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Research Implications for the Prevention of Child Abuse and Neglect

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Research Implications for the Prevention of Child Abuse and Neglect

Abstract

Child abuse and neglect is a problem of vast proportions. Research on the effectiveness of child abuse and neglect prevention programs is critical for the provision of effective and efficient services. This paper provides a critical analysis of the research methodologies on child abuse and neglect prevention programs at the secondary and tertiary levels, as represented in the empirical literature. The paper begins by outlining the levels of prevention, and by describing child abuse and neglect prevention programs, as published in the empirical literature. This paper then goes on to describe and analyze the research conducted on these programs, to identify gaps in research, and to suggest ways to improve the rigor and validity of future research. Conclusions drawn include a call for greater quantity and quality of research on child abuse and neglect prevention programs, including the increased use of comparison groups, larger sample sizes, and a research design with follow-up measurement.

Child abuse and neglect is a problem of vast proportions and far-reaching effects. The U.S. Department of Health and Human Services estimated that more than 2.6 million reports of alleged child abuse or neglect were investigated by Child Protective Service agencies in 2002. Nationally, an estimated 896,000 children were victims of abuse and neglect in 2002; 60% of whom suffered neglect, 20% physical abuse, 10% sexual abuse, and 27% were victims of other types of maltreatment. According to HHS, 1,400 children died of abuse or neglect in 2002 (U.S. Department of Health, 2004). Acts of child abuse and neglect have devastating long- and short-term effects on children, including but not limited to brain injury, fractures, burns, and blindness. Consequences of abuse can also include low self-esteem, learning disabilities, aggressive or withdrawal behaviors, and problems with bonding and forming relationships (CAPTA, 1996; Emerging Practices, 2002; Huebner, 2002; National Exchange Club Foundation for the Prevention of Child Abuse, 2002).

The purposes of this paper are to provide a critical analysis of the research methodologies on child abuse and neglect prevention programs at the secondary and tertiary levels as represented in the empirical literature, and to make recomendations for future research. The paper begins by outlining the levels of prevention and describing child abuse and neglect prevention programs, as published in the empirical literature. This paper then goes on to describe and analyze the research conducted on these programs, to identify gaps in research, and to suggest ways to improve the rigor and validity of future research.

An exhaustive review of the empirical literature found 30 articles on child abuse and neglect prevention at the secondary and tertiary levels (see Table 1). Empirical articles included in this analysis were those on programs that targeted families with children ages 0-12 years, who were at-risk for neglect and/or physical abuse, excluding unique populations. This criteria was

used in order to capture data from as broad a base of programs as possible, and to heighten the opportunity for generalizability.

Levels of Prevention

Efforts to prevent child abuse and neglect prevention efforts can be conceptualized on a continuum from broad to specific. Many authors label the points on this continuum as primary, secondary, and tertiary prevention, with various combinations and unique applications of each (see Figure 1) (Browne, Hanks, Stratton, & Hamilton, 2002; Hoefnagels & Mudde, 2000; Willis, Holden, & Rosenberg, 1992). Primary prevention services are offered to any family, regardless of risk level. In contrast, secondary prevention services target a certain population of clients because of its perceived risk level. Prevention services for child abuse and neglect at the tertiary level are targeted at client groups who have already been identified as having maltreated their children, as defined by a substantiated case with Child Protective Services (CPS). Given the stigmatization of the abuse or neglect label, many child abuse and neglect prevention programs target clients at both the secondary and tertiary levels.

Description of Programs

Typical families participating in the child abuse and neglect prevention programs reviewed were comprised of young, single, ethnic minority parents, with low levels of education and financial resources, and very young children (see Table 2). Although child abuse and neglect is most often manifested in the entire family, many preventive programs direct services at the mother only. Most families were referred to treatment through hospitals or medical clinics (including WIC). Most of the 30 programs delivered services in the home to some extent, with 20 of them serving clients exclusively in the home. Many of the programs included in this cohort used nurses as the direct service providers to clients. Paraprofessionals were used as the

single conduit of services in one-fourth of the programs. One-third of programs offered services for 2 years, followed by those programs that offered services for 1 year (17%). Most home-visiting programs intended to provide two to four visits each month. Most programs used their own individualized curriculum. By far, the largest percentage (60%) of programs was offered in an urban or inner-city setting. (See Table 3.)

Review and Critique of Methodologies

Discussed in this section are the methodologies employed in these empirical articles, including theory, research design, presence of a comparison/control group, sampling design, sample size, use of measurement tools, inclusion of a follow-up measurement, and level of statistical analyses.

Over half (53%, *n*=16) of the studies did not state what theory they ascribed to. Of those studies that did state a theory, 57% (*n*=8) were based on the ecological theory, including five on the Nurse Home Visitation Program (NHVP). Three (21%) were based on the ecobehavioral theory (very similar to ecological theory). The remaining studies stated that they were based on the cognitive (*n*=1), cognitive-behavioral (*n*=1), or Adlerian (*n*=1) theories. (See Table 4.)

All studies in this review are evaluations of programs employing an intervention. The largest percentage of studies (47%, *n*=14) were classic experiments (with random assignment to an intervention or control group), including six from the NHVP. The remaining were quasi-experimental (23%, *n*=7), including two of the NHVP studies that studied subgroups of the original randomly sampled groups, or pre-experimental (23%, *n*=7). Nearly three-fourths (*n*=22, 73%) of the studies utilized a comparison or control group. (See Table 4.)

The sample sizes varied considerably. The overall median for the total sample size (including both the treatment and the comparison/control groups) was 212 family units. By far,

the studies at the secondary level of prevention had the largest sample sizes, ranging from 56 to 4,410 families. Sample sizes at all levels of prevention were skewed significantly by a small number (*n*=7, 23%) of studies with very high sample sizes (>1,000) (four from the NHVP), thus the median is a more accurate report of sample size. Less than half of the studies (43%, *n*=13) used a probability sampling method, six of which were studies from the Nurses Home Visitation Program. The remaining 53% (*n*=16) of the studies employed a nonprobability sampling frame, and one study examined a population. (See Tables 4 and 5.)

A wide assortment (*n*=40) of measurement tools were used in these studies. The most common standardized, published tools used were the Home Observation for the Measurement of the Environment (HOME) (*n*=11), the Bayley Scales of Infant Development (*n*=5), Parenting Stress Index (PSI) (*n*=5), and the Beck Depression Inventory (BDI) (*n*=5). In addition, many studies used intake questionnaires, interviews, health records, CPS records, and case records.

Only 13 (43%) of the 30 studies indicated that they conducted a follow-up study, varying from 3 months to more than 5 years. Seven (23%) of the studies employed a longitudinal design (equal to or more than a 2-year follow-up), including four studies which were on the NHVP. The remaining studies used a short-term (less than 2-year) follow-up. Of those conducting a follow-up, they varied between 3 to 6 months (*n*=4), 1 to 2 years (*n*=3), 2 to 4 years (*n*=4), and 13 years following the termination of treatment (*n*=2). Over half of the studies (*n*=17, 57%) were cross-sectional with no follow-up. (See Table 3.)

A final characteristic of this cohort of 30 empirical studies that was examined was the level of statistical analyses employed. Four out of the 30 (13%) used descriptive statistics only (mean, median, mode, standard deviation, range, variance), including all three articles using the ecobehavioral theory by Lutzker. Seven (23%) of the articles used descriptive and bivariate

statistical analyses only (including *t*-tests and *Chi*-squares). The greatest percentage (63%, *n*=16) used descriptives, bivariate and multivariate statistical analyses (including *ANOVA*s, *ANCOVA*s, *MANOVA*s, multiple regressions, and logistic regressions) (See Table 4.)

In summary, most evaluations and their corresponding articles embrace the ecological theory, employ a control or comparison group, have a relatively small sample size, use a wide variety of measurements, do not use a follow-up design, and have a moderate level of statistical analyses.

Implications for Future Research

The need for increased quantity and quality of research and evaluation in the area of the prevention of child abuse and neglect is immense. A number of large program models have minimal or no evaluations published in the professional literature, including Healthy Start, Healthy Families, the National Exchange Club Foundation for the Prevention of Child Abuse, and Parents Anonymous. Although there are child abuse and neglect prevention programs in nearly every city and country around the United States, only 30 empirical articles could be located in the professional literature (within the broad parameters outlined earlier in this paper). This small body of research representing such a large field of programs calls to question the representativeness of the sample. Without more extensive research, it cannot be known if the evaluations published in the professional literature represent certain segments of the field and not others. Although evaluations are frequently published informally in independent reports, websites, and newsletters, they cannot be thoroughly examined and lessons learned unless also published in the professional literature.

Research on effective programs to prevent child abuse and neglect could undoubtedly be strengthened by the more frequent use of the classical experimental research design and larger

samples. The random assignment of study participants to intervention and control groups greatly increases the liklihood that any resulting change can truly and reliably be attributed to the intervention. However, even with random assignment to groups, a long list of other internal validity issues remain. The marriage of rigorous research design with effective and ethical practice is certainly a tricky one. For one, the ethics of denying or even wait-listing an at-risk family for prevention services in order to form a control group is often prohibitive. In addition, complex issues such as treatment integrity and participant attrition often cloud the picture. Practitioners and researchers must work together to find creative solutions that satisfy competing goals.

Another noticeable gap in the current research on child abuse and neglect prevention is the lack of follow-up in the research design. It may be that program effects are short-lived, or that they are incubated until a future time or event. A follow-up measurement point(s) after the conclusion of program provision is important in determining whether or not the program is effective in meeting its goals. While many programs may find it difficult to locate clients following the termination of services, at the very least, the examination of child protective data can determine abuse recidivism.

Many possible barriers exist to improving the research and knowledge on child abuse and prevention, not the least of which is the availability of funds for evaluation activities. Thorough and comprehensive evaluations do not come without cost. In addition, programs charged with the goal of preventing child abuse and neglect struggle with locating valid and reliable measurement tools. They seek tools that match their unique sample and program goals, and ones which reflect both subtle and not-so-subtle program effects. Many programs lack the most basic technology tools required to gather data on clients and service provision. In addition, program

administrators and front-line workers may be resistant to evaluatory activities out of fear or lack of knowledge.

Within the current literature, so many questions remain without clear answers. For example: Which is more effective: home- or center-based services? Both loci present unique advantages and disadvantages. Home visits hold great promise in the prevention of child abuse and neglect, particularly in the areas of client engagement and opportunities for modeling appropriate behavior in a familiar and relevant context. At the same time, the home visitation model has come under fire, and is showing equivocal results (Duggan, 1999; First Reports, 2003; St. Pierre & Layzer, 1999; Research, 2004). A home visitation program can also be very expensive in terms of staff time and number of families served because of travel and the one-on-one delivery of services. In addition, a critical issue for most families at-risk for child abuse and neglect is social support. While a home visitor may provide a critical link to the community, this relationship is usually time-limited and does not necessarily provide the family with the social supports needed to function independent of professional assistance. Further research can seek to determine if perhaps different types of families respond best to different loci of service. In addition, it may be that risk factors for divergent types of child abuse and neglect – i.e. physical abuse, sexual abuse, neglect – are best reduced through different types of services. Further research is needed to explore these important questions in a more in-depth manner.

A second critical question asks whether the education, profession, or paid status of the person delivering services makes a difference in engaging families or achieving positive outcomes. Are nurses truly the most effective in direct delivery of services, as argued by the professionals designing and implementing the Nurse Home Visitation Program (Olds, Robinson, O'Brien, Luckey, Pettitt, Henderson, Jr., et al., 2002)? Or, are positive outcomes for programs

staffed with nurses skewed by a more narrow and concrete focus on health and safety issues? Could it be that nurses are more effective than paraprofessionals because they are more educated? Or, is it because nurses are paid and this prompts less turnover? While a large number of articles state that their programs use paraprofessionals, they generally do not provide data on the age, race/ethnicity, or education of the paraprofessional, nor do they always make clear distinctions as to whether they are volunteers or whether they are paid. Again, more research is needed to answer these critical questions.

While it is understood that issues such as substance abuse, domestic violence, unemployment, and lack of safe housing and quality childcare contribute heavily to increasing a family's risk for child abuse and neglect, these are not variables being addressed in current research on the prevention of child maltreatment.

The prevention of child abuse and neglect is an important and demanding proposition. Research on this critical issue is fundamental to the provision of effective and efficient services to at-risk families. Without the evaluation of programs and the publishing of findings, the field of child abuse and neglect prevention cannot move ahead. The quality of research in this very important field must continue to improve, especially through the increased use of comparison groups, larger sample sizes, and research designs that include follow-up measurement.

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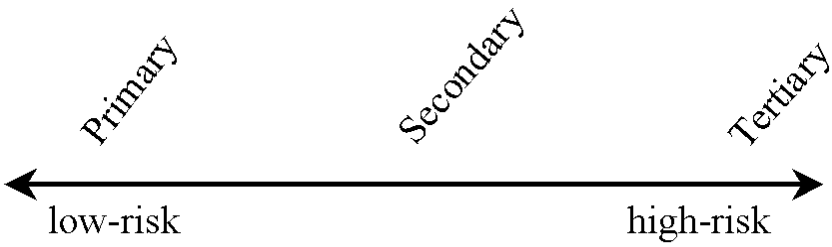

Figure 1 Levels of Prevention

Table 1 Articles Included in Empirical Review

Bigelow & Lutzker, 2000
Black, Dubowitz, Hutcheson, Berenson-Howard, & Starr, Jr., 1995
Bugental, Ellerson, Lin, Rainey, Kokotovic, & O'Hara, 2002
Cerny & Inouye, 2001
Cole, Kitzman, Olds, & Sidora, 1998
Cowen, 2001
Danoff, Kemper, & Sherry, 1994
Duggan, et al, 1999
Dumka, Garza, Roosa, & Stoerzinger, 1997
Fraser, Armstrong, Morris, & Dadds, 2000
Frost, Johnson, Stein, & Wallis, 2000
Gershater-Molko, Lutzker, & Wesch, 2002
Huebner, 2002
Hutcheson, et al, 1997
Huxley & Warner, 1993
Iwaniec, 1997
Korfmacher, Kitzman, & Olds, 1998
Korfmacher, O'Brien, Hiatt, & Olds, 1999
Lutzker, Bigelow, Doctor, & Kessler, 1998
Marcenko, Spence, & Samost, 1996
Olds & Korfmacher, 1998
Olds, Henderson, & Kitzman, 1994
Olds, Henderson, Jr., Kitzman, Eckenrode, Cole, & Tatelbaum, 1998
Olds, Henderson, Jr., Kitzman, Eckenrode, Cole, & Tatelbaum, 1999
Olds, Henderson, Kitzman, & Cole, 1995
Owen, Tresch, & Mulvihill, 1994
St. Pierre & Layzer, 1999
Wagner & Clayton, 1999
Whipple, 1999
Whipple & Wilson, 1996

Table 2 Description of Samples

Authors	Pub. Date	Age of Child(ren) (at intake)	Family Income	Race	Parent's Age (at intake)	Education	Marital Status
Bigelow & Lutzker	2000	0-5yo	Low	5 White, 2 Hispanic	29yo	Most graduated HS	29% married, 71% single
Black, Dubowitz, Hutcheson, Berenson-Howard, & Starr,	1995	0-2yo	Low	90% AA	25yo	11 years	86% single
Bugental, Ellerson, Lin, Rainey, Kokotovic, & O'Hara	2002	3rd trimester-12mo	Low	97% Hispanic	26yo	7.8 years	48% Single
Cerny & Inouye	2001	newborn	Low	65% White, 21% AA	23yo	Unk	73% married
Cole, Kitzman, Olds, & Sidora	1998	3rd trimester-2yo	Low	92% AA	65% under age 18	Unk	Memphis: 97% unmarried
Cowen	2001	0-5yo	Low to middle	96% White, 2% AA, 1% Hispanic	Unk	23% < HS, 32% HS, 46% > HS	53% married
Danoff, Kemper, & Sherry	1994	0-12 months	Low	41% White, 38% AA	29% under age 20	40% had not completed HS	72% never married, 14% married, 14% separated
Duggan, et al	1999	0-5yo	Low	28% Multiracial, 21% Hawaiian, 18% Filipino, 13% Pacific Islander, 11% Caucasian	24yo	66% of mothers were HS graduates, and 79% of fathers	24% married
Dumka, Garza, Roosa, & Stoerzinger	1997	4th grade	Low	78% Hispanic, 15% AA; 9% other	Unk	Unk	58% married or cohabiting
Fraser, Armstrong, Morris, & Dadds	2000	newborn	Low to moderate	77% born in Australia, 23% born overseas	7% 15-17yo, 32% 18-24yo, 62% 25-41yo	20% < 7 years, 38% < 10 years, 41% 12 years+	40% single parents, 41% married
Frost, Johnson, Stein, & Wallis	2000	0-5yo	Low	Unk	Unk	Unk	20% couples, 54% single parents
Gershater-Molko, Lutzker, & Wesch	2002	0-5yo	Unk	Unk	Unk	Unk	Unk
Huebner	2002	0-3yo	Unk	35% White, 33% AA	28yo	11-12 years	11% married, 82% sees co-parent
Hutcheson, et al	1997	4yo	Low	90% AA	25yo	10.8 years	12% married
Huxley & Warner	1993	3rd trimester-3yo	Unk	Unk	20yo	Unk	Mostly single
Iwaniec	1997	Unk	Low to Moderate	85% White, 15% AA	26yo	Unk	30% single, 50% "intact", 20% step

Table 2 Description of Samples *(cont'd)*

Authors	Pub. Date	Age of Child(ren) (at intake)	Family Income	Race	Parent's Age (at intake)	Education	Marital Status
Korfmacher, Kitzman, & Olds*	1998	3rd trim-2yo	Low	92% AA	65% < age 18	Unk	97% unmarried
Korfmacher, O'Brien, Hiatt, & Olds*	1999	3rd trimester-2yo	Low	45% Hispanic, 34% White, 16% AA	Unk	Unk	Unk
Lutzker, Bigelow, Doctor, & Kessler	1998	0-5yo	Unk	64% Hispanic, 28% White, 7% AA	28yo	Unk	Unk
Marcenko, Spence, & Samost	1996	1st trim-1yo	Low	94% AA	23yo	10.5 years	88% single
Olds & Korfmacher*	1998	3rd trimester-2yo	Low	Elmira: 89% White; Memphis: 92% AA	Memphis: 65% < age 18	Unk	Memphis: 97% unmarried
Olds, Henderson, & Kitzman*	1994	2-4yo	Low	100% White	Unk		
Olds, Henderson, Jr., Kitzman, Eckenrode, Cole & Tatelbaum*	1998	3rd trimester-2yo	Low	Elmira: 89% White; Memphis: 92% AA	Memphis: 65% < age 18	Unk	Memphis: 97% unmarried
Olds, Henderson, Jr., Kitzman, Eckenrode, Cole & Tatelbaum*	1999	3rd trimester-2yo	Low	Elmira: 89% White; Memphis: 92% AA	Memphis: 65% < age 18	Unk	Memphis: 97% unmarried
Olds, Henderson, Kitzman, & Cole*	1995	3rd trimester-2yo	Low	Elmira: 89% White; Memphis: 92% AA	Memphis: 65% < age 18	Unk	Memphis: 97% unmarried
St. Pierre & Layzer	1999	Unborn to 1yo	Low	43% AA, 26% Hispanic, 26% White	35% < age 18	51% had not graduated from HS	39% couples
Taban & Lutzker	2001	0-5yo	Unk	64% Hispanic, 28% White, 7% AA	27yo	Unk	Unk
Wagner & Clayton	1999	0-6yo	Low to moderate	Latina: 84% Hispanic, 17% White Teen: 55% Hispanic, 21% AA, 22% White	Latina: 25yo Teen: 16yo	Latina: 41% had completed HS; Teen: 70% completed or currently in HS	Latina: 57% married, 11% single. Teen: 12% married, 1% single
Whipple	1999	Varied	Unk	Unk	Unk	Unk	Unk
Whipple & Wilson	1996	1-9yo	Low to moderate	48% White, 35% AA, 17% other	34yo	12% had HS or less, 44% had some college, 45% had college degree	67% couples, 33% single

Table 3 Description of Programs

Authors	Pub. Date	Level of Prevention	Home- or Ctr-Based	Service Provider	Intensity of Program (planned)	Setting
Bigelow & Lutzker	2000	Tertiary	Home-based	Nurses, caseworkers, and GRAs.	15 weekly sessions	Urban
Black, Dubowitz, Hutcheson, Berenson-Howard, & Starr	1995	Tertiary	Center- and home-based	Para-professionals, supervised by community health nurse	1 visit/week for 1 year	Urban
Bugental, Ellerson, Lin, Rainey, Kokotovic, & O'Hara	2002	Secondary	Home-based	Paraprofessionals supervised by a social worker	20 hv/1 year	Urban
Cerny & Inouye	2001	Secondary	Home-based	Community health nurse	2x month/1 year	Military base
Cole, Kitzman, Olds, & Sidora*	1998	Secondary	Home-based	Registered Nurses	1-4 visits/month for 2 years	Urban
Cowen	2001	Tertiary	Center-based primarily	Unk	15 weekly sessions, or 45 visits	Rural
Danoff, Kemper, & Sherry	1994	Secondary	Center-based	Nurses, social worker, childcare personnel	9 weekly classes	Inner-city
Duggan, et al	1999	Secondary	Home-based	Paraprofessionals	1-4 hv/month for 3-5 years	Unk
Dumka, Garza, Roosa, & Stoerzinger	1997	Secondary	Center-based primarily	Paraprofessionals	8 weekly sessions	Urban/inner-city
Fraser, Armstrong, Morris, & Dadds	2000	Secondary	Home-based	Pediatrician, community health nurses, social workers, and parent aides	1-4 visits/month for 1 year	Urban
Frost, Johnson, Stein, & Wallis	2000	Secondary	Home-based	Paraprofessionals	3 years	Unk
Gershater-Molko, Lutzker, & Wesch	2002	Tertiary	Home-based	Unk	24 weeks	Unk
Huebner	2002	Secondary/Tertiary	Center-based	Nurses (w/ master's degrees)	8 weekly sessions	Inner-city
Hutcheson, et al	1997	Tertiary	N/A	N/A	N/A	Urban
Huxley & Warner	1993	Secondary/Tertiary	Home-based	Public health nurses, mental health professionals, a psychiatrist, paraprofessionals	"Flexible", 3 years	Urban

Table 3 Description of Programs *(cont'd)*

Authors	Pub. Date	Level of Prevention	Home- or Ctr-Based	Service Provider	Intensity of Program (planned)	Setting
Iwaniec	1997	Tertiary	Home-based primarily	Social work and psychology students	10 or 20 weekly sessions	Unk
Korfmacher, Kitzman, & Olds*	1998	Secondary	Home-based	Registered Nurses	1-4 visits/month for 2 years	Urban
Korfmacher, O'Brien, Hiatt, & Olds*	1999	Secondary	Home-based	Nurses or paraprofessionals	Weekly hv for 2 years	Urban
Lutzker, Bigelow, Doctor, & Kessler	1998	Secondary/Tertiary	Home-based	Unk	Unk	Urban
Marcenko, Spence, & Samost	1996	Tertiary	Home-based	Peer home visitor, social worker, nurse	2-4 visits/month for 2 years	Urban
Olds & Korfmacher*	1998	Secondary	Home-based	Registered Nurses	1-4 visits/month for 2 years	Elmira: Semi-rural; Memphis: Urban
Olds, Henderson, & Kitzman*	1994	Secondary	Home-based	Nurses	1-4 visits/month for 2 years	Semi-rural
Olds, Henderson, Jr., Kitzman, Eckenrode, Cole, & Tatelbaum*	1998	Secondary	Home-based	Registered Nurses	Unk	Elmira: Semi-rural; Memphis: Urban
Olds, Henderson, Jr., Kitzman, Eckenrode, Cole, & Tatelbaum*	1999	Secondary	Home-based	Nurses	1-4 visits/month for 2 years	Elmira: Semi-rural; Memphis: Urban
Olds, Henderson, Kitzman, & Cole*	1995	Secondary	Home-based	Registered Nurses	1-4 visits/month for 2 years	Elmira: Semi-rural; Memphis: Urban
St. Pierre & Layzer	1999	Secondary	Home-based primarily	Paraprofessionals and staff, supervised by professionals	2-4 visits/month for 5 years.	Inner-city, urban, and rural
Taban & Lutzker	2001	Secondary/Tertiary	Home-based	Mental health professional	15 weekly sessions	Urban
Wagner & Clayton	1999	Secondary	Home-based	Paraprofessionals	1 visit/month for 2-3 years	Urban
Whipple	1999	Secondary	Center-based	Staff	Flexible	Unk
Whipple & Wilson	1996	Secondary/Tertiary	Center-based	Childcare specialists, paraprofessionals, MSWs	Flexible	Urban

Table 4 Description of Research Methodologies

Authors	Pub. Date	Stated Theory	Study Type	Total # in Sample	Follow-Up (after end of tx)	Statistical Analyses Used
Bigelow & Lutzker	2000	Ecobehavioral	Pre-experimental/ SSD	7	6 months	Descriptives
Black, Dubowitz, Hutcheson, Berenson-Howard, & Starr	1995	Ecological	Experimental	130	6 months	Descriptives, ANCOVAs, MANCOVAs
Bugental, Ellerson, Lin, Rainey, Kokotovic, & O'Hara	2002	Cognitive	Experimental	96	None	Descriptives, Chi-squares, correlation, ANOVAs, MANCOVAs, regression analysis
Cerny & Inouye	2001	Unk	Pre-experimental/ Correlational	142	4 months	Descriptives, independent and paired *t*-tests, ANOVAs
Cole, Kitzman, Olds, & Sidora	1998	Ecological, self-efficacy, attachment	Experimental	1139	None	Descriptives, ANCOVAs
Cowen	2001	Unk	Pre-experimental	154	None	Descriptives, *t*-tests
Danoff, Kemper, & Sherry	1994	Unk	Pre-experimental (retrospective)	172	None	Descriptives, t-tests, logistic regression
Duggan, et al	1999	Unk	Experimental	684	None	Descriptives, *t*-tests
Dumka, Garza, Roosa, & Stoerzinger	1997	Unk	Pre-experimental	142	None	Descriptives, Chi-squares
Fraser, Armstrong, Morris, & Dadds	2000	Unk	Experimental, longitudinal	181	12 and 18 months	Descriptives, ANOVAs, MANOVA, Chi-squares, *t*-tests
Frost, Johnson, Stein, & Wallis	2000	Unk	Pre-experimental	492	None	Descriptives
Gershater-Molko, Lutzker, & Wesch	2002	Unk	Quasi-exp, longitudinal	82	up to 2 years	Survival analysis, Wilcoxon (Gehan) statistic, repeated measures analysis
Huebner	2002	STEP is Adlerian	Quasi-experimental	199	none	Descriptives, Chi-square, independent and paired *t*-tests, hierarchical regression analysis
Hutcheson, et al	1997	Ecological	Longitudinal	72	This is 4-year follow-up	Descriptives, multiple regression analyses
Huxley & Warner	1993	Unk	Quasi-experimental	40	13-16 months	Descriptives, *t*-tests, Chi-squares
Iwaniec	1997	Behavioral, cognitive	Quasi-experimental	20	2 years	Descriptives, Chi-squares, ANOVAs
Korfmacher, Kitzman, & Olds*	1998	Ecological, self-efficacy, attachment	Experimental	1139	None	Descriptives, correlation, multiple regression analyses

Table 4 Description of Research Methodologies *(cont'd)*

Authors	Pub. Date	Stated Theory	Study Type	Total # in Sample	Follow-Up (after end of tx)	Statistical Analyses Used
Korfmacher, O'Brien, Hiatt, & Olds*	1999	Ecological, self-efficacy, attachment	Experimental	480	None	Descriptives, ANCOVAs, logistic regression
Lutzker, Bigelow, Doctor, & Kessler	1998	Ecobehavioral	Case studies/SSD	116 (case study-4)	None	Descriptives
Marcenko, Spence, & Samost	1996	Unk	Experimental	225	None	Descriptives, Chi-squares, *t*-tests, ANOVAs
Olds & Korfmacher*	1998	Ecological, self-efficacy, attachment	Experimental	Elmira: n=400 Memphis: n=1139	None	Descriptives, multiple regression
Olds, Henderson, & Kitzman*	1994	Unk	Experimental	324	None	Descriptives, MANOVAs, MANCOVAs, logistic regression, multiple regression
Olds, Henderson, Jr., Kitzman, Eckenrode, Cole, & Tatelbaum*	1998	Ecological, self-efficacy, attachment	Experimental	Elmira: n=400 Memphis: n=1139	Elmira: child 15yo	Descriptives, *t*-tests
Olds, Henderson, Jr., Kitzman, Eckenrode, Cole, & Tatelbaum*	1999	Ecological, self-efficacy, attachment	Experimental	Elmira: n=400 Memphis: n=1139	Elmira: child 15yo	Descriptives, *t*-tests
Olds, Henderson, Kitzman, & Cole*	1995	Unk	Experimental	56	None	Descriptives, ANCOVAs, binomial logistic-linear
St. Pierre & Layzer	1999	Ecological	Experimental	4410	None	Descriptives, *t*-tests
Taban & Lutzker	2001	Ecobehavioral	Pre-experimental	45	None	Descriptives
Wagner & Clayton	1999	Unk	Experimental	Latino: n=497 Teen: n=704	None	Descriptives, multivariate analyses
Whipple	1999	Unk	Pre-experimental	116	None	Descriptives, paired *t*-tests, ANOVAs
Whipple & Wilson	1996	Unk	Quasi-experimental	34	3 months	Descriptives, paired *t*-tests, ANOVAs

Table 5 Sample Size, by Level of Prevention

	# of studies	# of studies with comp/ control group	Treatment / Experimental Group		Control Group		Total Sample Size	
			Mean	Median	Mean	Median	Mean	Median
Secondary	18	14 (78%)	503	416	533	344	1036	912
Tertiary	7	5 (71%)	55	41	51	41	106	82
Secondary/Tertiary	8	3 (38%)	58	20	33	20	91	40
OVERALL	30	22 (73%)	341	133	355	96	696	212