

# JOINING FORCES

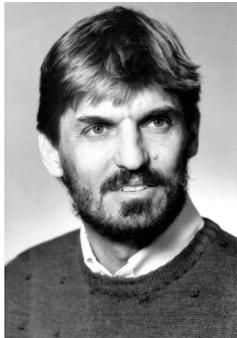


## Joining Families

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REAL WORLD RESEARCH FOR FAMILY ADVOCACY PROGRAMS

### FEATURED INTERVIEW



## **The Role of Trauma Symptoms in the Intergenerational Transmission of Child Physical Abuse**

**An interview with Drs. Joel S. Milner and Cynthia J. Thomsen**

### **Joel S. Milner, PhD**

Joel S. Milner, Ph.D., is Professor Emeritus of Psychology, Distinguished Research Professor, and Director Emeritus of the Center for the Study of Family Violence and Sexual Assault at Northern Illinois University.

He is the author and coauthor of more than 200 scholarly publications and has received more than 80 grants and contracts from private, state, and federal agencies. The majority of his research involves empirical studies in family violence and sexual assault. His recent research has focused on the description and assessment of child physical and child sexual abusers, and on the testing of a social information-processing model of child physical abuse. His current

research includes a multi-year randomized clinical trial of a new, manualized intervention for preventing child physical abuse in at-risk parents based on his social information-processing model of child physical abuse.

### **Cynthia J. Thomsen, PhD**

Dr. Thomsen received her Ph.D. in Psychology from the University of Minnesota, and is currently a Research Psychologist at the Naval Health Research Center in San Diego, CA. She has authored and co-authored more than 30 scholarly publications, most of which focus on family violence, sexual assault, substance abuse, and psychological symptoms among members of the US military. Her current research examines the effects of specific military deployment experiences on risky, self-destructive, maladaptive, or violent behavior, as well as possible mediators (e.g., psychological symptoms, resilience) and moderators (e.g., gender, family structure) of these effects.

**Dr. McCarroll: Your work examines the intergenerational transmission of violence, which postulates that people who are abused as children are likely to become child abusers as adults. How did this area of study become of interest?**

Dr. Milner: For many years, one of my major programs of research has focused on the etiology and prediction of child physical abuse (CPA). Childhood experiences are an important contributor to the risk of an adult becoming a child abuser. So, our research has been directed at understanding how and why childhood experiences translate into increased risk for adults to abuse their own children.

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### **In This Issue**

This issue of *Joining Forces Joining Families* (JFJF) focuses on the role of adverse childhood experiences (ACE) and trauma symptoms as they affect the intergenerational transmission of child abuse. Our expert interview is with Drs. Joel Milner and Cynthia Thomson whose work addresses this relationship. Another feature, *Should the Army Screen Soldiers for Adverse Childhood Experiences*, present arguments on why the military made the decision not to screen entrants for ACE. In *Building Bridges to Research*, our regular statistics article, we discuss the subject of mediators and moderators, variables that may be involved in studies of cause and effect, and how outcomes can be modified by such variables.

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*Although people who were abused as children are two to three times more likely to be at high risk of becoming abusers, most people who were abused do not grow up to be abusive toward their children.*

***Dr. McCarroll: It is widely accepted that children who are abused are more likely to abuse their own children. Why is additional research needed on the intergenerational transmission of child abuse hypothesis?***

*Dr. Milner:* There is substantial evidence that the childhood experience of verbal and physical assault increases the likelihood of later adult child abuse as well as many other negative outcomes. However, many questions about the nature of the association remain unanswered. For example, we know that not all children who experience childhood abuse grow up to abuse their children. Why do some victims of violence go on to perpetrate violence, whereas others do not?

*Dr. Thomsen:* The relationship between being abused as a child and being abusive as an adult is not as strong as many people think. Although our research suggests that people who were abused are two to three times more likely to be at high risk of becoming abusers, most people who are abused are not abusive. About a fourth to a third of child physical abuse victims go on to abuse their own children (Kaufman & Zigler, 1987). Understanding these exceptions — those who go on to be abusers — is important.

*Dr. Milner:* An important related question focuses on understanding the mechanisms underlying the intergenerational transmission of violence. There has been surprisingly little research into the processes by which childhood physical abuse experiences translate into increased adult abuse risk. In technical terms, our approach to understanding the intergenerational transmission of child physical abuse has focused on identifying mediators and moderators of the association between experiencing childhood abuse and the adult risk of abusive behavior. This approach may be one key to understanding these complex relationships. [Editor's note: See featured article, *Mediators and Moderators*, on page 3.]

***Dr. McCarroll: The distinction between mediation and moderation is extremely important. How would you explain this for our readers?***

*Dr. Thomsen:* Both are important, but they operate in very different ways. When you are looking at mediators, you are trying to explain how or why A causes B. For example, how (through what processes) does being a victim of child physical abuse increase the likelihood that you will become a perpetrator of child physical abuse when you grow up? A mediator is a variable that explains the connection between a cause (or predictor) and an effect (or outcome).

A moderator is a very different animal. When you are looking at moderators, you are examining whether the association between two variables, A and B, differs depending on another variable. Moderator variables address whether an association is stronger under some conditions or for some groups of people relative to others. In the context of the intergenerational transmission of child abuse, a moderator variable might be something that buffers the individual against the negative effects of childhood abuse — say, the individual's level of resilience. If resilience were a moderator, the association between childhood abuse and adult risk of abuse might be weaker among people who are high in resilience than among people low in resilience. A moderator also could be something that increases the likelihood that the individual will go on to become an abuser — say, for example, the presence of other adverse childhood events or circumstances. In short, mediation addresses why, or through what process, A causes B; whereas moderation addresses when, or for whom, the effect of A on B is likely to be strongest.

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## **JOINING FORCES**

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# ***BUILDING BRIDGES TO RESEARCH: Mediators and Moderators***

*By James E. McCarroll, PhD, and David M. Benedek, MD*

*A mediator is a factor that lies on the pathway between an independent variable (a predictor) and a dependent variable (and an outcome).*

*Moderators explain how variables affect different subgroups within a population in which certain relationships exist.*

As described in this issue, Milner et al. (2010) tested the hypothesis that trauma symptoms mediate the relationship between early childhood physical abuse (CPA) and the later occurrence of the abuse of children by parents who were abused as children, the intergenerational transmission of CPA. In behavioral science research, one often reads that an outcome is mediated or moderated by a third variable. These important terms, sometimes misused or used interchangeably, represent very different concepts. Each has a different meaning when used to describe research procedures and results. This article explains the differences.

A mediator is a factor that explains how or why the relationship exists (Baron & Kenny, 1986). In order for a factor to be a mediator, it must lie on the pathway between the independent variable (the factor you are interested in studying for its effect on the outcome) and the dependent variable (the outcome). In other words, a mediating variable must demonstrate a significant degree of relationship between the independent and the dependent variable. In order for trauma symptoms to mediate the relationship between childhood physical abuse and later adult risk of perpetrating physical abuse, the trauma symptoms must be associated with both childhood abuse and the later risk of adult physical abuse (Milner, et al., 2010).

To illustrate, we use a simple example from Buckner, Bassuk, & Beardslee (2004) who examined the association between exposure to violence and mental health in poor children. They found that children exposed to violence (the independent variable) experienced more mental health symptoms (the outcome) than those who had not been exposed (the direct relationship). To help explain this relationship, they investigated four factors as possible mediators of violence and mental health symptoms: 1) perceptions of environmental danger, 2) locus of control, 3) self-esteem, and 4) emotional regulation. They found that exposure to violence led to lower self-esteem and a higher perception of danger, both of which, in turn, led to internalizing symptoms and poor mental health. Therefore, self-esteem and perceptions of danger were found to be mediators in the relationship between exposure to violence and

mental health because they were related to both the independent variable and the outcome. These mediators help explain why exposure to violence is related to poor mental health.

Moderators, as distinguished from mediators, explain how variables affect different subgroups within a population in which certain relationships exist. A moderator may affect the direction or the strength of the relationship of interest. A moderating variable, unlike a mediating variable, should have little or no statistical relationship to either the independent or the dependent variable.

Gender is often a moderator. In the Buckner et al. (2004) study, there was a relationship between exposure to violence and mental health symptoms (internalizing symptoms such as anxiety, depression, and somatic complaints) and it was stronger for girls than for boys. Thus, gender was a moderating variable in the relationship between exposure to violence and mental health symptoms. It affected one group (girls), but not the other (boys).

The above examples provide a brief introduction to the concepts of mediators and moderators. We have only highlighted the differences. In addition, terms other than mediators and moderators are found in scientific literature, which also affect the design and outcome of research. Some of these are risk, risk factors, correlates and confounders.

## ***References***

- Baron R & Kenny D. (1986.) The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51:1173–1182.
- Buckner JC, Bassuk EL, & Beardslee WR. (2004.) Exposure to violence and low-income children's mental health: direct, moderated, and mediated relations. *American Journal of Orthopsychiatry*, 74:413–423.
- Milner JS, Thomsen CJ, Crouch JL, Rabenhorst MM, Martens Patricia M, Dyslin CW, Guimond JM, Stander VA, & Merrill LL. (2010). Do trauma symptoms mediate the relationship between childhood physical abuse and adult child abuse risk? *Child Abuse & Neglect*; 34:332-344.

# Should the Army Screen Soldiers for Adverse Childhood Experiences? Pros and Cons

By James E. McCarroll, PhD, and David M. Benedek, MD

*While there appears to be evidence of a strong relationship between ACE and adult outcomes, some authors have urged caution about these results.*

The association between an adult's history of childhood physical abuse and the abuse of children by that same adult is one type of intergenerational transmission of abuse. Milner et al. (2010) reviewed the evidence for such transmission of abuse and concluded that while findings are mixed, most studies have found an association. People who experience violence are likely to develop symptoms based on that trauma and these symptoms can increase the likelihood that the individuals will later display violent behavior toward their own children.

Intergenerational transmission of abuse can be one effect of adverse childhood experiences (ACE) on adult health (Felitti, Anda, Nordenberg, et al, 1998). Prior to this study, the relationship between health risk behaviors and disease in adulthood had not been investigated. The authors mailed a questionnaire to over 13,000 adults in a health maintenance organization asking about their exposure to a variety of childhood experiences and then compared the respondents' responses to findings from their medical histories and health risk behaviors. Categories of adverse experiences included were: psychological, physical, or sexual abuse, witnessing domestic violence, living with household members who were substance abusers, mentally ill or suicidal, or imprisoned. More than half of respondents reported at least one, and one-fourth reported more than two categories of childhood exposures. There was a graded relationship between the number of categories of these childhood experiences and each of the adult health risks they exhibited. Those participants who had experienced four or more categories compared to those who had experienced none, had 4- to 12-fold increased risks for alcoholism, drug abuse, depression, and suicide attempts. These results have suggested the potential value of screening for ACE in adult populations.

The relationships between ACE on adult behaviors and health are complex and do not suggest a uniform effect, but support the exploration of such experiences, particularly childhood physical, sexual, and emotional abuse and neglect (Rodgers, Lang, Laffaye, et al., 2004). The relationship between ACE and

later health and behavior seems to strongly suggest the need for interventions to prevent or alleviate the effects of ACE. Why not screen recruits and perhaps other active duty military personnel for ACE? Given the risks to adult health and negative behaviors found in the ACE literature, one might suppose that there could be special educational and treatment programs for those who screened positive to help them reduce negative adult health outcomes.

While there appears to be evidence of a strong relationship between ACE and adult outcomes, some authors have urged caution about these results. Some studies have cast doubt on the validity of adult retrospective reports of their own ACE in childhood (Hardt & Rutter, 2004). Measurement errors are possible including the likelihood of a substantial number of false negative reports. Retrospective reports are often underestimates of abuse, neglect and other types of experiences. About one third of adults do not report ACE in adulthood even when asked directly about them. On the other hand, false positive reports are probably rare. Another problem noted is that contemporary reports often involve a different person (usually the parent) than the person presented at follow up (usually the subjects of the research). The authors urged caution, but not blanket discarding of accounts of ACE.

The question of whether to implement new screening, services, education, and intervention to portions of the active duty population was considered by the Armed Forces Epidemiologic Board in 2005 ([www.health.mil/dhnb/afeb/meeting/2005/june/Day1-Ruscio\\_ACE\\_June2005\\_AFEb.ppt](http://www.health.mil/dhnb/afeb/meeting/2005/june/Day1-Ruscio_ACE_June2005_AFEb.ppt)). While no formal report was produced, participants recommended that it was premature to implement a DoD-wide ACE surveillance plan. This caution was due to gaps in predicative validity between ACEs and adult outcomes, overly ambiguous goals of such a program, the lack of an evidence base for specific interventions for ACE, and the significant potential for misuse of ACE surveillance data.

In clinical settings, ACE can be considered. While the negative experiences cannot be undone, the outcomes such as family maltreatment, substance abuse, and negative lifestyle

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# Trauma Mediators of Abuse — How Does Childhood Trauma Become Adult Distress?

By James E. McCarroll, PhD, and David M. Benedek, MD

*The relationship between child physical abuse and adult physical abuse risk remained significant even after controlling for demographic variables and other forms of childhood abuse such as witnessing violence between adults and child sexual abuse.*

The association between the history of childhood physical abuse in an adult and the abuse of children by that same adult is known as the intergenerational transmission of abuse. The evidence for this type of abuse is mixed, but most studies have found the association between childhood abuse and later risk of physical abuse to one's own children to be present (Milner et al., 2010). Since it is also true that such intergenerational transmission of abuse does not always occur, it is important to understand the mechanisms by which it occurs or does not occur.

Several theories have been proposed as means of attempting to understand the intergenerational transmission of abuse. Two of the most prominent have been social learning theory (Bandura, 1973) and attachment theory (Bowlby, 1973). Both focus on the effects of early experience on later behavior. According to social learning theory, abusive behaviors are learned through observing and imitating adults such as parents. We identify with our parents' behavior. Attachment theory is more abstract as it focuses on cognitive models of relationships. For example, this theory proposed that children who have been abused develop negative models of themselves that increases the likelihood that they will abuse others. An alternative to these two theories is a trauma-focused model (Milner et al., 2010). This model suggests that people who experience violence are likely to develop symptoms based on that trauma and that these symptoms can increase the likelihood that the individual will later display violent behavior. Symptoms of anxiety or externalization, for example, might increase violence.

This research was conducted in two samples of young adults: US Navy recruits and college students. Participants completed self-reports of their own childhood history of abuse, particularly severe physical abuse, current trauma symptoms, and their risk of adult physical abuse risk. The risk of adult physical abuse was based on responses to the Child Abuse Potential Inventory (CAPI) (Milner, 1994). The CAPI was chosen as the measure of adult physical abuse risk due to its strong

psychometric properties of reliability and validity and because obtaining data on actual adult physical abuse is subject to many limitations such as underreporting. Trauma symptoms were measured via the Trauma Symptom Inventory (Briere, 1995).

Milner et al. (2010) found that trauma symptoms did mediate the relationships between childhood and adult physical abuse. The relationship between child physical abuse and adult physical abuse risk remained significant even after controlling for demographic variables and other forms of childhood abuse such as witnessing violence between adults and child sexual abuse. Also important, they found that the effects of the three types of child abuse (physical abuse, sexual abuse, and exposure to adult violence) were additive. Each type of child abuse was an independent predictor of adult physical abuse risk regardless of whether the other types of abuse had occurred.

Among the possible clinical implication of these results is to provide interventions to reduce trauma symptoms in abuse survivors as a means of reducing the intergenerational transmission of child maltreatment.

## References

- Bandura A. (1973). *Aggression: A social learning analysis*. Englewood Cliffs, NJ: Prentice-Hall.
- Bowlby J. (1973). *Attachment and loss: Vol. 2. Separation*. New York: Basic Books.
- Briere, J. (1995). *Trauma Symptom Inventory Professional Manual*. Odessa, FL: Psychological Assessment Resources.
- Milner, J. S. (1994). Assessing physical child abuse risk: The Child Abuse Potential Inventory. *Clinical Psychology Review*; 14:547–583.
- Milner JS, Thomsen CJ, Crouch JL, Rabenhorst MM, Martens PM, Dyslin CW, Guimond JM, Stander VA, & Merrill LL. (2010). Do trauma symptoms mediate the relationship between childhood physical abuse and adult child abuse risk? *Child Abuse & Neglect*; 34:332–344.

*Featured Interview, from page 2*

**Dr. McCarroll: What theoretical perspectives have guided your study of the intergenerational transmission of violence?**

*Dr. Milner:* Two of the oldest models focus on early learning experiences: one involving the application of social learning theory and the other implicating developmental processes. Models based on social learning theory suggest that children who experience childhood abuse learn parenting behavior by observing and imitating the behavior of their parents. According to this perspective, children who experience verbal and physical assault learn violent behaviors that they later use when parenting their own children. In turn, their children learn violent behaviors and employ these behaviors when they become parents. Thus the cycle of violence continues generation after generation.

Models based on developmental theories typically focus more on the impact of the child abuse on children's thought processes or cognitive structures. For example, attachment theory suggests that children construct cognitive models of relationships based on their experiences with caregivers during the first few years of life. Specifically, attachment models suggest that children develop positive (secure) or negative (insecure) internal working models of the self and others. In turn, these internal models guide later interpersonal behaviors, influencing the way in which the individual responds and reacts to others, including their own children. This could then lead their own children to develop insecure attachments and so on.

*Dr. Thomsen:* More recently, trauma-based models of the intergenerational transmission of violence have been proposed. These models are quite different from the social learning and attachment models. Violent victimization is traumatic. Children who experience violence are likely to develop trauma symptoms such as depression, anxiety, dissociation, or emotional dysregulation. If these symptoms persist, they may increase the likelihood of later aggressive and violent behavior. From this perspective, it's not social modeling nor internalized models of relationships that are responsible for the intergenerational transmission of violence, it's trauma symptoms.

**Dr. McCarroll: Why did you decide to test the trauma model rather than one of the other two?**

*Dr. Thomsen:* We actually tested the attachment model first. We expected that adult attachment might prove to be a powerful factor in accounting for the association between childhood abuse and adult abuse risk.

*Dr. Milner:* We were drawn to test attachment as a mediator, in part, because the theory had been well-elaborated, and there was a commonly held belief that attachment was a mediator of the intergenerational transmission of child abuse. In contrast, the idea of a trauma-based mediation study was not as well grounded in theory and previous research as was the adult attachment study.

*Dr. Thomsen:* Also, we were not as excited about testing social learning theory because that theory has been the subject

of substantial research over the past few decades. Although there is empirical support for the theory, in that disciplinary styles tend to be repeated within families across generations, the evidence is less conclusive when it comes to the intergenerational transmission of child physical abuse.

**Dr. McCarroll: What did your attachment study show?**

*Dr. Milner:* Much to our surprise, using a large Navy sample we found that there was no evidence that adult attachment styles mediated the association between being physically abused during childhood and adult child physical abuse risk (Merrill et al, 2005).

**Dr. McCarroll: Adult attachment was not related to adult risk for physical child abuse?**

*Dr. Thomsen:* Actually, it was related. As we expected, people with insecure adult attachment were at elevated risk for adult child abuse. Also, as expected, people who had been physically abused during childhood generally had more insecure adult attachments than those who had not been abused. Both of these findings are consistent with the possibility that attachment mediates the intergenerational transmission of child abuse. However, direct tests of the mediational model showed that adult attachment did not explain the association between the experience of childhood physical abuse and adult child physical abuse risk. Although both the childhood experience of physical abuse and adult attachment style were associated with increased adult child abuse risk, they were largely separate and unique (independent) predictors. Thus, in this study, attachment style was not a mediator between childhood physical abuse and the risk of adult CPA.

*Dr. Milner:* We also tested a moderation hypothesis, which was the idea that the impact of childhood abuse experiences on adult child abuse risk might be weaker among those with secure attachment styles relative to those with insecure attachment styles. However, our results did not support this hypothesis; the relationship between childhood abuse and adult physical abuse risk was equally strong for people who had secure attachment styles and those who had insecure attachment styles. So having secure adult attachment did not reduce the intergenerational transmission of child abuse, and likewise, having insecure adult attachment did not exacerbate the intergenerational transmission of abuse.

**Dr. McCarroll: But when you tested the trauma model, you did find evidence of mediation.**

*Dr. Milner:* Yes, strong evidence of mediation. But, let me explain this result in the following way. First, note that our study found that only about 10% of adult child abuse risk is explained by the childhood experience of abuse. We wanted to know how much of this 10% is explained by mediators. We found that trauma symptoms explained between 79% (in our college student sample) and 90% (in our Navy recruit sample) of the association between childhood history of physical abuse and adult child physical abuse risk, which is substantial (Milner et al., 2010). In other words, trauma symptoms accounted

for 79–90% of the 10% connection between the childhood experience of physical abuse and adult child abuse risk. So, there is more work to be done to figure out the other important variables involved in the intergenerational transmission of child physical abuse. Many factors go into predicting who will be at risk of abusive behavior. A history of violence exposure is just one of them; however, it is the factor that we were trying to explain in testing the trauma-based model.

*Dr. Thomsen:* Also, because our study was the first study to test for a role of trauma symptoms in mediating the intergenerational transmission of child physical abuse risk, it is important to replicate the findings in order to establish that they are robust.

***Dr. McCarroll: How specific is the intergenerational transmission of violence? Does it have to be the same type of victimization and perpetration? How do other types of childhood maltreatment and other types of trauma more generally fit into this model?***

*Dr. Milner:* In our studies, we have controlled for other forms of childhood violence such as child sexual abuse and observed domestic violence because we know that different types of adverse childhood experiences are related. Our results consistently show that all types of childhood violence we examined, whether experienced or observed, are predictive of increases in the risk of adult child physical abuse, increases in attachment problems, and in psychological symptoms. Generally, we have found that their effects are additive. That is, each additional form of violence that children experience increases their risk of becoming abusers. Based on research to date, there does not appear to be a great deal of specificity; instead, all types of violence toward the child appear to increase the likelihood of future violence as an adult.

***Dr. McCarroll: Can you generalize the trauma mediation model to predict other types of violence besides child physical abuse? How similar would a model be if we were trying to predict a different type of violence?***

*Dr. Thomsen:* Although empirical tests of this are few, we suspect that there are some common predictors of violence, regardless of type. Trauma symptoms, violent victimization, and insecure attachment are examples of factors that are likely to increase the risk of all, or most, types of violence. But there also may be some unique predictors of specific types of violence. For example, in their model of adult sexual assault, Malamuth and colleagues (1995) implicated two key factors, that of hostile masculinity and impersonal sexual behavior, as predictors of sexual assault perpetration. There is not a strong logical or theoretical basis for assuming that these factors would predict other types of violence, such as child physical abuse. So there may be specific risk factors for particular types of violence, as well as general risk factors for all types of violence.

***Dr. McCarroll: Do your findings have implications for interventions that might reduce the intergenerational transmission of child physical abuse risk?***

*Dr. Milner:* One advantage of studying mediators of the intergenerational transmission of child physical abuse risk is that it has the potential for providing insights into possible treatment and intervention approaches. We cannot undo the fact that a person was abused as a child, but if we know how that experience translates into adult child abuse risk, we may be able to intervene through the mediator. Given the results of our study, treating children or young adults with a childhood history of abuse to reduce their trauma symptoms may not only improve their psychological adjustment, but also reduce their risk of abusive behavior.

*Dr. Thomsen:* It is important to keep in mind, though, that our study just raises this as a possibility. Also, although trauma symptoms explained most of the association between childhood victimization and adult risk of abuse in our study, trauma symptoms did not explain as much of the variance in child abuse risk overall. There are doubtless many other factors that are important in explaining abuse risk, and some of those may also be good candidates for intervention.

*Dr. Milner:* Still, because trauma symptoms do appear to explain much of the link between childhood abuse and adult risk of abusing, the possibility that intervening to reduce trauma symptoms might short-circuit the intergenerational transmission of violence is very exciting.

***Dr. McCarroll: Thank you both for helping us to understand these complex issues.***

*Dr. Milner* and *Dr. Thomsen:* You are welcome.

## **References**

- Kaufman J & Zigler E. (1987). The intergenerational transmission of child abuse. In D. Cicchetti & E. Zigler (Eds.), *Child maltreatment: Theory and research on the causes and consequences of child abuse and neglect* (pp. 129–150). Cambridge, UK: Cambridge University Press.
- Malamuth N Linz D, Heavy C, Barnes G. & Acker M. (1995). Using the confluence model of sexual aggression to predict men's conflict with women: A ten year follow-up study. *Journal of Personality and Social Psychology*; 69: 353–369
- Merrill LL, Thomsen C, Crouch JL, May P, Gold SR, & Milner JS. (2005). Predicting adult risk for child physical abuse from childhood exposure to violence: Can interpersonal schemata explain the association? *Journal of Social and Clinical Psychology*; 24: 981–1002.
- Milner JS, Thomsen CJ, Crouch JL, Rabenhorst MM, Martins PM, Dyslin CM, Guimond JM, Stander VA, & Merrill LL. (2010). Do trauma symptoms mediate the association between childhood physical abuse and adult child abuse risk? *Child Abuse & Neglect*; 24: 332–344.

# Websites of Interest

■ <http://acestudy.org/> The Adverse Childhood Experiences (ACE) study is an ongoing collaboration between the Centers for Disease Control (CDC) and Kaiser Permanente. This website presents the basic concept of the ACE study and the questions used.

■ <http://www.cdc.gov/Features/dsACEs/> The CDC published some basic results of a 2009 study of ACE that were incorporated into a module of the Behavioral Risk Factor Surveillance System (BRFSS) described below. The analysis presented the differences in ACE by gender, race/ethnicity, and total ACE scores. It was concluded that ACE are common across both genders and race/ethnic groups. The website next listed provides more complete results of this study.

■ <http://www.cdc.gov/mmwr/pdf/wk/mm5949.pdf> The December 17, 2010 edition of the CDC Morbidity and Mortality Weekly Report (MMWR) presents detailed results of the 2009 study of ACE. The MMWR is the primary vehicle of the CDC for scientific publication of timely, reliable, authoritative, accurate, objective, and useful public health information and recommendations. The ACE study revealed that 41% of the population reported no ACE. The highest prevalence reported, 21.1%, was for substance abuse. Other results were given by race/ethnicity, age, education, and gender.

■ <http://www.cdc.gov/brfss/about.htm> The CDC Behavioral Risk Factor Surveillance System (BRFSS) is a state-based system of health surveys that collect information on health risk behaviors, preventive health practices, and health care access primarily related to chronic disease and injury. Data are collected monthly in all 50 states, the District of Columbia, Puerto Rico, the U.S. Virgin Islands, and Guam. More than 350,000 adults are interviewed each year making the BRFSS the largest telephone health survey in the world. This website provides a wealth of information including the questionnaires used for measuring health-related behaviors.

ACEs	Percent
0	50.6
1	22.4
2	13.1
3	8.8
4	6.5
5+	8.7

## Should the Army Screen, from p. 4

behaviors such as smoking and other risky behaviors may be amenable to modification.

### References

Felitti VJ, Anda RF, Nordenberg D, Williamson DF, Spitz AM, Edwards V, Kose MP, & Marks JS. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The adverse childhood experiences study. *American Journal of Epidemiology*; 14:245–258.

Hardt & Rutter, (2004). Validity of adult retrospective reports of adverse childhood experiences: review of the evidence. *Journal of Child Psychology and Psychiatry*; 45:260–273.

Rodgers CS, Lang AJ, Laffaye C, Satz LE, Dresselhaus TR, & Stein MB. (2004). The impact of individual forms of childhood maltreatment on health behavior. *Child Abuse & Neglect*; 28:575–586.