

people can view in the media.

References

Allen, J. G. (1995). *Coping with trauma: A guide to self-understanding*. American

Psychiatric Press, Inc.

Alvord, M. K. (2005). Enhancing resilience in children: A proactive approach. *Professional*

Psychology: Research and Practice, Vol. 36(3), 238-245.

Anderson, C. A., & Dill, K. E. (2000). Video games and aggressive thoughts, feelings, and

behavior in the laboratory and in life. *Journal of Personal and Social Psychology* 78,

772-790.

Applebaum, P. S., Robbins, P. C., & Monahan, J. (2000). Violence and delusions: Data

from the MacArthur Violence Risk Study. *American Journal of Psychiatry 157*(4), 566-

572.

Balaban, E., Alper, J. S., & Kasamon, Y. L. (1996). Mean genes and the biology of

aggression: A critical review of recent animal and human research. *Journal of*

Neurogenetics 2, 1-43.

Bandura, A. (1973). *Aggression: A social learning analysis*, Englewood Cliffs, NJ, Prentice

Hall.

Berkowitz, L. (1984). Physical pain and the inclination to aggression. *Progress in Clinical*

and Biological Research 169, 27-47

Bierman, K. L., Smoot, D. L., & Aumiller, K. (1993). Characteristics of aggressive-rejected,

aggressive (nonrejected) and rejected (nonaggressive) boys *Child Development* 64, 139-

151.

Bloom, S. (2001). Media violence in violence & the practice of psychiatry. unpublished

Report Of The Taskforce On Psychiatric Aspects Of Violence, 168-182.

Brennan, P. A., Mednick, S. A., & Hodgins, S. (2000). Major mental disorders and criminal

   violence in a Danish birth cohort. *Achieves of General Psychiatry* 57(5), 494-500.

Brown, G. L., Goodwin, F. K., & Ballenger, J. C., Goyer, P. F., Major, L. F. (1979).

   Aggression in humans correlates with cerebrospinal fluid amine metabolites. *Psychiatry

   Research 1*, 131-139.

Brown, K., & Pennell, A. (2000). The influence of film and video on young people and

   violence. *Violent Children and Adolescents: Asking the Questions Why,* (pp. 151-168)

   London, Whurr.

Cadoret, R. J., Leve, L. D. & Devor, E. (1997). Genetics of aggressive and violent behavior.

   The Psychiatric Clinics of North America, 20(2), 301-322.

Cantor, J., Mares, M. L., & Oliver, M. D. (1993). Parent's and children's emotional reactions

   to televised coverage of the Gulf War, In: *Desert Storm and the Mass Media*, Greenberg

   B, Gants W, eds. Cresskill, NJ: Hampton Press.

Cantor, J., & Omadahl, B. L. (1991). Effects of fictional media depictions of realistic threats

   on children's emotion responses, expectations, worries, and liking for related activities.

   Communication Monographs 58, 384-401.

Cicchetti, D., & Toth, S. L. (1995). A developmental psychopathology perspective on child

   abuse and neglect. *Journal of the American Academy of Child and Adolescent Psychiatry

   34*, 541-565.

Cicchetti, D., & Barnett, D. (1991). Attachment organization in preschool aged maltreated

   children. *Development and Psychopathology 3*, 397-411.

Cicchetti, D., & Carlson, V. (1989). *Child Maltreatment: Theory and Research on the

   Causes and consequences of Child Abuse and Neglect.* New York, Cambridge University

   Press.

Cicchetti, D., & Beeghly, M. (1987). Symbolic development in maltreatment youngsters: An

organizational perspective. Cicchetti, D., & Beeghly, M. (eds): *Atypical Symbolic*

Development, San Francisco, Jossey-Bass.

Coates, S., & Schechter, D. (2004). Preschoolers' traumatic stress post-911: Relational and

developmental perspectives. *Psychiatric Clinics of North America, Sept. Vol. 27(3),*

Special Issue: Disaster psychiatry, a closer look: 473-489.

Coie, J. D., Terry, R., Lenox, K., Lochman, J., & Hyman, C. (1996). Childhood peer

rejection and aggression as predictors of stable patterns of adolescent disorder.

Development and Psychopathology 7, 697-713.

Coie, J. D., Lochman, J. E., Terry, R., & Hyman, C. (1992). Predicting early adolescent

disorder from childhood aggression and peer rejection. *Journal of Consulting and*

Clinical Psychology 60, 783-792.

Combrinck-Graham, L., & Fox, G. (2002). "23 Development of School-Age Children" in

Child and Adolescent Psychiatry, A Comprehensive Textbook, 3rd edition, (pp. 324-332)

Melvin Lewis (ed.), Lippincott Williams & Wilkins Publishers.

Comer, J. P. (1980). *School Power,* New York, The Free Press, Simon & Schuster.

Connor, D. F., Steingard, R. J., Cunningham, J. A., & Anderson, J. J. (2004). Proactive and

reactive aggression in referred children and adolescents. *American Journal of*

Orthopsychiatry 74(2), 129-136.

Connor, D. F., Melloni, R. H., & Harrison, R. J. (1998). Overt categorical aggression in

referred children and adolescents. *Journal American Academy of Child and Adolescent*

Psychiatry, *37(1)*, 66-73.

Cummings, E. M., Davies, P. T. (1994). Maternal depression and child development.

Journal of Child Psychology and Psychiatry, 35, 73-112.

Currie, E. (2000). Sociologic perspectives on juvenile violence. *Child and Adolescent Psychiatric Clinics North America, 9*, 749-764.

Currie, E. (1998). *Crime and Punishment in America.* New York, Henry Holt.

Courtwright, D.T. (1998). *Violent Land: Single Men and Social Disorder from the Frontier to the Inner City*. MA, Harvard University Press.

Davis, M. H., Luce, C., & Kraus, S. J. (1994). The heritability of characteristics associated with dispositional empathy. *Journal of Personality 62*; 369:391f.

De Bellis M. D., Keshavan M., Clark, D. B., Casey, B. J., Giedd, J., Boring, A. M., Frustaci K., Ryan, N. D. (1999). A.E. Bennett Research Award: developmental traumatology, part II: brain development. *Biological Psychiatry 45*:1271–1284.

de Haan, M., Luciana, M., Malone, S., Matheny, L. & Richards, L. (1994).

Development, plasticity, and risk: Commentary on Huttenlocher, Pollitt and Gorman, and Gottesman and Goldsmith. In C. A. Nelson (ed.), *Threats To Optimal Development: Integrating Biological, Psychological And Social Risk Factors* (pp. 161 -178). Hillsdale, NJ: Lawrence Erlbaum.

Derksen, D. J., & Strasberger, V. C. (1996). Media and television violence: Effects on violence, aggression, and antisocial behaviors in children. Hoffman AM (ed.): *Schools, Violence and Society* (pp. 61-77). Westport, CT, Praeger/Greenwood.

Dishion, T. J., Andrews, D. W., & Crosby, L. (1995). Antisocial boys and their friends in early adolescence. *Child Development 66*, 139-151.

Dodge, K. A., Price, J. M., Coie, J. D., & Christopoulos, C. (1990). On the development of aggressive dyadic relationships in boys' peer groups. *Human Development 33*, 260-270.

Dodge, K. A., Murphy, R. R., & Buchsbaum, K.C. (1984). The assessment of intention-cue detection skills in children: Implications for developmental psychopathology. *Child Development 55(1)*, 163-173.

Erikson, E. (1962). Reality and actuality*, Journal American Psychoanalytic Association, 10,* 451-457.

Farrington, D. P, & Loeber, R. (2000). Epidemiology of juvenile violence. *Child Adolescent Psychiatric Clinics of North America, 9*, 733-748.

Farrington, D. P (1995). The twelfth Jack Tizard Memorial lecture: The development of offending and antisocial behaviour from childhood: Key findings from the Cambridge study in delinquent development. *Journal of Child Psychology and Psychiatry and Allied Disciplines 36*, 929-964.

Farrington, D. P. (1993). Understanding and preventing bulling. In M. Tonry (ed.), *Crime and Justice: A Review of Research (17 pp.* 391-458), Chicago: University of Chicago Press.

Farrington, D. P (1978). The family backgrounds of aggressive youths, Hersov L.A., Berger M., Shaffer, D. (eds.): *Aggression and Antisocial Behavior in Childhood and Adolescence* (pp. 73-93). Oxford, Pergamon.

Federal Bureau of Investigation (1998). *Uniform Crime Report,* Washington, DC, Bureau of Justice Statistics.

Federman, J. (1998). *National Television Violence Study III.* Thousand Oaks, CA: Sage.

Federman, J. (1997). *National Television Violence Study II.* Thousand Oaks, CA: Sage.

Federman, J. (1996). *National Television Violence Study I.* Thousand Oaks, CA: Sage.

Fergusson, D. M., & Horwood, L. J. (1999). Prospective childhood predictors of deviant peer affiliations in adolescence. *Journal of Child Psychology and Psychiatry and Allied Disciplines 40*, 581-592.

Flach, F. (1990). The resilience hypotheses and posttraumatic stress disorder, in Posttraumatic Stress Disorder: *Etiology, Phenomenology, and Treatment* (pp. 36-45). Wolf, M. E., & Mosnaim, A. D. (eds.), Washington, DC, American Psychiatric Press.

Flisher, A. J., Kramer, R. A., Hoven, C.W., Greenwald, S., Alegria, M., Bird, H. R., Canino, G., Connell, R., & Moore, R. E. (1997). Psychosocial characteristics of physically abused children and adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry 36*, 123-131.

Fonagy, P., Twemlow, S., Vernberg, E., Sacco, F., & Little, T. (2005). Creating a Peaceful School Learning Environment: The Impact of an Anti-Bullying Program on Educational Attainment in Elementary schools. Accepted for publication *Medical Science Monitor*.

Frick, P. J., Van Horn, Y., Lahey, B. B., Christ, M. A. G., Loeber, R., Hart, E. A., Tannenbaum, L., & Hanson, K. (1993). Oppositional defiant disorder and conduct disorder: A meta-analytic review of factor analyses and cross-validation in a clinic sample. *Clinical Psychology Review 13*, 319-340.

Gabbard, G. (2003). Rethinking therapeutic action, *International Journal of Psychoanalysis, 84*, 823-841

Gabbard, G. O., & Twemlow, S. W. (1984). *With eyes of the mind: an empirical analysis of out of body states*, New York, Praeger publishers.

Gergely, G., & Watson, J. (1996). The social biofeedback model of parental affect mirroring. *International Journal of Psycho-Analysis 77*, 1181-1212.

Gilligan, J., & Lee, B. (2004). The psychopharmacologic treatment of violent youth. *Annals of the New York Academy of Sciences. 1036*, 356-381.

Glaser, D. (2000). Child abuse and neglect and the brain: A review, *Journal of Child Psychology and Psychiatry and Allied Disciplines, 41*, 97-116.

Groebel, J., & Hinde, R. A. (1989). *Aggression and War: Their Biological and Social Bases.* New York, Cambridge University Press.

Grossman, D. (1996). *On Killing: The Psychological Cost of learning to kill in War and Society.* New York: Little, Brown.

Hines, A. M. (2005). Former foster youth attending college: Resilience and the transition to young adulthood. *American Journal of Orthopsychiatry, Vol. 75(3),* 381-394.

Hoffner, C., & Cantor, J. (1990). Forewarning of a threat and prior knowledge of outcome: effects on children's emotional responses to a film sequence. *Human Communication Research 16*, 323-354.

Hubel, D. H., & Wiesel, T. N. (1979). Brain mechanisms of vision. *Scientific American 241*, 150-162.

Huesman, L. R., Moise, J. F., & Posolski, C. (1997). The effects of media violence on the development of antisocial behavior. Stoff DM, Breiling J (eds.): *Handbook of Antisocial Behavior* (pp. 181-193). New York, Wiley.

Joshi, P. T., & Kaschak, D. G. (1998). Exposure to violence and trauma: questionnaire for adolescents, *International Review of Psychiatry 10(3)*, 208-215.

Kagan, J. (2002). 14. The Contribution of Temperament to Developmental Profiles. In: *Child and Adolescent Psychiatry, A Comprehensive Textbook, 3rd edition*, (pp. 211-220). Melvin Lewis (ed.), Lippincott Williams & Wilkins Publishers.

Kelly, S. J., Ostowski, N. L, & Wilson, M. A. (1999). Gender differences in brain and

behavior: Hormonal and neural bases. *Pharmacology Biochemistry and Behavior 64*,

655-664.

Klein, G. (1973). Two theories or one? *Bulletin of the Menninger Clinic 37*, 102-132.

Krakowski, M. (2003). Violence and serotonin influence. *The Journal of Neuropsychiatry*

and Clinics Neurosciences, 15(3), 294-305.

Lagerspetz, K. (1989). Media and the social environment. Groebel J., & Hinde, R.A. (eds):

Aggression and War: Their Biological and Social Bases (pp. 164-172). New York,

Cambridge University Press.

Leifer, A. P., & Roberts, D. F. (1972). Children's response to television violence. In:

Murray, J. P., Rubenstein, E.A., & Comstock, G. A. (eds.): *Television and Social*

Behavior, Vol. 2: Television and Social Learning. Washington, DC, Government Printing

Office.

Lewis, D. O. (2002). 29 Development of the Symptom of Violence. In *Child and Adolescent*

Psychiatry: A Comprehensive Textbook, 3rd edition (pp. 387-399). Melvin Lewis (ed.),

Lippincott Williams & Wilkins Publishers.

Lewis, D. O., Shanok, S., & Balla, D. (1979). Perinatal difficulties, head and face trauma and

child abuse in the medical histories of seriously delinquent children. *American Journal*

of Psychiatry 136, 419-423.

Lewis, D.O., & Shanok, S. (1977). Medical histories of delinquent and nondelinquent

children: An epidemiological study. *American Journal of Psychiatry 134*, 1020-1025.

Levine M. D, Larniski, W. M, & Palfrey, J. S., Meltzer, L.J., & Fenton, T. (1985). A study of

risk factor complexes in early adolescent delinquency. *American Journal of Diseases of*

Children 139(1), 50-56.

Linnoila, M., Virkkunen, M., Scheinin, M., Nuutila, A., Rimon, R., & Goodwin, F.K. (1983). Low cerebrospinal fluid 5-hydroxindoleactic acid concentration differentiates impulsive from nonimpulsive violent behavior. *Life Sciences* 33(26), 2609-2614.

Linnoila, V. M., & Virkkunen, M. (1992). Aggression, suicidality, and serotonin. *The Journal of Clinical Psychiatry Oct; 53(Suppl.) 53*, 46-51.

Lyons-Ruth, K., Bronfman, E., & Atwood, G. (1999). A relational diathesis model of hostile-helpless states of mind: Expressions in mother-infant interaction. In J. Solomon & C. George (eds.), *Attachment Disorganization* (pp. 33-70). New York: Guilford Press.

Lyons-Ruth, K., & Jacobovitz, D. (1999). Attachment disorganization: Unresolved loss, relational violence and lapses in behavioral and attentional strategies. In J. Cassidy & PR. Shaver (eds.), *Handbook of Attachment Theory and Research* (pp. 520-554), New York: Guilford.

Lyons-Ruth, K. (1996). Attachment relationships among children with aggressive behavior problems: The role of disorganized early attachment patterns. *Journal of Consulting and Clinical Psychology 64(1),* 64-73.

Lyons-Ruth, K., Repacholi, B., McLeod, S., & Silver, E. (1991). Disorganized attachment behavior in infancy: Short-term stability, maternal and infant correlates, and risk-related sub-types. *Development and Psychopathology, 3*, 377-396.

Main, M., & George, C. (1985). Response of abused and disadvantaged toddlers to distress in agitates: A study in the day care setting. *Developmental Psychopathology 21*, 407-412.

Maccoby, E. E., & Jacklin, C. N. (1974). *The Psychology of Sex Differences.* London, Oxford University Press.

McDermott, E. & Graham, H. (2005). Resilient young mothering: Social inequalities, late

modernity and the 'Problem' of 'Teenage' motherhood. *Journal of Youth Studies, Vol.

8(1),* 59-79.

McFall, M., Fontana, A., & Raskind, M., Rosenheck, R. (1999). Analysis of Violent

Behavior in Vietnam Combat Veteran Psychiatric Inpatients with Posttraumatic Stress

Disorder. *Journal of Traumatic Stress 12(3)*, 501-517.

Meloy, J. R. (1988). *The psychopathic mind: origins, dynamics and treatment.* Northvale, NJ,

J Aronson.

Moffitt, T. E. (1: A developmental taxonomy. *Psychological Review 100*, 674-701.

Olson, C. K. (2004). Media violence research and youth violence data: Why do they conflict?

"Adolescence-limited" and "life-course-persistent" antisocial behaviour. *Academic

Psychiatry 28(2)*, 144-150.

Olweus, D. (1992). Bullying among schoolchildren: Intervention and prevention. In R.D.

Peters, R.J. McMahon & V.L. Quinsey (eds.), *Aggression and Violence Throughout the

Lifespan* (pp. 100-125). Newbury Park, CA:Sage.

Omark, D. R., Omark, M., & Edelman, M. (1973, 1974). *Dominance hierarchies in young

children*. Paper presented at the International Congress of Anthropological and

Ethnological Sciences, Chicago, 1973. Abstract in: Maccoby, E.E., & Jacklin, C.N.:

The Psychology of Sex Differences, London: Oxford University Press, 1974.

Paik, H., & Comstock, G. (1994). The effects of television violence on antisocial behavior: a

meta-analysis, Communication *Research 21*, 516-546.

Patterson, G. (1982). *Coercive Family Processes*. Aegean, Oregon: Castilia Publishing Co.

Patterson, G. R., Reid, J. B., & Dishion, T. J. (1992). *Antisocial boys.* Eugene, OR: Castalia.

Patterson, G. R. (1977). Accelerating stimuli for two classes of coercive behaviors. *Journal of Abnormal Child Psychology 5*, 335-350.

Patterson, G. R., Littman, R. A., & Bricker, W. (1967). Assertive behavior in children: A step toward a theory of aggression. *Monographs of the Society for Research in Child Development 32*, 1-43.

Polanyi, M. (1965). The structure of consciousness. *Brain*, *88*, 799-810.

Pope, A.W., & Bierman, K. L. (1999). Predicting adolescent peer problems and antisocial activities: The relative roles of aggression and dysregulation. *Developmental Psychology 35*, 335-346.

Raine, A., Venables, P. H., & Williams, M. (1990). Autonomic orienting responses in 15-year-old male subjects and criminal behavior at age 24. *American Journal of Psychiatry 147*, 933-937.

Renken, B., Egeland, B., Marvinney, D., Mangelsdorf, S., & Sroufe, A. (1989). Early childhood antecedents of aggression and passive withdrawl in early elementary school. *Journal of Personality 57(2)*, 257-281.

Rieder, C., & Cicchetti, D. (1989). An organizational perspective on cognitive control functioning and cognitive-affective balance in maltreated children. *Developmental Psychology 25*, 382-393.

Rosenthal, R., & Jacobson, L., (1968). *Pygmalion in the classroom.* New York, Rinehart and Wilson.

Ruths, S., & Steiner, H. (2004). Psychopharmacologic treatment of aggression in children and adolescents. *Pediatric Annals 33(5),* 319-327.

Sapolsky, R. M. (2000). Glucocorticoids and hippocampal atrophy in neuropsychiatric disorders. *Achieves of General Psychiatry 5,* 925-935.

Sapolsky, R. M., Krey, L., & McEwen, B. (1985). Prolonged glucocorticoid exposure

reduces hippocampal neuron number: Implications for aging. *Journal of Neurosciences 5,* 1221-1226.

Scarr, S. (1993). Biological and cultural diversity: The legacy of Darwin for development. *Child Development 64*, 1333-1353.

Singer, M. I., Anglin, T. M., Song, L. Y., & Lunghofer, L. (1995). Adolescents' exposure to violence and associated symptoms of psychological trauma. *JAMA 273(22)*, 277-482.

Singer, W. (1995). Development and plasticity of cortical processing architectures. *Science 270*, 758-764.

Skowron, E. A. (2005). Parent differentiation of self and child competence in low-income urban families. *Journal of Counseling Psychology, Vol. 52(3)*, 337-346.

Smith, J., Twemlow, S. W., & Hoover, D. W. (1999). Bullies, Victims and Bystanders: A Method of In-School Intervention and Possible Parental Contributions. *Child Psychiatry and Human Development 30(1),* 29-37.

Solms, M., & Turnbull, O. (2002). *The brain and the inner world*, New York, Other Press.

Solomon, J., & George, C. (1999). The place of disorganization in attachment theory: Linking classic observations with contemporary findings. In J. Solomon & C. George (eds.), *Attachment Disorganization (pp.* 3-32), New York: Guilford.

Steadman, H. J., Mulvey, E. P., Monahan, J., Robbins, P. C., Appelbaum, P. S., Grisso, T., Roth, L. H., Silver, E. (1998). Violence by people discharged from acute psychiatric inpatient facilities and by others in the same neighborhood. *Achieves of General Psychiatry 55*, 393-401.

Steward, D., Sun, J., Patterson, C., Lemerle, K., & Hardie, M. (2004). Promoting and building resilience in primary school communities: Evidence from a comprehensive

'Health Promoting School' approach. *International Journal of Mental Health Promotion, Vol. 6(3),* 26-33.

Swanson, J. W., Holzer, C. E. 3rd, Ganju, V. K., & Jono, R. T. (1990). Violence and psychiatric disorder in the community: Evidence from the Epidemiologic Catchment Area (ECA) Surveys. *Hospital and Community Psychiatry 41(7),* 761-770.

Tart, C. (1972). States of consciousness and state specific sciences. *Science*, *176*, 1203-1210.

Thatcher, R. (1994). Psychopathology of early frontal lobe damage: Dependence on cycles of development. *Development Psychopathology 6*, 565-596.

Tremblay, R. E., Masse, L. C., Vitaro, F., & Dobkin, P. L. (1995). The impact of friends' deviant behaviour on the early onset of delinquency: Longitudinal data from 6 to 13 years. *Development and Psychopathology 7*, 649-667.

Twemlow, S. W., Fonagy, P., & Sacco, F. C. (2005a). "A developmental approach to mentalizing communities: (I) A model for social change" *Bulletin of the Menninger Clinic*, 69(4), 265-280.

Twemlow, S.W., Fonagy, P., & Sacco, F. C. (2005b). "A developmental approach to mentalizing communities: (II) The Peaceful Schools experiment " *Bulletin of the Menninger Clinic,* 69(4), 281-303.

Twemlow, S., Fonagy, P., & Sacco, F. (2004). The Role of the Bystander in the Social Architecture of Bullying and Violence in Schools and Communities. *Annals of New York Academy of Sciences*. *1036*, 215-232.

Twemlow, S. W. (2003). A Crucible for Murder: The Social Context of Violent Children & Adolescents. *Psychoanalytic Quarterly LXX11*, 659-698.

Twemlow, S. W., Fonagy, P., & Sacco, F. (2002). Assessing Adolescents Who Threaten Homicide in Schools. *American Journal of Psychoanalysis*. *62(3)*, 213-235.

Twemlow, S. W., Fonagy, P., Sacco, F. C., Gies, M., Evans, R., & Ewbank, R. (2001).

Creating a Peaceful School Learning Environment: A Controlled Study of an Elementary

School Intervention to Reduce Violence. *American Journal of Psychiatry. 158(5)*, 808-

810.

Twemlow, S. W. (2000). The Roots of Violence: Converging Psychoanalytic

Explanatory Models for Power Struggles and Violence in Schools.

Psychoanalytic Quarterly. LXIX, (4), 741-785.

Unis, A.S., Cook, E. H., Vincent, J. G., Gjerde, D. K., Perry, B. D., Mason, C., & Mitchell, J.

(1997). Platelet serotonin measures in adolescents with conduct disorder. *Biological

Psychiatry 42(7)*, 553-559.

Van Doesum, K.T.M. (2005). A model-based intervention for depressed mothers and their

infants. *Infant Mental Health Journal, Vol. 26(2),* 157-176.

Van der Vegt, B. J., Lieuwes, N., & Cremers, T. I. de Boer, S.F., & Koolhaas, J. M. (2003).

Cerebrospinal fluid monoamine and metabolic concentrations and aggression in rats.

Hormonies Behavior 44*(3)*, 199-208.

Volavka, J., Laska, E., Baker, S., Meisner, M., Czbor, P., & Krivelevich, I. (1997). History of

violent behavior and schizophrenia in different cultures. Analyses based on the Who

Study on determinants of outcome of severe mental disorders. *British Journal of

Psychiatry 171*, 9-14.

Waelder, R. (1930). The principle of multiple functions: observations on overdetermination.

In *Psychoanalysis: observation theory, and application*. *Selected papers of Robert

Waelder*, edited by S. Guttman, New York, IUP press, 1976.

Wallace, C., Mullen, P., Burgess, P., Palmer, S., Ruschena, D., & Browne, C. (1998). Serious criminal offending and mental disorder. Case linkage study. *British Journal of Psychiatry 172*, 477-484.

Westen, D., & Gabbard, G. (2002a). Developments in cognitive neuroscience 1: conflict, compromise and connectionism, *Journal American Psychoanalytic Association 50,* 54-98.

Westen, D., & Gabbard, G. (2002b). Developments in cognitive neuroscience 2: implications for the concept of transference. *Journal American Psychoanalytic Association 50,* 99-113.

Whiting, B & Edwards, C. P. (1988). A cross-cultural analysis of sex differences in the behavior of children aged 3 through 11. In G. Handle (Ed.), *Childhood socialization* (pp. 281-297). New York: Aldine de Gruyter.

Widom, C. (1989). The cycle of violence. *Science 244*, 160-166.

Wills, T. A., Schreibman, D., Benson, G., & Vaccaro, D. (1994). Impact of parental substance use on adolescents: A test of a mediational model. *Journal of Pediatric Psychology 19*, 537-555.

Wilson, B. J., & Weiss, A. J. (1991). The effects of two reality explanations on children's reactions to a frightening movie scene. *Community Monographs 58*, 307-326.

Wilson, W. C., & Rosenthal, B. S. (2003). The relationship between exposure to community violence and psychological distress among adolescents: a meta-analysis. *Violence and Victims 18(3),* 335-352.

Wooley, C. S., Gould, E., & McEwen, B. S. (1990). Exposure to excess glucocorticoids alters dendritic morphology of adult hippocampal pyramidal neurons. *Brain Research 531*, 225-231.

Yesavage, J. A. (1983a). Bipolar illness: Correlated of dangerous inpatient behavior. *British*

Journal of Psychiatry 143, 554-557.

Yesavage, J. A. (1984). Correlates of dangerous behavior by schizophrenics in hospital.

Journal of Psychiatric Research 18(3), 225-231.

---

[1] This question was posed to us by Tom Grimes in his call for papers on this special issue.

Table

Risk & Protective Factors For Vulnerability To Media Violence: A Summary

Note: No single factor will invariably cause psychological harm in all children

Risk/Protection Weight
1 = Small R/P
2 = Moderate R/P
3 = High R/P

FACTOR	**R/P WEIGHT**
Maleness/Testosterone	R2
Low CSF Serotonin	R2
Smoking/Substance Abuse Problems	R3
Callousness/Antisocial Personality Disorder	R3
Conduct Disorder In Childhood	R3
Affective Lability	R1
Self Harm Thoughts	R1
Shame & Humiliation experiences	R3
Being A "Loner"	R1
"Black & White" Perceptions of Others/Self	R1
Poor School Performance	R1
Head Traumatic And Organic Brain Disease/Injury	R2
Poor Social Skills	R1
Perinatal Exposure To Stress, Substances, Abuse, Infections	R2
Poor Prenatal Care, Maternal Stress	R1
Attachment Pattern: Security Of Parents – Infant Interaction	R3
Parent Modeling Of Aggressive Behavior	R2
Authoritarian Parental Discipline Style	R2
Parent Substance Abuse	R3
Maternal Depression	R2
Child Abuse: Painful Sexual & Physical Abuse	R3
Recent Loss/ Individual & Social Rejection	R2
Bullying (Perpetrator/Victim Or Involved Bystander)	R2

FACTOR	R/P WEIGHT
Lack Feeling Attached To Family/School/Community	R2
Community Violence/Gangs	R1
Access To Weapons	R2
Underemployment	R1
Overcrowding	R1
Overwhelming Arousal with average stimuli: Heat, Fear, Noise, Aggressive Sports	R1
Dismissive Families (Parents Lack Of Caring & Involvement With Children	R2
Secure Attachment Pattern	P3
Available Support During Times Loss	P2
Resilience	P3
Age & Developmental Stage Of Child	P/R3
Youth: Younger The Child The More Media Vulnerability	R3
Capacity To Symbolize & Abstract: Flexible Operational Skills	P2
Security & Stability of Adults: (Parents, School Teachers, Etc)	P3
Amount Of Exposure To Media Violence	R2
Media Depiction Of Weapons & Use Of Humor To Minimize Violent Media Images: Realistic Violence, Videogames/MTV	R2
School & Community Resilience Programs	P2
Promoting Mentalization And Awareness Of Power Struggles Dynamics With Coping Skills	P3