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ABSTRACT
        The objective of this study was to evaluate
quantitatively through meta analysis the effectiveness of child
sexual-abuse prevention programs conducted over the past 10 years.
Eighteen controlled studies evaluating such programs were coded for
salient features and study outcomes and were then described using the
common scale of effect size. An overall effect size was calculated,
using each of the 18 studies as a single data point. The results were
striking. In comparing the effects of prevention programs to control
group performances, a mean effect size of 0.57 was calculated, which
indicated a moderate effect on posttest knowledge. Follow-up
retention scores across studies also reported a medium effect size of
0.47 from 2 weeks to 1 year following training. Moreover,
preschool-age children demonstrated large effect sizes on posttest
and follow-up scores, while school-age children demonstrated moderate
effects. The method of program presentation was found to have
differential effects on student performance, with active, behavioral
teaching methods more effective. The implication of this meta
analysis is that a brief training program appears to be an effective,
economical method of imparting sexual-abuse prevention strategies to
children. Contains three tables, two figures, and 26 references.
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A Quantitative Synthesis of

Child Sexual Abuse Prevention Programs

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Running Head: CHILD SEXUAL ABUSE PREVENTION REVIEW

ABSTRACT

The objective of this study was to quantitatively
evaluate the effectiveness of child sexual abuse
prevention programs conducted over the past ten years
through the meta-analytic method. The urgency of such
analysis is reflected in the public awareness of the
prevalence of child sexual abuse, and questions
regarding the quality and efficacy of primary
prevention programs in practice. Controlled studies
evaluating these programs were obtained through six
databases and a manual search. Studies were coded for
salient features and study outcomes, and were then
described using the common scale of effect size.
Eighteen studies met criteria for inclusion. An overall
effect size was calculated, using each of the eighteen
studies as a single data point. The results of this
meta-analysis are striking. In comparing the effects
of prevention programs to control group performances, a
mean effect size of .57 was calculated, which indicated
a moderate effect on posttest knowledge. Follow-up
retention scores across studies also reported a medium
effect size of .47 from two weeks to one year following
training. Moreover, preschool age children demonstrated
large effect sizes on posttest and follow-up scores,
while school age children demonstrated moderate
effects. The method of program presentation was found
to have differential impacts on student performance,
where active, behavioral teaching methods were more
effective. The implication of this meta-analysis is
that a brief training program appears to be an
effective, economical method of imparting sexual abuse
prevention strategies to children.

A Quantitative Synthesis of

Child Sexual Abuse Prevention Programs

The increase in public awareness of child sexual

abuse over the last decade has highlighted the

devastating effects that result (Grendel, 1991).

Sexually abused children may be victimized with

affective disturbances, physical problems, and

sociobehavioral disturbances. Negative effects on

emotional, cognitive, sexual, and interpersonal

adjustment may continue into later adult years

(Wurtele, Miller-Perrin, 1992).

In response to these costs, public policy has

encouraged and required that schools educate children

with sexual abuse prevention programs. These are

"primary" prevention programs directed at

hypothetically non-sexually abused children with the

intent of preventing the occurrence of an abusive event

through prior education (Grendel, 1991; Wurtele,

Miller-Perrin, 1992). These programs hope to decrease

the possibility of sexual victimization by broadening

the child's resources in guarding against abuse or for

seeking help when faced with potential sexual abuse

situations. Such resources may emphasize knowledge

about sexual abuse, supportive community resources,

personal safety skills, or the importance of self-esteem (Wurtele, Miller-Perrin, 1992).

Recently, concerns have been raised as to the quality and efficacy of the sexual abuse prevention programs that exist. In a review of the current status of these programs. Wurtele (1990a) notes that the number of different sexual abuse prevention programs greatly exceeds the number of program evaluations. Possible reasons for this include a lack of resources or expertise necessary for quality evaluations. Likewise, the potential attractiveness of such a program should not mask the responsibility for systematic analysis of its efficacy (Grendel, 1991). Wurtele (1990a) emphasizes that without an empirical basis for effectiveness, programs may not receive the funding necessary to continue despite the possible beneficial impact.

One difficulty encountered in making program evaluations has been the variability that exists in the method and materials of program presentation. Wurtele (1987), in a review of widely available programs, reports a variety of program presentations, including printed materials, theatrical performances, lecture format, group discussion, and audiovisual materials. Conte (1986) found similar variability and includes

anatomically correct dolls to the list.

Other difficulties encountered when applying prevention programs occur when selecting an age appropriate program. Conte (1986) and Wurtele (Wurtele, Miller-Perrin, 1992) urged care when selecting from the available materials, since the developmentally appropriate level of different methods still needed to be assessed.

Also, a lack of standardization of child assessment measures contributes to the confusion when evaluating prevention programs, and establishment of normative data becomes difficult (Wurtele, Miller-Perrin, 1992). Several general factors were reviewed by Wurtele (1990a) as having been used to evaluate the impact of these programs on the child. Such factors were increases in the child's conceptual knowledge about sexual abuse (remembering), increases in the child's recognition of potential sexual abuse situations (recognition), increases in personal safety skill knowledge and sense of control over personal bodily space (resisting), and potential and incidence for disclosures (reporting). Wurtele emphasizes that all of these factors should be represented in the goals of prevention programs.

Examination of empirical studies of child sexual

abuse prevention programs may help to organize some of
the available research with hopes of evaluating the
factors influential to effective sexual abuse
prevention programs for children. In this study,
prevention programs were quantitatively evaluated for
effectiveness using the meta-analytic method. This
synthesis of empirical studies sought to answer three
questions. First, were current prevention programs
effective, and how large would their overall impact be
on student knowledge? Second, which methods of
presentation were particularly effective for the
students? Third, were prevention programs productive
for preschool children (ages 5 and under) and school
age children (ages 6-11)?

Method

The meta-analytic approach used in this review was
similar to that described by Cooper (1989) and Hedges,
Shymansky, & Woodworth (1989), which requires the
reviewer:

> *to locate studies of an issue through objective,
> replicable search
>
> *to code the studies for salient features, and
>
> *to describe study outcomes on the common scale of
> effect sizes.

Definition

Child sexual abuse prevention programs are
"primary" prevention programs. These are programs
aimed at hypothetically non-sexually abused children
with the goal of providing the child with the necessary
skills to avoid sexual abuse. "School-based"
prevention programs were derived as an economical means
of implementating these programs to a large number of
children. These school-based programs were also the
result of public policy mandates that required these
programs to be implemented.

Search Procedure

Eight resources were used to search the literature
and reports concerning the effect of child sexual abuse
prevention training upon student knowledge of sexual
abuse and hypothetical behavioral responses to
potential abusers. Six data bases of the Educational
Resource Information Center (ERIC), Psychological
Abstracts (PSYCHLIT), Dissertation Abstracts, Social
Science Abstracts, Medical Abstracts (MEDLINE), and the
University of Cincinnati Library catalog (UCLID) were
searched by computer for the years of 1983 through Jan.
1993. This chronological limit was placed upon our
data due to the recency of the implementation and
evaluation of these prevention programs. The
descriptors used for these searches included: child

sexual abuse prevention, child abuse, sexual abuse,
child sexual abuse education, and personal safety.
Four hundred-eighty studies were identified by titles
and abstracts. This initial pool was reduced to 207
potentially useful documents. Due to time constraints,
the decision was made to employ a "pilot analysis" of
child sexual abuse prevention program studies readily
available through the University of Cincinnati and
Xavier libraries. Consequently, our sample contains an
extreme publication bias, with the expected inflation
of significance of results (Cooper, 1989) and any
preliminary conclusions should be tempered accordingly.
Eleven empirical studies retrieved in these computer
searches provided approximately half of the data for
our analysis.

Child Abuse and Neglect was searched manually for
relevant studies for years 1988 through 1992. All
bibliographies of articles were also searched. We
obtained access to the files of two primary researchers
in the field of child primary sexual abuse prevention,
Dr. Suzanne Wegener and Beth Hensley of the University
of Cincinnati. These additional searches produced 150
references for evaluation. Fifty-three articles were
chosen from this pool, of which seven were selected for
the final analysis.

        To qualify for use in this meta-analysis, studies
had to meet several methodological criteria. First,
the results of the study had to be reported in
quantitative form, such as means, standard deviations,
or F-values. Studies evaluating achievement
qualitatively could not be analyzed on the common scale
of effect sizes that would be used. Second,
experimental or quasi-experimental control group that
did not receive the sexual abuse prevention program at
the time of evaluation had to be available in the
reported results. This may have taken the form of an
alternative treatment program unrelated to sexual abuse
prevention, or the students may have received the
sexual abuse program only *after* evaluation for
inclusion in the results were made. The decision was
made to include only studies using a non-equivalent
control group. Studies using a repeated measures,
pretest-posttest design were not included. All control
groups used in the selected studies were a "delayed"
control. Children received the sexual abuse prevention
program after completion of the evaluations since the
withholding treatment would have been considered
unethical. Third, the studies had to take place in
actual classrooms; thus studies describing home-based
instruction or individualized tutoring were excluded.

Finally, only those studies utilizing dependent measures which specifically assessed student comprehension, knowledge, transfer and retention of child sexual abuse prevention concepts and strategies were included. The efficacy of instructor type, student enjoyment, and student fear were also not included in this analysis.

Eighteen studies contained useful results on the evaluation of student knowledge and behavioral responses following a brief child sexual abuse prevention program. Publication dates ranged from 1985 to 1992.

Variables

A coding sheet was devised to ensure consistency in the definition and description of the major features in each study (see Appendix). The form was divided into eleven sections. The initial coding section was study identification. This included author name, year of publication, and source of article. Secondly, a school variables section recorded information such as SES and geographic location. Third, student subject variables were described in terms of sample size, age, gender, ethnicity, and attrition. Fourth, the experimental design used in the study was coded for control groups and matching factors. Treatment

characteristics were coded as to the method of
treatment, student grouping for training, number of
students per group, number of conditions of treatment,
duration of treatment, frequency of treatment,
utilization of pretest/posttest/follow-up evaluations,
and the time intervals between posttesting and follow-
up conditions.   Section six describes the pedagogical
format of treatment through a checklist of fifteen
methods: lecture, role playing, rehearsal, feedback,
shaping, multimedia, film, discussion, literature,
homework, generalization techniques, modeling,
practicing self protection skills, social
reinforcement, interviewing, and the commercial
availability of the treatment program.   Section seven
described the method of treatment implementation, such
as by teacher, professional or student.   Section eight
coded control group information for number of students,
format, implementation, duration and frequency.
Section nine recorded experimental and statistical
controls for threats to validity, such as matching,
randomization, covariates and blind conditions.
Finally, a chart displaying statistical data recorded
the number of subjects for treatment and control
conditions, means, standard deviations, degrees of
freedom, t values, F

values, and probability values for each dependent
measure and for pretest/posttest/follow-up conditions.
The remaining space was provided for qualitative
descriptions possibly needed which were not previously
coded.

Analysis

In coding study outcomes, our goal was to overcome
the difficulties encountered by different scales of
measurement. For example, studies measured achievement
effects through paper and pencil questionnaires,
through interview techniques, or through hypothetical
behavioral responses to videotaped scenarios. For a
statistical analysis, the results needed to transformed
to a common scale.

The meta-analytic approaches of Cooper (1989) and
Hedges, et al. (1989) were used to transform the
empirical results of the studies into a common effect
size measurement. This effect size measurement was
defined as the difference between the mean scores of
the experimental and control groups divided by the
standard deviation of the control group. The control
group standard deviation was used in order to provide a
more conservative effect size estimate. All but two of
the studies utilized in this meta-analysis reported
means and standard deviations. The remaining two

reported F values.

Some studies reported more than one assessment measure of student understanding of prevention concepts and skills. As a result, the number of effect sizes within each study ranged from 1 to 18 for both posttesting and follow-up studies. To avoid having a few studies with a large number of effect sizes bias the statistical results, a shifting unit of analysis was chosen for this review for the dependent measures and for preschool and school age children. For the overall effect measures of posttest and follow-up, the study was used as the unit of analysis. Here, the mean effect size was calculated for each study and used as a single data point.

Further, a weighting factor (w_i) (Cooper, 1989) was calculated for each group variable for the number of subjects. This accounted for the differences in sample sizes when comparing effects.

Confidence intervals (95%) were calculated around the average effect sizes using the formula in Cooper (1989), see Table 2 for formulas. Intervals that contain the effect size value of d=0 support the null hypothesis of no difference between groups (treatment and control). With intervals not containing zero, we can reject the null hypothesis of no differences

between groups and may expect that 95% of the effect size estimates to fall between these values.

Homogeneity of variance estimates were calculated for the effects using the Q statistic (Cooper, 1989). This measure evaluates whether the effect sizes differ significantly more than that expected by sampling error alone. A significant Q statistic implies that the variance in effect sizes would be due to factors other than sampling error. Otherwise, a non-significant Q statistic attributes the variance in effect sizes to sampling error. A significant variance effect jeopardizes the interpretability and robustness of the results.

Procedures were also used to test conceptual differences between comparisons. By calculating separate Q statistics for separate subgroupings, and comparing the summed difference of these groupings with the overall Q statistic, the average effects of these groupings may be determined to be homogeneous. With a significant value (Qb), the grouping factor may be contributing to the variance (Cooper, 1989).

Interrater reliability for coding characteristics may be estimated at 95%. Differing perspectives were discussed and eventual agreement was reached in order to achieve the most logically sound method of coding a

particular variable.

Dependent Measures

Dependent measures used by the selected studies
included author derived measures (33%), WIST ("What-If"
Situations Test - 44%), PSQ (Personal Safety
Questionnaire - 50%), WAKIT (What I Know About Touching
Inventory - 6%), Touch Discrimination Task (6%),
Childrens Knowledge Test (6%), and the Sexual Abuse
Knowledge Inventory (6%).

Treatment/Presentation Types

The primary method of each study program
presentation included lecture format (50%), BST
(Behavioral Skills Training - 25%), and active
participation (46%). One study by Wurtele (1986) used
independent treatment groups for two different
treatments and was included in the BST and active
participation categories.

Results

Table 1 displays a summary of the studies used in
the current meta-analysis. Eighteen studies presented
information applicable for use in calculating an
overall effect size for post treatment evaluative
condition (posttest) as compared to a delayed treatment
control group (follow-up). Only ten studies presented
data applicable to a longer term follow up evaluative

condition as compared to the delayed treatment control group. Time delays for this follow-up condition ranged from one to six months following treatment.

Insert Table 1 here

Table 2 displays a summary of the effect sizes for each study. The effectiveness of child sexual abuse prevention programs were described in terms of overall effect sizes for posttest and retention, and for preschool and school age impact.

Insert Table 2 here

Posttest Condition

For the posttest condition, eighteen effect sizes ranged from small (.24) to large (2.20), with an overall weighted effect size of .57. Approximately 72% (U3 measure, Cooper, 1989) of the scores in the control group may be exceeded by the average score of the treatment groups. The confidence interval for the condition ranged from .49 to .65. The interval does not contain the value d=0 and rejection of the null hypothesis of no differences between treatment and control groups may be made. Likewise, an analysis of

the homogeneity of the variances produced a significant

Qt value of 40.99 (Chi c.v., .05, 17 df = 27.60) and

differences between groups may be due to factors other

than sampling error.   Table 3 was provided as a summary

table of all of the reported effect sizes, confidence

intervals, and homogeneity of variance results.

Insert Table 3 here

Follow-up Condition

For follow-up condition, ten effect sizes ranged

from small (.22) to large (.82), with an overall

weighted effect size of .47. Approximately 68% of the

scores in the control group may be exceeded by the

average score of the treatment groups.   The confidence

interval for this condition ranged from .37 to .56.

The interval does not contain the value d=0 and

rejection of the null hypothesis of no differences

between treatment and control groups may be made. An

analysis of the homogeneity of the variances produced a

non-significant Qt value of 13.54 (Chi c.v., .05, 9 df

= 16.90) and the differences between groups may be

attributable to sampling error alone.

Preschool and School Age Children

Studies were analyzed for preschool children and

school age children when compared to control group
children of analogous ages.

Seven studies ranged from medium (.60) to large
(2.20) effect sizes and contributed to an overall
weighted large effect size of .81 for preschool
children on posttest scores when compared to control
groups. Approximately 79% of the control children
scores may be exceeded by the average score of the
treatment groups. Confidence interval values ranged
from .61 to 1.02. The interval does not contain the
value d=0 and rejection of the null hypothesis of no
differences between groups may be made. An analysis of
the homogeneity of the variances produced a non-
significant Qt value of 10.76 (Chi c.v., .05, 6 df =
12.60) and differences between groups may be
attributable to sampling error alone.

Ten studies comparing school age children to
control group children on posttest scores produced
effect sizes ranging from small (.24) to large (1.25)
with an overall weighted effect size of .48 and
approximately 68% of the control group scores may be
exceeded by the average score of the treatment groups.
Confidence interval values ranged from .40 to .56. The
interval does not contain the value d=0 and rejection
of the null hypothesis of no differences between groups

may be made. An analysis of the homogeneity of the variances produced a significant Qt value of 30.41 (Chi c.v., .05, 9 df = 16.90) and differences between groups appear not to be attributable to sampling error alone.

Five studies were used in comparing preschool children follow-up scores to control group children with effect sizes ranging from medium (.40) to large (.82) with an overall weighted effect size of .60. Approximately 73% of the control group scores may be exceeded by the average score of the treatment groups. Confidence interval values ranged from .38 to .82. The interval does not include the value d=0 and rejection of the null hypothesis of no differences between groups may be made. An analysis of the homogeneity of the variances produced a non-significant Qt value of 1.67 (Chi c.v., .05, 4 df = 9.49) and differences between groups may be due to sampling error alone.

Five studies were used in comparing school age children follow-up scores to control group children. Effect sizes of the differences ranged from small (.22) to large (.74) with an overall weighted effect size of .44. Approximately 67% of the control group scores may be exceeded by the average score of the treatment groups. Confidence interval values ranged from .34 to .55. The interval does not contain the value d=0 and

rejection of the null hypothesis of no differences between groups may be made. An analysis of the homogeneity of the variances produced a significant Qt value of 10.32 (Chi c.v., .05, 0 df = 9.49) and differences between groups appear not to be due to sampling error alone.

Effects of Program Presentation Type

Studies were grouped by type of presentation. Grouping variables were behavioral skills training (BST), lecture/discussion based programs (LECT), and active participation programs utilizing techniques such as roleplaying. The overall weighted effect size ootained for presentation type was .52. Active participation programs had the largest overall effect (.74) and LECT had the smallest effect size (.40). Overall confidence interval values ranged from .45 to .57. The interval does not contain the value d=0 and the null hypothesis of no differences may be rejected. All the confidence intervals for each individual treatment/presentation type did not contain zero and the null hypotheses of no differences between groups may be rejected.

Discussion

Posttest and Follow-up Scores

Implementing the school-based sexual abuse prevention program appears to have moderately (d.=.57) increased childrens' posttest scores when compared to children from control groups not yet receiving treatment. However, interpretations of the posttest scores must be made with caution due to the significant homogeneity of variance outcome. The variance in effect sizes appear to be significantly different than expected to be due to sampling error and other sources of variation need to be evaluated. Follow-up scores from treatment group children also displayed moderate effects (d.=.46) The significance of the findings may give credence to the positive effects of child sexual abuse prevention training programs. When compared to the moderate effect sizes usually found in educational or social science research, these medium effect size findings may highlight the substantial impact of the effectiveness of these programs.

Observations of an outlier effect size of 1.4 (Conte, 1986) may have inflated the overall effect size slightly, however. Possible reasons for this outlier effect may have been "scare tactics" used on the part of the researchers.

Insert Figure 1 here

Posttest Scores for Preschool and School Age Children

The overall effect size resulting from comparison of preschool prevention program with delayed-control group children were large ($d. = .81$). This may be attributable to several factors. First, young children enter the program with less experience regarding the topic of sexual abuse, and therefore have more to learn. Secondly, apparent "benefits" may due to a greater "impressionability" of the program on the younger children than the older ones. The younger children may simply be less discriminating about the information absorbed. Conversely, older children may become "bored" more easily and loose interest. Third, the programs orientated towards younger children used more behaviorally based methodology, which research suggests to be a more effective pedagogy (Glover, Ronning, Bruning, 1990). Medium effect sizes were obtained when comparing school age prevention program and school age delayed-control group children ($d. = .48$). This effect size supports the efficacy of programs for this age group as well.

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Insert Figure 2 here

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Follow-up Scores for Preschool/School Age Children

The overall effect size for follow-up retention

resulting for preschool children was large (d.=.80).

Medium effect sizes were obtained for school age

children (d.=.44). This suggests that not only are

prevention programs immediately influential in teaching

personal safety skills, but this information may be

retained over a substantial amount of time. In this

instance, however, the small number of groups (k=3) may

be an biasing factor, and the results need to weighed

accordingly.

Effects of Presentation Type

Intrinsic to the possible reasons for the need for

presentation type evaluations is the need for

developmentally appropriate presentations of sexual

abuse prevention information. Likewise, the effects of

different programs may need to be examined with respect

to the individual differences among children, such as

the sex, family microsystems, self-concept, or social

skills levels (Wurtele, 1992a). The focus in selecting

a program may need to become the particular type of

program needed for the particular type of child or

setting.

Our findings implied that behaviorally based
methods, such as BST, result in greater conceptual
knowledge regarding sexual abuse prevention than other
methods. This finding confirms much of educational
research which asserts that behavioral methods result
in higher achievement scores than presentation or
lecture only techniques (Glover, et al., 1990).
Film/multimedia programs had a similar effect, but this
"method" contained a broader range of activities as
well. These programs also included role playing,
group discussion and lecture. As a result,
interpretation of the effects of this treatment group
may be difficult due to the influence of extraneous
factors. Pedagogy stressing behaviorally based
approaches may convey prevention knowledge more
readily. Finally, presentation methods received the
lowest, even though still moderate, effect size. This
implies that even the most basic instruction may convey
personal safety skills and strategies.

Conclusion

It is the conclusion of this meta-analysis that
brief child sexual abuse prevention programs have a
substantial overall effect on student knowledge of
personal safety skills and strategies. This effect

continues into a longer term retention of these

concepts, with a slight variation in effectiveness for

different age groups. Preschool children appear to be

impacted more by this pedagogy. Each presentation

method studied, while differentially effective,

contributed to student knowledge. The implications of

these findings may be that brief treatment programs may

be an effective, economical method of imparting sexual

abuse prevention strategies to children. Directions

for future research may be to investigate the most

appropriate methods that fit an individual child's

needs. Hopefully meta-analytic methods may continue to

organize existing studies and guide such research.

Table 1

Study No.	Author, Date	n=control/ n=treatmt	Ages (yrs.)/ (Grades)	Treatmt. Type	Post/ Follow-up	Dependent Meas.	Effect Size Post/Follow-up
1	Conte,1985	10/10	4,5,6-10	L,D	P only	author based	1.4
2	Wolfe, 1986	145/145	(4,5th)	D,SP	P only	author based	0.38
3	Harvey,1988	36/35	5-8	L,F	P, F	author based	.75/.82
4	Grendel,1991	49/51	6-8	D,F	P only	WIST, PSQ	0.42
5	Hazzard,1991	151/371	(3,4th)	D,F,R	P, F	WIKAT	1.0/.74
6	Wurtele,1992a	44/41	(preschool)	BST	P, F	WIST, PSQ	.79/.62
7	Kolko,1987	41/298	7-11	L,D	P, F	author based	.24/.22
8	Kolko,1989	35/213	7-10	L,F	P, F	author based	.33/.37
9	Saslawsky,1986	34/33	(K,1,5,6)	D,F	P only	WIST, PSQ	0.65
10	Wurtele,1986	18/53	(K,1,5,6)	BST/BST,F	P only	WIST, PSQ	0.52
11	Wurtlel,1989	31/69	(preschool)	BST	P, F	WIST	.59/.40
12	Wurtlel,1990	12/12	(preschool)	BST	P, F	WIST, PSQ	.67/.65
13	Blumberg,1991	174/75	(K,1,2,3)	F/R	P only	TDT	0.41
14	Wurtele,1992b	21/22	(preschool)	L,BST,AI	P, F	WIST,PSQ	.83/.58
15	A-Varney,1988	10/15	4	AI,SP	P only	WIST, PSQ	2.2
16	Crowley,1989	136/157	(4, 5th)	L,D,F	P, F	SAKI, PSQ	.48/.51
17	Snyder,1986	81/96	(4th)	L,D,R	P only	author based	0.67
18	Kindt,1991	287/596	(3rd)	D,F,R	P, F	CKT, PSQ	.49/.36

Dependent Measures

WIST = "What If" Situations Test

TDT = Touch Discrimination Task

PSQ = Personal Safety Questionaire

WAKIT = What I Know About Touching

SAKI = Sexual Abuse Knowledge Inventory

CKT = Childrens Knowledge Test

Author based = author derived measurement

Treatment Type

L = lecture or story format

D = group/class discussion

F = film shown

BST = behavioral skills training

R = roleplaying utilized

AI = active involvement

SP = skit or play

Table 2 : Cumulative Effect Sizes for Each Study

Study	Posttest	Follow-Up	Preschool (4-5 years)		School Age (6-11 years)	
			Posttest	Follow-up	Posttest	Follow-up
Overall Weighted	0.57	0.47	0.81	0.60	0.48	0.44
Conte	1.40		1.56		1.25	
Wolfe	0.38				0.38	
Harvey	0.75	0.82	0.75	0.82		
Grendei	0.42				0.42	
Hazzard	1.00	0.74			1.00	0.74
Wurtele, 1992a	0.79	0.62	0.75	0.62		
Kolko, 1987	0.24	0.22			0.24	0.22
Kolko, 1989	0.33	0.37			0.33	0.37
Saslawsky	0.65					
Wurtlel, 1986	0.52					
Wurtele, 1989	0.59	0.40	0.60	0.40		
Wurtele, 1990	0.67	0.65	0.67	0.67		
Blumberg	0.41				0.41	
Wurtele, 1992b	0.83	0.58	0.83	0.58		
Anderson-Varney	2.20		2.20			
Crowley	0.48	0.51			0.48	0.51
Snyder	0.67				0.67	
Kindt	0.49	0.36			0.36	0.36

TABLE 3

VARIABLE	OVERALL WEIGHTED EFFECT SIZE	CONFIDENCE INTERVAL 95%				HOMOGENEITY	DF	CHI-SQUARE .05

TIME OF TESTING

POSTTEST	.57	.49	:	.65	*	40.99	17	27.60**
FOLLOW UP(1-6m)	.46	.37	:	.56	*	13.54	9	16.90

DIFFERENT AGES AT TIME OF POSTTEST

PRE-SCHOOL	.81	.61	:	1.02	*	10.76	6	12.60
SCHOOL AGE	.48	.40	:	.56	*	30.41	9	16.90**

DIFFERENT AGES AT TIME OF FOLLOW UP (1-6 MONTHS)

PRE-SCHOOL	.60	.38	:	.82	*	1.67	4	9.49
SCHOOL AGE	.44	.34	:	.55	*	10.32	4	9.49**

TYPE OF PRESENTATION

OVERALL	.52	.45	:	.57	*			
LECTURE	.40	.29	:	.51	*	11.97	9	16.90
BST FOCUS	.67	.44	:	.89	*	1.89	4	9.49
ACTIVE PARTIC.	.74	.61	:	.87	*	18.44	4	9.49**

CONCEPTUAL GROUPING (Qb)						203.20	2	5.99**

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d. $= \xi dw / \xi w$ = overall weighted effect size

$w^i = 2(n_t + n_c) n_t n_c / 2(n_t + n_c)^2 + n_t n_c d^2$ = weighting factor used for the individual d-indexes when calculating the weighted effect sizes

$CId_{.95} = d. \pm 1.96 \sqrt{1/n \xi w}$ = confidence internval for the average effect size estimate

$Q_t = \xi d^2 w - (\xi wd)^2 / \xi w$ = homogeneity test statistic

Q_w = sum of $Q_{conceptual groupings}$

$Q_b = Q_t - Q_w$

* = value "d=0" not in interval, null hypothesis of no differences rejected

** = homogeneity not found, differences may be due to factors other than sampling error

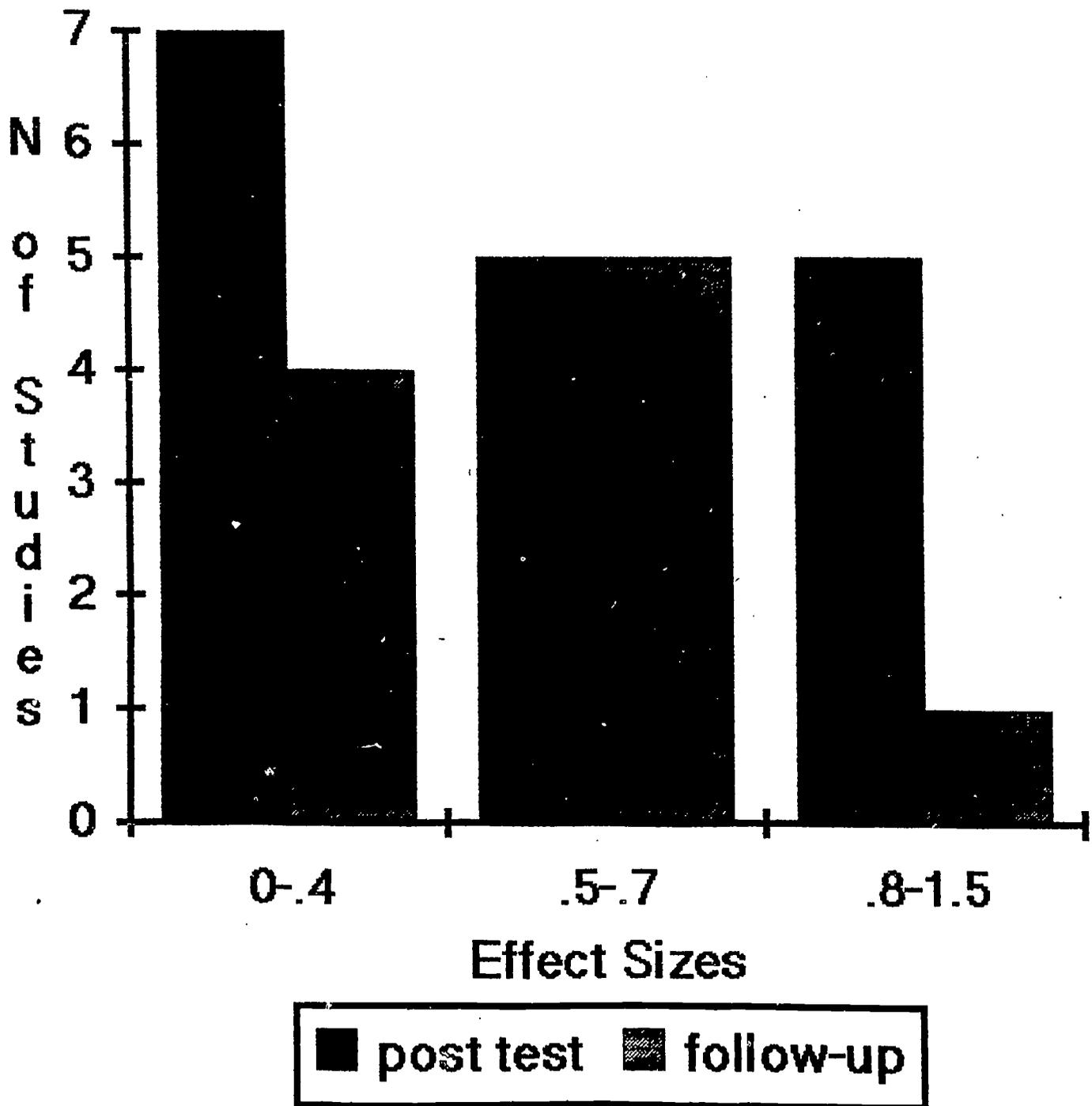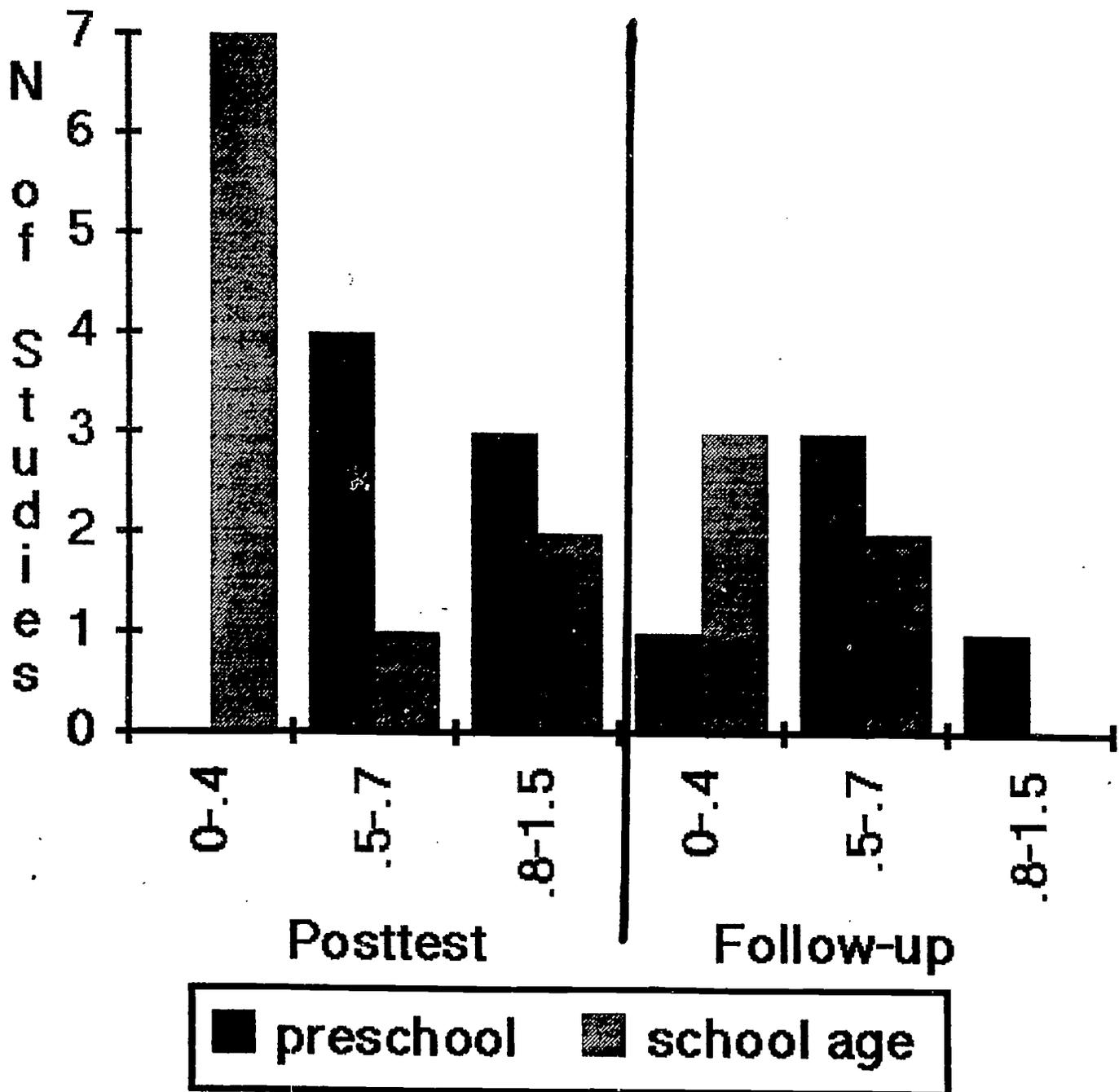Distribution of Small, Medium and Large Effect Sizes for Posttest and Follow-up Assessment Conditions

FIGURE 1   30

Distribution of Small, Medium and Large Effects Sizes for Preschool and School Age Children in Posttest and Follow-up Conditions

FIGURE 2   31

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