ARTICLE

Effects of Child Abuse and Neglect

Does Social Capital Really Matter?

Gitanjali Saluja, PhD; Jonathan Kotch, MD, MPH; Li-Ching Lee, ScM

Objective: To explore whether social capital and social support moderate the relationship between child maltreatment and emotional and behavioral outcomes such as depression-anxiety and aggression in 6-year-old children.

Design: Data from Longitudinal Studies of Child Abuse and Neglect were used. Data were collected through interviews and questionnaires at the child's birth and at the age of 6 years.

Setting: General community.

Participants: Two hundred fifteen maternal caregivers of children at high risk for child abuse and neglect were included in this study.

Main Outcome Measures: Depression-anxiety and aggression were measured through the Child Behavior Checklist.

Results: Among 5 potential effect modifiers (3 social capital constructs and 2 measures of social support), only 1 (instrumental support) significantly modified the relationship between maltreatment and child aggression.

Conclusions: Social capital did not modify the relationship between child maltreatment and either aggression or depression-anxiety. This might be related to the fact that many previous studies looked at social capital ecologically, whereas this study uses individuals as the unit of analysis. The results of this study might also indicate that previous studies of social capital and health outcomes might actually be using social capital as a proxy for social support.

Arch Pediatr Adolesc Med. 2003;157:681-686

From the National Institute of Child Health and Human Development, National Institutes of Health, US Department of Health and Human Service, Bethesda, Md (Dr Saluja); and the Department of Maternal and Child Health, School of Public Health, The University of North Carolina at Chapel Hill (Dr Kotch and Ms Lee).

THE NEGATIVE outcomes associated with child maltreatment are numerous, including increased aggression, social withdrawal, depression, low self-esteem,[1] and poor school performance.[2] Although many children suffer long-term consequences of abuse and neglect, some children prove to be more resilient than others. What makes these children more resilient? There are probably numerous factors that moderate between child maltreatment and negative outcomes. One of these factors might be the extent to which a child feels protected and supported by his or her family and community. Another might be a neighborhood's or community's level of social capital, the extent to which mutual trust and social cohesion may benefit the child.

The concept of social capital has captured the attention of many researchers. Although the concept has existed for years within the sociology and political science literatures, its application to public health and individual health outcomes is recent. Some have argued that the term has been overused and has lost some of its meaning.[3] Consensus regarding the definition of social capital and its measurement remains elusive,[4] and this creates a challenge for anyone choosing to study it.

Robert Putnam, one of the leading contributors on this topic, describes social capital as "features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit."[5(p67)] The World Bank has adopted the concept and defines it as

> the institutions, relationships, and norms that shape the quality and quantity of a society's social interactions. . . . Social capital is not just the sum of the institutions which underpin a society—it is the glue that holds them together.[6]

What exactly is social capital, and how does it differ from social support? Although related, social capital and social

©2003 American Medical Association. All rights reserved.
Downloaded From: http://archpedi.jamanetwork.com/ on 04/25/2017

support are distinct constructs. Whereas social support refers to having friends or family who provide material help or emotional comfort, social capital refers to social investment in one's community. Social capital encompasses neighborhood relationships, the extent to which people volunteer, involve themselves in civic activities, and are willing to help out their neighbors.

Social capital has been described both as an individual variable (one that describes individual people)[3] and an ecological variable (one that characterizes groups such as neighborhoods, communities, census tracts, and others).[5] At an ecological level, social capital has been associated with many positive outcomes. Those communities that score high on social capital tend to have more effective schools,[6] lower rates of mortality than other communities,[7] and lower crime rates.[8] When social capital has been measured at an individual level, research has found that persons who score high on social capital are less likely to drop out of school, less likely to be juvenile delinquents, and more likely to perform better in school.[3]

Runyan et al[9] found that a measure of an individual's social capital might have a positive effect on the well-being of preschool children at high risk for maltreatment. Were they really measuring social capital or social support? If, indeed, they were measuring social capital, what effect, if any, does social capital have on children who have actually experienced maltreatment? Understanding this relationship, which is the goal of this article, may have important implications for policy and program development.

MEASURING SOCIAL CAPITAL

Putnam[5] and Kawachi et al[7] are examples of researchers who have studied social capital ecologically. In his landmark article, "Bowling Alone: America's Declining Social Capital," Putnam referred to civic engagement, social trust, and "good neighborliness" as indicators of social capital. He suggested that in recent years church attendance, community involvement, and organizational membership have declined in American society, which has resulted in a decrease in social capital. Americans' diminishing trust of one another has also contributed to this decline. Kawachi et al[7] have used similar indicators to assess social capital and its relationship to income inequality and mortality. In their study, Kawachi et al measured social capital through the assessment of civic engagement and mutual trust among community members. Civic engagement was measured by involvement in community groups and organizations. Trust was assessed through questionnaires that asked questions such as, "Do you think most people would try to take advantage of you if they got a chance, or would they try to be fair?" and "Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?" Data were collected and examined at the state level, and states were compared to one another.

Runyan et al[9] and Coleman[10] are examples of researchers who have studied the effects of social capital at the individual level. Coleman's indicators of social capital included the following: (1) the number of parents living at home, (2) the number of siblings in the home, (3) mother's expectation about the child's attending college (although Coleman admitted in his article that this was not really a "pure" measure of social capital), (4) the number of times the child had changed schools, and (5) enrollment in a religiously based private high school. Several assumptions underlie these indicators. First, 2 parents would offer more attention to the child than 1 parent. Second, more siblings would lead to less attention from parents. Third, children who change schools fewer times were more likely to have close, enduring friendships than those children who change schools often. Fourth, those individuals enrolled in religiously based schools are more likely to be surrounded by a close-knit community.[10]

Runyan et al[9] modified Coleman's factors and developed an index of social capital that paralleled Coleman's measure. They used the following factors to create a social capital score: (1) the number of parents in the home, (2) social support of the maternal caregiver, (3) the number of children in the family, (4) neighborhood support, and (5) church attendance. Their results indicated that social capital was related to well-being in children who were classified as high risk for maltreatment.

The lack of consistency in the measurement of social capital brings an important question to mind: Are Putnam, Kawachi et al, Coleman, and Runyan et al really measuring the same thing? We believe that some of the variables used by Coleman and Runyan et al, specifically involvement in religious activity and questions related to family composition, may actually be indicators of social support rather than social capital. Research has clearly demonstrated that social support positively effects child development. For example, social support has been shown to serve as a protective factor in adolescents exposed to family violence.[11] Further research has demonstrated that abused children who have support from family and peers support experience less depression than abused children who lack such support.[12]

The aims of the current article derive from our desire to apply data from an ongoing study to see whether social capital and social support, measured at the individual level, can reduce the adverse effects of child maltreatment. Specifically, we aim to (1) create indexes of social capital and social support to use at an individual level, (2) explore whether social capital modifies the maladaptive effects of child maltreatment, and (3) explore whether social support modifies the maladaptive effects of child maltreatment. The following questions will be addressed: At 6 years, how do social capital and social support modify the relationships between child maltreatment and (1) depression-anxiety and (2) aggressive behavior? Answering these questions will provide insight into the concept of social capital, its relationship to social support, and whether it can be assessed at an individual level.

METHODS

STUDY SAMPLE

The sample consists of participants from the southern site of LONGSCAN (Longitudinal Studies of Child Abuse and Neglect),[13] a 5-site longitudinal study of the causes and consequences of child abuse and neglect. The initial 788 mother-

©2003 American Medical Association. All rights reserved.
Downloaded From: http://archpedi.jamanetwork.com/ on 04/25/2017

infant pairs were recruited at the time of the infants' births to overrepresent high-risk infants with both biomedical and socioeconomic risk factors. (A more detailed description of the recruitment of the original study sample [The Stress and Social Support Project] was discussed elsewhere.[14])

When the Stress and Social Support Project children were 4 years old, LONGSCAN support made it possible to follow a subset of them. Subjects were sorted into 2 randomized lists. One list included the names of all children who had been reported as being abused or neglected by the age of 4 years. The second list included the names of all children who had never been reported as being neglected or abused. For every child from the list of reported children, 2 children, matched for age, sex, race, and socioeconomic status, were selected in the order they appeared on the list of nonreported children. Of the 243 mother-child pairs who were selected in this way, 222 were interviewed when the children were 6 years old. Of this number, we were able to include 215 subject children who met our criterion that they be living with a maternal caregiver. Because there were no statistically significant differences between the 215 maternal caregivers and the 179 biological mothers among the 215 subject pairs, all 215 subjects were used in the analysis (**Table 1**). The study was approved by the institutional review board for the Protection of Human Research Subjects of the School of Public Health, The University of North Carolina at Chapel Hill.

Table 1. Characteristics of Participants*

Variable	n = 179†	n = 215	*P* Value, χ^2 Test
Report of maltreatment			
Yes	64 (35.8)	89 (41.4)	.25
No	115 (64.2)	126 (58.6)	
Child's sex			
Male	82 (45.8)	101 (47.0)	.82
Female	97 (54.2)	114 (53.0)	
Caregiver's race			
White	67 (37.4)	76 (35.3)	.67
Black	112 (62.6)	139 (64.7)	
AFDC recipient			
Yes	79 (44.1)	102 (47.4)	.51
No	100 (55.9)	113 (52.6)	
Caregiver's educational level			
<High school	68 (38.0)	84 (39.1)	.87‡
High school diploma or GED certificate	83 (46.4)	99 (46.0)	
Some college	28 (15.6)	32 (14.9)	.89§

Abbreviations: AFDC, Aid to Family With Dependent Children; GED, general educational development.
*Data are given as number (percentage) of study subjects.
†The respondents were the biological mothers.
‡Compares less than high school with high school diploma or GED certificate.
§Compares some college with high school diploma or GED certificate.

MEASURES

Main Outcome Variables

Parent-reported child aggression and depression-anxiety were the 2 outcome variables. The outcome variables were derived from the Child Behavior Checklist (CBCL) administered at the age 6 interview.[15] Because only a few cases had aggression or depression-anxiety scores that reached clinical cutoff points, continuous raw scores were used for the subsequent analyses.

Major Exposure of Interest

With the permission of the director of the State Division of Social Services, based in Raleigh, NC, we were able to merge our interview data with child maltreatment reports from the state's Central Registry on Child Abuse and Neglect. Child maltreatment is binary coded (no report/report) to indicate any child maltreatment report (regardless of substantiation) from the time of birth to the date of the age 6 interview.

Confounding Variables

All confounding variables were derived from the age 6 interview. They were child sex (male or female), caregiver's race (African American or European American), receiving Aid to Family With Dependent Children (AFDC) (yes, no), caregiver's educational level (less than high school, high school or General Educational Development certificate, or more than high school), religious activity (0, never; 5, more than once a week), biological mother's age at index child's birth, and the caregiver's depressive symptoms. Caregivers' depressive symptoms were measured by the Center for Epidemiological Studies-Depression instrument.[16] High internal consistency for the Center for Epidemiologic Studies-Depression instrument was found in our sample, with the Cronbach $\alpha = 0.92$.

Effect Modifiers

Social capital was operationalized using items from the Neighborhood Risk Assessment instrument. The Neighborhood Risk Assessment is a survey developed by the LONGSCAN Coordinating Center and the northern site that measures neighborhood risk. Specifically, items 1 to 5 regard the respondent's longevity in the neighborhood, location of the neighborhood, and type of dwelling. Items 6 to 30 are general statements about neighbors and the neighborhood, such as neighborhood safety, neighbors' support, and connectedness. As the items 6 to 30 are rated on a 5-point Likert scale, these were used to create item clusters (factors) by performing factor analysis (see "Data Analysis" subsection). Social support was operationalized using items from the Functional Social Support Questionnaire (FSSQ).[17] The FSSQ is a 10-item scale that measures an individual's perception of both emotional and instrumental support. The item response options range from 1 ("Much less than I would like") to 5 ("As much as I would like"). Test-retest reliability on this instrument yielded a correlation coefficient of 0.66.[17] As was the case with social capital, factor analysis was used to create social support item clusters as described in the "Data Analysis" section.

DATA ANALYSIS

Factor analyses were separately applied to the Neighborhood Risk Assessment and the FSSQ to retain meaningful factors. Because selection of significant markers was our major concern, we specified that an item should have a loading of 0.40 or greater on the relevant factor. If an item had a loading of 0.40 or greater on more than 1 factor, this item was assigned to the factor that the item had the highest loading. Oblique rotations were used to allow for the possibility of correlated factors. Even though the preliminary analysis suggested that eigenvalues for the first 6 factors were greater than 1.0 for the Neighborhood Risk Assessment scale, this solution yielded either trivial factors (only 1 or 2 items loaded on each factor) or factors that were not conceptually related to social capital. As a result, the following 3 social capital factors were created: (1) neighborhood trust, (2) the neighbors' relationships with children, and (3) the extent of help received from neighbors. These factors are conceptually related to the factors used by Lochner et al.[18]

©2003 American Medical Association. All rights reserved.
Downloaded From: http://archpedi.jamanetwork.com/ on 04/25/2017

Table 2. Unadjusted Associations Between Child Outcomes and Covariates

Variable	Depression-Anxiety, β Coefficient (SE)	Aggression, β Coefficient (SE)
Report of maltreatment, yes	1.00 (0.52)	3.13 (0.94)*
Male child	−1.23 (0.51)†	0.39 (0.95)
Caregiver's race, black	−0.75 (0.54)	−1.20 (0.99)
AFDC recipient, yes	1.12 (0.51)†	3.09 (0.92)*
Caregiver's educational level	−0.22 (0.37)	−1.04 (0.68)
Participates in religious activities	0.04 (0.17)	−0.24 (0.31)
Biological mother's age at child birth	−0.06 (0.05)	−0.19 (0.09)†
Caregiver is depressed	0.16 (0.02)*	0.26 (0.03)*
Neighborhood trust is high	−0.83 (0.52)	−2.03 (0.95)†
Neighbors' relationship with children is high	−0.35 (0.52)	−0.91 (0.94)
Help received from neighbors is high	−1.34 (0.51)‡	−2.13 (0.94)†
Emotional support is high	−1.87 (0.50)*	−3.22 (0.92)*
Instrumental support is high	−1.83 (0.50)*	−2.85 (0.93)†

Abbreviation: AFDC, Aid to Family With Dependent Children.
*$P<.001$, χ^2 test.
†$P<.05$, χ^2 test.
‡$P<.01$, χ^2 test.

With regard to the FSSQ, 2 factors—instrumental support and emotional support—were determined using the same rules discussed earlier. Instrumental support includes items that indicate whether the individual has access to help with child care, with cooking, and in times of illness. Emotional support includes items that capture whether the individual feels loved and has close social relationships with others. After factor items were determined, a factor score was computed by summing up scores of items that loaded on that factor.

The factor score distributions of the 3 social capital factors from the Neighborhood Risk Assessment and the 2 social support factors from the FSSQ were skewed such that there was disproportionate loading on the high end. To maximize the variation in each level of these 5 factors, 5 dichotomous variables were created. The cut off point for each factor is the median value or midpoint of its factor score.

To identify predictors of child depression-anxiety and aggression, we used the SAS GLM procedure (SAS Inc, Cary, NC) to perform linear regression. Linear regression is the preferred approach when the outcome variable is continuous, as is the case with our measures of depression-anxiety and aggression. For each of these outcomes, bivariate linear regressions were used initially to generate estimates of unadjusted β coefficients. An unadjusted β coefficient is the rate of change in an outcome for each unit of change in a predictor variable. To control for other predictors, however, multivariate linear regression models were applied next to generate adjusted β coefficients and SEs. The adjusted β coefficient represents the rate of change in the outcome variable for each unit of change in the predictor while holding all other independent variables constant. The SE is used to determine whether the relationship of the predictor to the outcome is stastically significant, controlling for the other independent variables in the model. Finally, we looked for the modifying effect that any of the social capital or social support factors have on the relationship between maltreatment and each of the 2 outcomes. To do so we tested whether the interactions between maltreatment and each of the 5 effect modifiers (3 social capital factors and 2 social support factors) were stastically significant. A stastically significant interaction would indicate that either social capital or social support (or both) changes the relationship between maltreatment and adverse child behavior.

RESULTS

More than 40% of the children had had at least 1 maltreatment report before the age 6 interview. Caregivers in this sample were primarily African American (64.5%), 38.2% had not completed their high school education, and 46.4% had a high school education (graduated or had a General Educational Development certificate). The mean (SD) age of the biological mothers at the index child's birth was 20.82 (5.23) years. About 46.4% of the caregivers were receiving AFDC, as welfare was then called. Of the 215 maternal caregivers, 179 (83.3%) were biological mothers, 23 (10.7%) were grandmothers, and 13 (6.0%) were other females. Biological mothers and other maternal caregivers were similar for demographic characteristics. Characteristics of the 215 maternal caregivers and the 179 biological mothers, and *P* values derived from χ^2 tests comparing the 2 are given in Table 1.

Unadjusted bivariate associations indicated that the following variables were significantly associated with depression-anxiety at the age of 6 years: child sex, AFDC participation, caregiver's depression, low help received from neighbors, low emotional support, and low instrumental support. The following variables were significantly associated with aggression at the age of 6 years: child maltreatment report before the age 6 interview, AFDC participation, young biological mother at child's birth, caregiver's depression, low neighborhood trust, low help received from neighbors, lack of emotional support, and lack of instrumental support. These results are listed in **Table 2**.

Because we were interested in the modifying effect of each social capital and social support factor after other covariates were controlled, we fitted the multivariate models with 1 factor at a time, controlling for other independent variables. We did this separately for each of our 2 outcomes. Among 5 factors, only 1 interaction was significant, that between instrumental support × maltreatment, indicating that instrumental support significantly modified the relationship between maltreatment and child aggression (**Table 3**).

The **Figure** shows the effect of the instrumental support maltreatment interaction on predicted aggression scores holding the following variables constant: girl, white, no AFDC participation, caregiver's educational level was less than high school, never attended religious activities, biological mother's age at subject child's birth was 18 years old, and caregiver's depression score was 16. In the group that had at least 1 maltreatment report before the age 6 interview, low instrumental support received by the caregiver enhanced the child aggression score, whereas high instrumental support seems to militate against the effect of maltreatment on child aggression.

COMMENT

The goals of this article were to (1) create indexes of social capital and social support using data collected in the

©2003 American Medical Association. All rights reserved.
Downloaded From: http://archpedi.jamanetwork.com/ on 04/25/2017

Table 3. Multivariate Linear Regression With Dichotomous Instrumental Support as Effect Modifier

Variable	Depression-Anxiety		Aggression	
	β Coefficient (SE)	95% CI	β Coefficient (SE)	95% CI
Report of maltreatment, yes	1.17 (0.63)	−0.08 to 2.41	4.16 (1.15)*	1.89 to 6.43
Male child	−0.87 (0.43)†	−1.72 to −0.02	1.14 (0.79)	−0.41 to 2.70
Caregiver's race, black	−0.91 (0.50)	−1.89 to 0.07	−1.87 (0.91)†	−3.67 to −0.07
AFDC recipient, yes	0.90 (0.51)	−0.12 to 1.91	2.15 (0.94)†	0.30 to 4.00
Caregiver's educational level	0.40 (0.34)	−0.27 to 1.06	0.46 (0.62)	−0.76 to 1.68
Participates in religious activities	0.21 (0.14)	−0.07 to 0.50	0.11 (0.26)	−0.41 to 0.63
Biological mother's age at child birth	−0.10 (0.04)†	−0.18 to −0.01	−0.25 (0.08)‡	−0.41 to −0.09
Caregiver is depressed	0.14 (0.02)*	0.11 to 0.18	0.25 (0.03)*	0.18 to 0.31
Instrumental support is high	−0.40 (0.58)	−1.54 to 0.75	0.46 (1.06)	−1.63 to 2.55
Maltreatment instrumental support*	−1.19 (0.88)	−2.93 to 0.54	−3.87 (1.61)†	−7.04 to −0.70

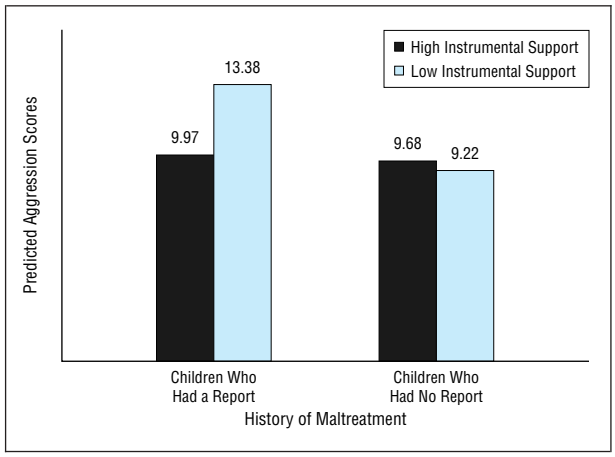
Abbreviations: AFDC, Aid to Family With Dependent Children; CI, confidence interval.
*$P<.001$, χ^2 test.
†$P<.05$, χ^2 test.
‡$P<.01$, χ^2 test.

LONGSCAN study, (2) explore whether social capital modifies the maladaptive effects of child maltreatment, and (3) explore whether social support modifies the maladaptive effects of child maltreatment. Based on the measures of social capital and social support used in this analysis, social capital did not seem to modify the associations between maltreatment and the chosen outcomes (depression-anxiety and aggression) in the controlled, multivariate analyses. However social support did have a significant modifying effect. Specifically, instrumental social support alleviates the effect of maltreatment on aggressive behavior at the age of 6 years.

The fact that maltreated children whose mothers scored high on instrumental support showed lower aggressive behavior scores than other maltreated children has useful implications for practitioners. Respondents who scored high on instrumental support felt that they had people in their lives who could help them with daily tasks such as cooking and caring for a sick child. Although there is likely to be some correlation between emotional and instrumental support, theoretically the 2 constructs are distinct. One who lacks emotional support might still have resources that can provide instrumental support. Thus, this finding lends support to the notion that support groups and social programs that can be implemented in communities might prove useful for families whose children have experienced abuse or neglect.

The fact that social capital was not significant in this study differs from previous studies of other health status outcomes. We suspect that this is partially owing to the way social capital has been measured, both in this study and in other studies. Many other studies have looked at social capital ecologically,[7,18] whereas our study uses individuals as the units of analysis. Further, the indicators used to determine the level of social capital in this study differ from indicators used in previous studies, such as those conducted by Runyan et al[19] and Coleman.[10] The results of our study suggest that these and other previous studies of social capital and health outcomes might have been measuring social support instead of social capital. Social capital might only be valid at an ecological level.

Potential limitations of this study should be noted. First, although the Child Behavior Checklist has proven



The predicted Child Behavior Checklist aggression scores by maltreatment status. Status was based on the child's status at the age of 4 years. Adapted from Kotch et al.[14]

to be a valid and reliable instrument,[15] it is not used for clinical purposes. It is possible that the results of this study would have been different had we used a different measure of depression-anxiety and aggression. Second, similar to previous measurements of social capital, the measure used in this study was created from preexisting measures of other factors and did not undergo rigorous psychometric testing. Third, data collected in this study were gathered from maternal caregivers, who might also have been perpetrators of abuse. Eighty-seven percent of the perpetrators were parent figures, but data on which parent abused the child are unknown. This might have introduced some bias to the data on child depression-anxiety and aggression.

Does social capital really matter? Based on the results of this study, one could conclude that social capital is not an attribute of individuals. Concurrently, social capital may still matter as a construct that describes communities. Those who reside in communities scoring high on social capital seem to benefit if the results of other studies are corroborated. However, more research is needed to prove this. Moreover, clinicians cannot do anything about social capital, but they can provide social

©2003 American Medical Association. All rights reserved.
Downloaded From: http://archpedi.jamanetwork.com/ on 04/25/2017

What This Study Adds

Although well known in sociology and political science, the term "social capital" has only recently entered the health care literature. Many analyses of secondary data have concluded that social capital is associated with lower population-based rates of such adverse health outcomes as crude mortality, infant mortality, and homicide, to name a few. However, the definition of social capital remains controversial, and the pathway through which it improves health status is elusive. This article attempted to disentangle the distinct concepts of social capital and social support to determine which, if either, may ameliorate the consequences of child maltreatment. Previous research on social capital may have actually been assessing social support. Future studies should clearly distinguish between these constructs.

support to patients as well as make recommendations to parents about where they might find support.

Data used in this study were collected when the children were 6 years old. Long-term follow-up of these children and caregivers might yield different findings as social support and social capital might have cumulative effects. Similar to compounding interest in a bank account, those who accumulate social capital over time might have better outcomes than those who do not. Future research is also needed to determine whether a community's level of social capital predicts its population-based measures of health and illness.

Accepted for publication February 6, 2003.

This study was supported by grant 90-CA1467 from the Children's Bureau, Administration for Children and Families, US Department of Health and Human Services, Bethesda, Md, and grant 1 R01 HD39689-01 from the National Institute of Child Health and Human Development, Bethesda.

We thank Jon Hussey, PhD, for contributing many suggestions to the development of this article, including the current references.

Corresponding author and reprints: Gitanjali Saluja, PhD, National Institute of Child Health and Human Development, National Institutes of Health, Division of Epidemiology, Statistics, and Prevention Research, 6100 Executive Blvd, Room 7B03 MSC 7510, Bethesda, MD 20892-7510 (e-mail: salujag@mail.nih.gov).

REFERENCES

1. Goodman GS, Emery RE, Haugaard JJ. Developmental psychology and law: Divorce, child maltreatment, foster care and adoption. In: Damon W, editor. *Handbook of Child Psychology.* Vol 4. 5th ed. New York, NY: John Wiley & Sons Inc; 1998:775-874.
2. Zolotor A, Kotch J, Dufort V, Winsor J, Catellier D, Bou-Saada I. School performance in a longitudinal cohort of children and risk of maltreatment. *Matern Child Health J.* 1999;3:19-27.
3. Portes A. Social capital: its origins and applications in modern sociology. *Ann Rev Sociol.* 1998;24:1-24.
4. Macinko J, Starfield B. The utility of social capital in research on health determinants. *Milbank Q.* 2001;9:387-427.
5. Putnam RD. Bowling alone: America's declining social capital. *J Democracy.* 1995; 6:65-78.
6. The World Bank Group. What is social capital? Available at: http://www.worldbank.org/poverty/scapital/whatsc.htm. Accessed December 2, 2002.
7. Kawachi I, Kennedy BP, Lochner K, Prothow-Stith D. Social capital, income inequality, and mortality. *Am J Public Health.* 1997;87:1491-1498.
8. Smith MK. Social capital. Encyclopedia of informal education 2001. Available at: http://www.infed.org/biblio/social_capital.htm. Accessed December 2, 2002.
9. Runyan DK, Hunter WM, Socolar RRS, et al. Children who prosper in unfavorable environments: the relationship to social capital. *Pediatrics.* 1998;101:12-18.
10. Coleman JS. Social capital and the creation of human capital. *Am J Sociol.* 1988; 94(suppl): S95-S120.
11. Muller RT, Goebel-Fabbri AE, Diamond T, Dinklage D. Social support and the relationship between family and community violence exposure and psychopathology among high risk adolescents. *Child Abuse Neglect.* 2000;24:449-464.
12. Ezzell CE, Swenson CC, Brondino MJ. The relationship of social support to physically abused children's adjustment. *Child Abuse Neglect.* 2000;24:641-649.
13. Runyan DK, Curtis P, Hunter WM, et al. LONGSCAN: a consortium for longitudinal studies of maltreatment and the life course of children. *Aggression Violent Behav Rev J.* 1998;3:275-285.
14. Kotch JB, Browne D, Ringwalt CL, et al. Risk of child abuse or neglect in a cohort of low-income children. *Child Abuse Neglect.* 1995;19:1115-1130.
15. Achenbach TM. *Manual for the Child Behavior Checklist/4-18 and 1991 Profile.* Burlington: University of Vermont Department of Psychiatry; 1991.
16. Radloff LS. The CES-D scale: a self-report depression scale to detect depression in a community sample. *Appl Psychol Meas.* 1977;1:385-401.
17. Broadhead WE, Gehlbach SH, De Gruy FV, Kaplan BH. The Duke-UNC Functional Social Support Questionnaire: measurement of social support in family medicine patients. *Med Care.* 1988;26:709-723.
18. Lochner K, Kawachi I, Kennedy BP. Social capital: a guide to its measurement. *Health Place.* 1999;5:259-270.

©2003 American Medical Association. All rights reserved.
Downloaded From: http://archpedi.jamanetwork.com/ on 04/25/2017