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Social skills training as a treatment for aggressive children and adolescents: a developmental–clinical integration

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Abstract

Social skills training (SST) has emerged as a frontline treatment approach for aggressive children and adolescents. The present review evaluates this sizable literature from a developmental–clinical perspective. More specifically, the review summarizes key developmental findings, assesses the status of existing efforts to integrate these developmental findings into clinical research, and discusses intervention implications. Summaries of developmental findings are divided into six major areas: age, gender, race, identification of intervention samples, social cognition, and peer group influences. The review indicates that efforts to incorporate developmental findings and principles into clinical research have fallen woefully short. Even the most fundamental developmental considerations were frequently overlooked. Despite these general limitations, the review highlights a number of noteworthy developmental–clinical integration attempts and concludes with a discussion of directions for future research. © 2002 Elsevier Science Ltd. All rights reserved.

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Childhood aggression has long been a focus of clinical intervention research. This focus is clearly warranted, as children's aggressive behavior is remarkably stable over time (Farrington, 1991; Olweus, 1979) and predictive of a number of negative outcomes throughout childhood and on into adulthood. Such outcomes include the fostering of negative images among peers and teachers, peer rejection, and increased loneliness in childhood, as well as an increased likelihood of school dropout, alcohol and drug use, and delinquency in adoles-

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cence, and eventual criminality and psychopathology in adulthood (Asher, Parkhurst, Hymel, & Williams, 1990; Cairns, Cairns, & Neckerman, 1989; Coie & Koepl, 1990; Kupersmidt, Coie, & Dodge, 1990; Lochman & Wayland, 1994; Parker & Asher, 1987). Over the past three decades, concentrated efforts have resulted in the development of a variety of effective treatment approaches that range from those focusing more directly on the aggressive child, including operant procedures, social skills training (SST), and the use of stimulant medication, to those targeting broader systems, such as parent management training and school-based interventions (McFadyen-Ketchum & Dodge, 1998).

SST emerged as a treatment option amidst increasing dissatisfaction with the more traditional operant approaches. The use of reinforcement to increase prosocial behavior and punishment to inhibit aggressive responses proved successful in achieving immediate improvements but failed to demonstrate more long-term maintenance and cross-setting generalization (e.g., Drabman & Lahey, 1974; Drabman, Spitalnik, & Spitalnik, 1974). Further, such short-term decreases in aggressive behavior were not necessarily accompanied by increases in prosocial behavior or gains in peer acceptance (Bierman, Miller, & Stabb, 1987). The more durable improvements in behavior and peer acceptance produced by early SST interventions (e.g., Gresham & Nagle, 1980; Ladd, 1981) led to the increased use of these procedures with aggressive children and adolescents.

In the ensuing 20-year period, SST has become an established frontline treatment approach. Published intervention studies are now well represented in the journals of a variety of disciplines, including developmental psychology, clinical psychology, education, and counseling. Unfortunately, however, the fast expansion of this literature also resulted in a degree of fractionalization. That is, separate, and often independent, bodies of social skills intervention research have evolved within individual disciplines. In completing this review, we were struck by the tendency for researchers to publish almost exclusively in journals representing their particular disciplines. “Cross-over” publications were rare (see the work of Bierman and Lochman as notable exceptions), as were citations of work being done by others in different disciplines.

The rift between the developmental and clinical literatures is not limited to social skills research. In fact, historical accounts reveal a lack of collaboration, frequent turf skirmishes, and a resultant “widening schism in communication” between the two disciplines (Peterson & Tremblay, 1999, p. 448). Calls from clinicians for increasing synthesis have been widespread (e.g., Mash, 1998; Ollendick & Vasey, 1999; Peterson & Tremblay, 1999; Shirk & Russell, 1996; Zeman, Nangle, & Sim, 1999). At the most basic level, such a synthesis would involve increased recognition of the role of a child’s age, gender, and developmental level in determining an approach to treatment (Mash, 1998). Normative information might also aid in the identification of children in need of treatment and the evaluation of intervention effectiveness. At a more complex level, the integration of developmental principles and findings might result in treatment approaches that are more sensitive to dynamic developmental processes (Mash, 1998).

To date, we remain far from such a synthesis. In fact, the degree to which developmental findings and principles have been incorporated into clinical practice has been described as “rudimentary at best” (Mash, 1998, p. 12). To facilitate integration within the social skills literature, this review provides a summary of key developmental findings, an

assessment of the status of existing incorporation efforts, and a discussion of the implications for clinical intervention. For contextual purposes, an overview of the major social skills intervention approaches will precede the developmental review. At this time, it is important to note that working toward a developmental–clinical synthesis within this literature is not simply a matter of informing clinicians of developmental principles and findings. Developmental researchers have formed an impressive body of intervention research that is included in our review.

1. Intervention approaches

The more than 50 treatment studies reviewed are grouped according to developmental level and summarized in Tables 1, 2, and 3. For review purposes, the intervention studies are grouped broadly and discussed as follows: (1) SST, (2) cognitive–behavioral skills training, and (3) multicomponent cognitive–behavioral skills training.

1.1. Social skills training

Guided by the social skills deficit model, these interventions are based on the implicit assumption that negative behaviors, such as aggression, often result from a lack of the skills needed to more competently negotiate conflict and influence peers (Bierman & Furman, 1984; Bierman et al., 1987; Bornstein, Bellack, & Hersen, 1980; Elder, Edelstein, & Narick, 1979; Factor & Schilmoeller, 1983; Frankel, Myatt, & Cantwell, 1995; Gottman, Gonso, & Schuler, 1976; Gresham & Nagle, 1980; Kolko, Dorsett, & Milan, 1981; Ladd, 1981; LaGreca & Santogrossi, 1980; Middleton & Cartledge, 1995; Mize & Ladd, 1990; Oden & Asher, 1977; Ollendick & Hersen, 1979; Prinz, Blechman, & Dumas, 1994; Sarason & Ganzer, 1973; Spence & Marzillier, 1981). Behavioral training procedures, including instruction, modeling, behavioral rehearsal, feedback, and discussion, are used to teach social skills, such as participation, cooperation, and communication. Even in the absence of the direct targeting of aggressive behavior, the provision of more adaptive behavioral alternatives is expected to result in reductions in aggression.

In one such intervention, Factor and Schilmoeller (1983) used instructions, prompts, modeling, and practice play sessions to teach preschool children communication, participation, cooperation, and validation/support skills. This brief (i.e., ten 8-min sessions) intervention resulted in gains in sociability and decreases in verbal and physical aggression relative to a control group. In a somewhat more elaborate example, Prinz et al. (1994) provided aggressive elementary school children with intensive instruction in information-exchange skills as part of an approximately 20-session school-based peer coping skills (PCS) training program. Much of the instruction occurred during “probes” in which child dyads, comprised of matched aggressive and competent-nonaggressive peers, engaged in role plays presenting information-exchange challenges (e.g., find out about your partner’s family) as increasingly demanding performance goals were assessed (e.g., listener remains silent during speaker’s statement, speaker is readily heard and understood). If performance goals were not met, extra training and practice were provided until mastery was achieved.

Table 1
Early childhood intervention studies

Authors and year	Age	Gender/race	Identification method	Intervention	Assessment method	Intervention effects
Factor and Schilmoeller (1983)	3–6-year olds	17 males, 19 females/race NR	all from normal preschool classrooms	SST	behavioral observations	improved sociability scores; decreased group negative behavior
Mize and Ladd (1990)	4–5-year olds	gender NR/33 mostly White	low-accepted by sociometrics and scored below the mean on a social skill observation	SST with peer pairing	sociometrics, interviews with children, and behavioral observations (A)	positive correlations between social knowledge scores and combined skills use
Rickel et al. (1983)	3–5-year olds	58 males, 52 females/Black	classified as “aberrant” based on teacher ratings	cognitive problem solving skills (CPSS)	teacher ratings (A), SPS measures, achievement, and behavioral observations (A)	SPSS and achievement improved, but SPSS did not mediate behavior adjustment
Sharp (1981)	3–5-year olds	29 males, 25 females/Black	classified as “aberrant” based on teacher ratings	CPSS vs. modified CPSS	teacher ratings (A), SPS measures, and behavioral observations (A)	SPSS improved in CPSS group, but SPSS did not mediate behavior adjustment
Shure and Spivack (1982)	4–5-year olds	97 males, 12 females/Black	all children in federally funded day-care centers	CPSS	teacher ratings (A) and SPS measures	improved SPSS and behavior
Vaughn et al. (1984)	mean age of 5 years	19 males, 6 females/race NR	classified as “aggressive” based on teacher ratings	CPSS	teacher ratings (A) and SPS measures	improved SPSS
Winer et al. (1982)	grade K	57 males, 52 females/mostly White	all children in the classrooms	CPSS	teacher ratings (A), SPS measures, sociometrics, and IQ	improved SPSS and behavior adjustment, but SPSS did not mediate behavior adjustment
Zahavi and Asher (1978)	3–6-year olds	13 males, 6 females/race NR	eight most aggressive children based on behavioral observation	verbal instructions	behavioral observations (A)	reduced aggression; improved positive activity

Note: NR = not reported; (A) = aggression items included.

Children receiving PCS training demonstrated significant improvements in teacher-rated information-exchange and social skills in comparison with children in a no-PCS control condition who showed no improvements. Consistent with the skills-deficit model, PCS training also resulted in concomitant decreases in teacher-rated aggression that were maintained at a 6-month follow-up. It should be noted that although direct intervention may not be necessary, the combination of skill instructions and prohibitions targeting aggressive behavior does appear to be more effective than either component alone (Bierman et al., 1987).

1.2. Cognitive-behavioral skills training

Although these studies employ many of the procedures described above, the focus of cognitive-behavioral skills training interventions is on modifying the thought processes underlying aggressive behavior rather than overt behavior change (Amish, Gesten, Smith, & Clark, 1988; Dykeman, 1995; Forman, 1980; Guerra & Slaby, 1990; Guevremont & Foster, 1993; Hudley & Graham, 1993; Ianotti, 1978; Kazdin, Bass, Siegel, & Thomas, 1989; Kazdin, Esveltd-Dawson, French, & Unis, 1987; Rickel, Eshelman, & Loigman, 1983; Sarason & Sarason, 1981; Sharp, 1981; Shure & Spivack, 1982; Tisdelle & St. Lawrence, 1988; Vaughn, Ridley, & Bullock, 1984; Weissberg et al., 1981; Winer, Hilpert, Gesten, Cowen, & Schubin, 1982; Yu, Harris, Solovitz, & Franklin, 1986).

The majority of the studies in this area have evaluated adaptations of the social problem-solving skills (SPSS) training procedures pioneered by Spivack and Shure (1974) with preschool children. Following instruction in prerequisite concepts and skills (e.g., listening to and observing others; others have thoughts, feelings, and motives in problem situations), Spivack and Shure's program utilizes pictures, puppets, and role-playing techniques to facilitate instruction in problem-solving skills, including generating alternative solutions, thinking of consequences of actions, and pairing solutions and consequences. Dialoguing procedures in which children are encouraged to use their newly acquired skills in actual problem situations outside of the training sessions are added to enhance generalization. SPSS interventions with preschoolers have had mixed results. Although improvements in cognitive skills and behavioral adjustment have been found (Shure & Spivack, 1982; Winer et al., 1982), cognitive improvements are often unrelated to behavioral changes (Rickel et al., 1983; Sharp, 1981; Winer et al., 1982).

Kazdin et al. (1987) demonstrated efficacy of SPSS training with older children hospitalized for severe antisocial behavior, including aggression. Following individualized instruction in problem-solving skills (e.g., generating alternative solutions, means-end consequential thinking, perspective taking), children enacted the problem-solving approach in role-played interpersonal situations as the therapist used modeling, corrective feedback, and social reinforcement to assist in skill development. Errors in carrying out the problem-solving skills were consequated using response cost. Compared to nondirective relationship therapy (RT) and attention placebo control conditions, SPSS training resulted in significantly greater reductions in aggression and overall behavior problems at home and school, as well as improvements in prosocial behavior and overall adjustment, which were maintained at a 1-year follow-up assessment.

Table 2
Middle childhood intervention studies

Authors and year	Age	Gender/race	Identification method	Intervention	Assessment method	Intervention effects
Amish et al. (1988)	7–12-year olds	44 males, 6 females/race NR	classrooms for severely emotionally disturbed (SED)	SPSS training	teacher ratings (A), sociometrics, and SPS measures	improved SPSS and adjustment
Bierman and Furman (1984)	5th and 6th graders	28 males, 28 females/mostly White	low acceptance and low conversation skills	IC vs. GE vs. GEC	sociometrics, conversation skills, and self perceptions	GEC and IC improved in skill performance; GEC and GE improved in acceptance and self perceptions
Bierman et al. (1987)	6–10-year olds	32 males/mostly White	peer rejected and high levels of negative peer interaction	instructions vs. prohibitions (of aggression) vs. IP	peer and teacher ratings (A), sociometrics, and behavioral observations	IP decreased negative behavior and aggression; improved sociometric ratings from nontarget treatment partners
Bornstein et al. (1980)	8–12-year olds	two males, two females/two Black, one White, one other ethnic minority	inpatients with a history of aggressive behavior	SST for assertiveness	structured role play	improved assertiveness and eye contact; reduced hostile tone
Deffenbacher et al. (1996)	6th–8th graders	63 males, 57 females/94 White, 26 ethnic minority	high in self-reported anger	cognitive-relaxation coping skills (CRCS) vs. SST	self-reported anger, emotions, deviant behavior, and alcohol use	both improved anger control; CRCS reduced anxiety, depression, and deviant behavior
Forman (1980)	8–11-year olds	14 males, 4 females/mostly Black	referred to school psychologist for aggressive behavior	cognitive restructuring vs. response cost	teacher ratings and observations (A), and behavioral observations	both reduced aggressive behavior

Frankel et al. (1995)	7–13-year olds	53 males/43 White, 3 Black, 7 other ethnic minority	outpatient treatment for social skills deficits	coaching (C) friendship skills with parent involvement	parent and teacher ratings (A) and structured diagnostic interview	improved social skills; decreased aggression and withdrawal
Goodwin and Mahoney (1975)	6–11-year olds	three males/race NR	outpatient treatment of hyperactive and impulsive classroom behavior	videotaped modeling + self-instruction training (SIT)	“taunting” task and behavioral observations	improved coping responses and classroom behavior
Gottman et al. (1976)	3rd graders	four females/race NR	low acceptance	coaching with peer pairing	sociometrics and behavioral observations	improved peer acceptance and neutral interaction; reduced positive and negative interaction
Gresham and Nagle (1980)	3rd and 4th graders	18 males, 22 females/race NR	low acceptance	modeling vs. coaching vs. modeling and coaching (MAC)	sociometrics and behavioral observations	coaching and modeling increased positive interactions; decreased negative interactions
Guevremont and Foster (1993)	11–12-year olds	five males/race NR	referred for aggressive/disruptive school behavior	social problem-solving training	teacher interview and ratings (A), SPS measures, and behavioral observations (A)	improved SPSS and classroom behavior; reduced aggression
Hudley and Graham (1993)	4th–6th graders	108 males/108 Black	aggressive based on teacher ratings and peer nominations	retribution training	teacher ratings (A), peer nominations (A), disciplinary referrals, attribution questionnaire (A), and analog task	reduced hostile attributions and aggression/anger
Iannotti (1978)	K and 3rd graders	60 males/mostly White	all children in classrooms	role-taking training vs. role-switching training	self-reported role-taking, empathy, aggression (A), and altruism	improved role-taking and K improved altruism

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Table 2 (continued)

Authors and year	Age	Gender/race	Identification method	Intervention	Assessment method	Intervention effects
Kazdin et al. (1989)	7–13-year olds	87 males, 25 females/61 White, 51 Black	outpatients and inpatients treated for severe antisocial behavior	PSST vs. PSST+ practice (PSST-P) vs. relationship therapy (RT)	parent and teacher ratings (A), and self-reported aggression (A) and esteem	PSST and PSST-P showed less deviant/aggressive and more prosocial behavior than RT
Kazdin et al. (1987)	7–13-year olds	45 males, 11 females/43 White, 13 Black	inpatients treated for severe antisocial behavior	PSST vs. RT	parent and teacher ratings (A)	PSST and RT decreased aggression; PSST improved overall adjustment
Kettleworth and Kausch (1983)	7–12-year olds	31 males, 10 females/24 White, 17 Black	exhibited aggression in a camp affiliated with residential treatment center	combination of M, role play, and SIT	peer and teacher ratings (A), use of time out (A), self-reported anger, “taunting” tasks, problem-solving test, and observation (A)	improved coping responses, anger control, and problem-solving skills; decreased use of time out for fighting
Kirschenbaum (1979)	5–12-year olds	101 males, 72 females/72 White, 101 Black	school sample screened for acting out/moodiness/withdrawal problems using teacher measures and observations	communication, problem solving, and self-regulatory skills training with parent/teacher consultation	teacher ratings (A)	improved social competence
Ladd (1981)	3rd graders	18 males, 18 females/race NR	low accepted, low in target skills	coaching with peer pairing	sociometrics and behavioral observations (A)	improved social skills and peer acceptance
LaGreca and Santogrossi (1980)	3rd–5th graders	15 males, 15 females/race NR	low accepted	SST	sociometrics, skills knowledge task, role play, behavioral observations	improved social skills; increased initiation of social interactions

Lochman (1992)	4th–6th graders	145 males/race NR	high in teacher- and peer-nominated aggression	AC training	interviews assessing delinquency and substance abuse, self-reported competence/esteem, problem-solving test, and behavioral observations (A)	at this 3-year follow-up: decreased substance abuse; improved self-esteem and problem-solving skills
Lochman et al. (1984)	9–12-year olds	76 males/40 Black, 36 White	high in teacher-rated aggression	AC vs. GS vs. AC+GS (ACGS)	parent and teacher ratings (A), sociometrics (A), self-reported competence/esteem, and behavioral observations (A)	ACGS decreased aggressive behavior; AC and ACGS parent-rated aggression decreased
Lochman and Curry (1986)	9–12-year olds	20 males/10 Black, 10 White	identified as aggressive and disruptive by teachers	AC vs. AC+SIT (AC-SIT)	parent and teacher ratings (A), self-reported competence/esteem, and behavioral observations (A)	AC and AC-SIT parent-rated aggression decreased, while on-task behavior and self-esteem increased; AC decreased disruptive-aggressive off-task behavior
Lochman et al. (1993)	3rd graders	27 males, 25 females/Black	identified as aggressive and rejected by sociometrics	social relations training program (SPSS)	sociometrics (A), teacher ratings (A), and self-reported worth	decreased aggression; improved social acceptance
Lochman and Lampron (1988)	Mean age of 11.7 years	31 males/19 White, 12 Black	high in teacher-rated aggression	AC vs. ACGS vs. GS	parent and teacher ratings (A), sociometrics (A), self-reported competence/esteem,	at this 7-month follow-up: ACGS and AC decreased passive off-task behavior; ACGS

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Table 2 (continued)

Authors and year	Age	Gender/race	Identification method	Intervention	Assessment method	Intervention effects
Lochman et al. (1989)	9–13-year olds	32 males/22 White, 10 Black	identified as aggressive and disruptive by teachers	AC vs. AC+ teacher consultation (ACTC)	problem-solving test, and behavioral observations (A), teacher ratings (A), self-reported competence/esteem, and behavioral observations (A)	increased on-task behavior AC and ACTC decreased disruptive-aggressive off-task behavior; AC and ACTC improved social competence 4/5 children declined in aggression
Middleton and Cartledge (1995)	6–9-year olds	five males/Black	identified by teachers as high in aggression and low in social skills	social skills instruction, parent training, and classroom coaching	behavioral observations (A)	improved sociometrics with C
Oden and Asher (1977)	3rd and 4th graders	18 males, 15 females/race NR	low accepted	peer pairing	sociometrics and behavioral observations	improved sociometrics with C
Omizo et al. (1988)	4th–6th graders	14 males, 10 females/race NR	teacher-nominated for aggressive or hostile behavior	anger-regulation training with social problem-solving	teacher ratings (A)	decreased aggression and hostility
Prinz et al. (1994)	1st–3rd graders	79 males, 90 females/48 White, 120 Black or Hispanic	identified as aggressive by teacher ratings	PCS with peer pairing	teacher ratings (A), sociometrics, and information-exchange task	improved prosocial coping; decreased aggressive behavior
Rotheram (1982)	4th–6th graders	gender NR/61 White, 5 Black, 35 Chicano	all students in eight classrooms, with students varying in academic and social skills	SST	teacher ratings, sociometrics, grade point average, self-reported assertion, and problem-solving test	improved assertion, problem-solving skills, and compartment

Saylor et al. (1985)	10–15-year olds	14 males/10 White, 4 Black	inpatients with anger/aggression problems	anger management (AM)	staff ratings (A), teacher ratings, self-reported anger, and behavioral observations (A)	reduced anger
Schneider (1991)	7–13-year olds	32 males, 9 females/race NR	outpatients with diagnosis of Conduct Disorder-Aggressive	skill-building (SB) and desensitization/imagery (DI)	teacher ratings, behavioral test, and behavioral observations (A)	DI and SB decreased aggression (SB greater decrease than DI); DI and SB increased cooperative play
Schneider and Byrne (1987)	7–13-year olds	28 males, 7 females/race NR	inpatients and outpatients with behavior disorders	individualized and non-individualized SST	role-play test and behavioral observations (A)	individualized SST improved cooperation
Tanner and Holliman (1988)	6–9-year olds	15 males, 9 females/White	teacher nominations of children with behavior problems	assertiveness SST	teacher ratings (A), situational play task (A), and behavioral observations (A)	improved cooperation; decreased aggression
Weissberg et al. (1981)	3rd graders	gender NR/71 from an urban, mostly Black school, 171 from 2 suburban mostly White schools	all children in 12 classes	SPS training	teacher ratings (A), sociometrics, and self-reported anxiety and self-concept	improved SPS measures; suburban children improved and urban children worsened on behavior adjustment, including aggression
Yu et al. (1986)	7–12-year olds	23 males/9 Black, 13 White, 1 Hispanic	outpatients referred for behavior disorders	two groups receiving SPSS training (G1 and G2)	parent ratings (A), SPS measures, and IQ	both groups improved SPSS and social competence; G2 less symptomatic, including aggression

Note: NR = not reported; (A) = aggression items included.

Table 3
Adolescent intervention studies

Authors and year	Age	Gender/race	Identification method	Intervention	Assessment method	Intervention effects
Dykeman (1995)	8th graders	four males/ race NR	referred from a special education class of students with behavioral disorders	pair therapy (peer-paired, taught friendship skills and anger control, and discussed anger situations with therapist) SST	frequency of aggressive behavior, disciplinary referrals (A), and self-reported anger	decreased trait anger, anger-out, and disciplinary referrals
Elder et al. (1979)	NR	three males, one female/ race NR	inpatients with histories of aggressive behavior		frequency of token economy fines and timeouts and behavioral observations (A)	improved target behaviors; decreased fines and timeouts
Feindler et al. (1986)	13–18-year olds	22 males/ 14 White; seven Black, one Hispanic	inpatients with behavioral and/or emotional disturbances	anger control training	staff ratings, frequency of fines (A), role play, and cognitive task	improved self- control, cognitive responding, and conflict role-play behavior; decreased frequency of fines for aggression
Feindler et al. (1984)	12–16-year olds	gender NR/ race NR	high in classroom and/or community disruption	anger control training	teacher ratings, frequency of school suspensions and fines (A), self-reported SPSS and locus of control, and cognitive task	improved self-control and SPSS

Guerra and Slaby (1990)	15–18-year olds	60 males, 60 females/race NR	incarcerated for aggressive offenses	cognitive mediation training SST	staff ratings (A), recidivism, and SPS measures ward and therapy adjustment ratings (A), role plays, and ward simulation	improved SPSS and behavioral adjustment improved adjustment ratings, role-play behavior, and simulation behavior
Kolko et al. (1981)	14–16-year olds	three males/White	inpatients referred for severe anger control and aggression problems			
LeCroy (1988)	12–17-year olds	11 females/ race NR	inpatients with a range of diagnoses and anger problems	AM vs. anger expression (AE)	self-reported aggression (A), locus of control, and self-esteem	AM decreased aggression; AE increased aggression
Ollendick and Hersen (1979)	13–16-year olds	27 males/ 15 White, 12 Black	incarcerated for offenses against property or person and identified as having an external locus of control	SST	self-esteem role-play ratings (A), token economy points, instances of disruptive behavior, and self-reported locus of control and anxiety	decreased anxiety; improved role-play behavior (including decreased aggression) and number of points earned; increased internal locus of control
Sarason and Ganzer (1973)	15–19-year olds	192 males/ race NR	first-time offenders at a juvenile correction facility	modeling vs. discussion	staff ratings, recidivism, and self-reported personality characteristics, test anxiety, self-concept, and locus of control	both improved in attitudes, self-concept, behavior ratings, and had more internalization and lower recidivism; modeling decreased emotional reactivity
Sarason and Sarason (1981)	Mean age of 15 years	64 males, 63 females/ race NR	all students in health classes at a low-achieving school	SST with modeling of related cognitions	role-play ratings, tardiness, behavioral referrals, self-reported test anxiety and locus of control, and SPSS	improved SPSS; decreased tardiness and behavioral referrals

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Table 3 (continued)

Authors and year	Age	Gender/race	Identification method	Intervention	Assessment method	Intervention effects
Spence and Marzillier (1981)	10–16-year olds	76 males/ race NR	inpatient offenders identified as deficient in interpersonal skills	SST	staff and social workers' ratings, official police convictions, interview/role-play ratings, self-reported social problems/offenses, and behavioral observations	improved target skill behavior
Tisdelle and St. Lawrence (1988)	13–19-year olds	eight males/ seven White, one Black	inpatients diagnosed with conduct disorder	SPSS training	role play and behavior ratings by staff and teachers (A)	improved problem-solving skills

Note: NR = not reported; (A) = aggression items included.

1.3. Multicomponent cognitive–behavioral skills training

In hopes of enhancing effectiveness, researchers have evaluated more fundamental skills training procedures (i.e., instruction, modeling, rehearsal, feedback) in combination with various cognitive–behavioral components, including training in anger control, social problem solving (SPS), self-instruction, relaxation, perspective taking, and self-regulation (Deffenbacher, Lynch, Oetting, & Kemper, 1996; Feindler, Ecton, Kingsley, & Dubey, 1986; Feindler, Marriott, & Iwata, 1984; Goodwin & Mahoney, 1975; Kettleworth & Kausch, 1983; Kirshenbaum, 1979; LeCroy, 1988; Lochman, 1992; Lochman, Burch, Curry, & Lampron, 1984; Lochman, Coie, Underwood, & Terry, 1993; Lochman & Curry, 1986; Lochman, Lampron, Gemmer, Harris, & Wyckoff, 1989; Omizo, Hershberger, & Omizo, 1988; Rotheram, 1982; Saylor, Benson, & Einhaus, 1985; Schneider, 1991; Schneider & Byrne, 1987; Tanner & Holliman, 1988). A number of these multicomponent interventions are designed to enhance older children's ability to control their anger (Deffenbacher et al., 1996; Feindler et al., 1984; LeCroy, 1988; Lochman, 1992; Lochman et al., 1984; Lochman et al., 1993; Lochman & Curry, 1986; Lochman et al., 1989; Omizo et al., 1988; Saylor et al., 1985). The emotional experience of anger and its associated arousal is viewed as an important precipitant of aggressive responding. Therefore, teaching children how to recognize physiological cues and subsequently employ coping strategies to control anger are viewed as crucial aspects of intervention.

The most well-evaluated of these multicomponent interventions is the anger-coping (AC) program developed by Lochman (1992), Lochman et al. (1984), Lochman et al. (1993), Lochman and Curry (1986), and Lochman et al. (1989). AC is a school-based group intervention for aggressive boys focusing on the (1) establishment of group rules and contingencies; (2) use of self-statements and SPSS to inhibit impulsive behavior; (3) control of physiological arousal in anger-provoking situations through the imitation of videotaped models displaying the effective use of self-statements and SPSS; (4) group preparation of a videotape demonstrating the use of self-statements and SPSS with a problem of their own choice; and (5) implementation of SPSS with current anger arousal problems through dialoguing, discussion, role play, and goal setting (GS). Efficacy of the AC program has been established in an impressive series of studies demonstrating significant reductions in observed and teacher-rated aggression in the school setting and parent-rated aggression in the home setting. Changes in the original AC program, such as increasing the number of sessions, have resulted in improvements in the long-term maintenance of treatment gains (Lochman et al., 1993).

Evaluations of comprehensive anger control training programs with adolescents have achieved more modest results, particularly with respect to behavioral outcome measures. One such program, developed by Feindler et al. (1986) and Feindler et al. (1984), is administered in a group format and incorporates training in relaxation, self-monitoring of anger and conflict situations, self-instructions, coping statements, assertion techniques, problem solving, and the evaluation of one's own behavior. A range of teaching strategies, including live modeling, role playing, symbolic modeling using standardized videotaped role-play situations, and a point system targeting in-session behavior, are used to enhance skill acquisition. An initial evaluation with multisuspended delinquents enrolled in a school behavior modification program resulted in gains on a problem-solving measure and teacher-rated self-

control relative to a no-treatment control group (Feindler et al., 1984). No significant group differences were found for fines received for aggressive behavior or two additional self-report measures. A subsequent investigation targeting male adolescent psychiatric inpatients resulted in improvements relative to controls on staff-rated self-control, the Matching Familiar Figures Test, and general ward rule violations, but more mixed findings on role-play measures and no improvements with respect to violations for physical aggression (Feindler et al., 1986).

2. Developmental findings and clinical implications

We now turn to our review of key developmental findings and their clinical implications. Given our sense of the limited nature of past integration attempts, we decided to weight this review more toward fundamental developmental factors, which include age, gender, race, and the identification of intervention samples. Also included are two areas of developmental inquiry, social cognition and peer group influences, selected on the basis of their potential clinical impact.

2.1. Age

Significant normative changes in aggressive behavior occur across the preschool, grade school, and adolescent years. Preschool children tend to engage in physically aggressive behaviors, such as hitting, grabbing for objects, and pushing (Coie & Dodge, 1997; Hartup, 1983). Gradually, between the ages of 2 and 4 years, displays of physical aggression decline as incidents of verbal aggression increase (Cairns, 1979). Much of this increased verbal aggression surfaces in the form of arguments with peers over toys and other material possessions (Fabes & Eisenberg, 1992). Continued decreases in physical aggression are likely to be the result of developmental gains in language, empathy, the ability to delay gratification, and perspective-taking skills (Coie & Dodge, 1997; Kagan, 1981; Mischel, 1974; Selman, 1980). In contrast to the instrumental or object-focused aggression seen in the preschool period, person-oriented aggression becomes increasingly common in the elementary school years (Hartup, 1974). At this age, the realization that peers can act with hostile motives leads to retaliatory behavior (Dodge, 1980). In general, aggression decreases as children enter the adolescent years. However, for those children on the developmental trajectory for aggressive conduct problems, there is an increase in more violent forms of aggression during this period (Coie & Dodge, 1997). Increasing evidence suggests that the path leading to more serious conduct problems and violence often begins with minor aggressive acts in the elementary school years (Coie & Dodge, 1997). For adolescents involved in more deviant peer groups, physical aggression and the use of weapons may be socially acceptable (Coie, Lochman, Terry, & Hyman, 1992). Furthermore, self-reports of serious violent offenses, such as assault, robbery, and rape, increase significantly from ages 12 to 20 (Coie & Dodge, 1997).

2.1.1. Clinical implications

Perhaps nowhere in the intervention literature is the lack of integration between developmental and clinical research more pronounced than in the frequent failure to consider develop-

mental level in sample selection or intervention approach. Social skills researchers have lapsed into a pattern of passively referring to chronological age without attending to the developmental context. In fact, it is not uncommon to see samples comprised of mixtures of early elementary school-aged children and young adolescents (see Table 2; e.g., Amish et al., 1988; Frankel et al., 1995; Kazdin et al., 1989; Kazdin et al., 1987; Kettleworth & Kausch, 1983; Kirschenbaum, 1979; Schneider, 1991; Schneider & Byrne, 1987; Yu et al., 1986).

Major age-related contextual factors that need to be considered in social skills interventions include normative changes in socially appropriate behaviors, growth in cognitive capacities, and increasing rigidity in peer perceptions (Bierman & Montminy, 1993). Sensitivity to normative changes in treatment studies has taken several forms. Participant identification has been based on standardized norm-referenced measures (e.g., Deffenbacher et al., 1996; Kazdin et al., 1989; Kazdin et al., 1987; Lochman et al., 1989; Middleton & Cartledge, 1995; Prinz et al., 1994; Rickel et al., 1983), as well as more local norms such as within classroom comparisons (e.g., Bierman et al., 1987; Hudley & Graham, 1993; Mize & Ladd, 1990). Less frequently, developmental findings have been used in the selection of target skills. For example, interventions have targeted skills with documented links to peer acceptance for children in the relevant age group (e.g., Bierman et al., 1987; Lochman et al., 1993). Normative data have also played a role in evaluations of treatment outcome. Despite being effective, interventions often fail to move children into the “normal” range of functioning (Kazdin et al., 1989; Kazdin et al., 1987; Prinz et al., 1994).

As predicted by developmental theory and research, cognitive interventions appear to be more effective with older children and adolescents (Durlak, Fuhrman, & Lampman, 1991; Kazdin et al., 1987). Although these approaches often require more advanced social-cognitive skills, they are routinely applied to children of all ages and cognitive abilities. Pointed examples are found in studies targeting preschool children with SPSS training despite their deficits in abstract reasoning (Rickel et al., 1983; Sharp, 1981; Shure & Spivack, 1982; Vaughn et al., 1984; Winer et al., 1982). Perhaps this oversight helps to explain the failure of these studies to demonstrate links between cognitive improvements and behavioral adjustment (Rickel et al., 1983; Sharp, 1981; Winer et al., 1982). Even children in similar age ranges exhibit important individual differences in cognitive developmental level and ability that might affect outcome. For instance, in an intervention with third graders, Lochman et al. (1993) found that their cognitive-behavioral intervention was less effective for children with lower reading achievement levels.

Changing peer attitudes and social status becomes increasingly difficult as children grow older. At about the age of 8 years, children acquire the ability to evaluate the behavior of others in terms of stable patterns of behavior and personality characteristics (e.g., Livesley & Bromley, 1973; Rholes & Ruble, 1984, 1986). Moreover, children’s impressions tend to be highly univalent and evaluatively consistent. Thus, by the elementary school years, the peer group is likely to have formed durable, and somewhat negative, perceptions of aggressive children (Hymel, Wagner, & Butler, 1990). As aggressive children make the transition to middle school, they are faced with the added risk of entering into deviant peer groups (e.g., Dishion, Patterson, Stoolmiller, & Skinner, 1991). Based on the timing of these peer influences, early interventions and active efforts to target peer group responsivity are often recommended (e.g., Bierman & Furman, 1984; Dishion, Patterson, & Griesler, 1994).

2.2. Gender

Past research has been limited by its exclusive focus on overt forms of aggression, such as hitting and pushing, which are most commonly displayed by boys (Crick, 1996; Crick, Bigbee, & Howes, 1996). More recent work has identified a more indirect or relationally oriented form of aggression that is more characteristic of girls (Bjorkqvist, Lagerspetz, & Kaukian, 1992; Crick, 1995). In contrast to overt aggression, which influences others through physical harm or the threat of such harm, relational aggression (e.g., gossiping, excluding someone from the peer group, threatening to withdraw one's friendship) harms others through damage to their peer relationships or the threat of such damage. If the definition of aggression is expanded to include relationally aggressive behavior, then there is less of a discrepancy in the levels of aggression displayed by girls and boys (Crick & Grotpeter, 1995).

Crick (1996) and Crick et al. (1996) are just beginning to identify the correlates of relational aggression. Children do indeed view relationally manipulative behaviors as being aggressive and such behavior has been found to contribute uniquely to the prediction of social maladjustment. More specifically, relationally aggressive children tend to become more rejected by peers over the course of a school year (Crick et al., 1996). In addition, similar to their more overtly aggressive peers, relationally aggressive children tend to exhibit a hostile attribution bias in certain provocation situations (Crick, 1995). Unfortunately, despite the large number of studies examining the long-term psychological and behavioral adjustment of physically aggressive boys, no research to date has addressed the long-term outcome of relationally aggressive girls.

2.2.1. *Clinical implications*

Not unexpectedly given its recent nature, the work of Crick et al. (1996) has not yet influenced the intervention literature. Most commonly, treatment samples were comprised of both boys and girls (e.g., Bierman & Furman, 1984; Factor & Schilmoeller, 1983; Frankel et al., 1995; Guerra & Slaby, 1990; Prinz et al., 1994; Rickel et al., 1983; Shure & Spivack, 1982), but all male samples were used frequently as well (e.g., Bierman et al., 1987; Feindler et al., 1984; Hudley & Graham, 1993; Ianotti, 1978; Lochman, 1992; Lochman et al., 1984; Spence & Marzillier, 1981). It is worth noting that boys and girls received the same treatments, and that even the studies with larger samples (e.g., Kirshenbaum, 1979; Prinz et al., 1994; Shure & Spivack, 1982) did not examine gender as a potential mediator of treatment outcome.

At this time, two major limitations exist. First, whether or not aggressive girls, as traditionally identified, might respond differentially to currently employed treatment approaches is not known. Second, the need for interventions specifically addressing relational aggression is not yet established. Although, as indicated earlier, very little is known about the potential long-term outcome for relationally aggressive girls, there are some data suggesting that relational forms of aggression may be worthy of intervention. A short-term longitudinal study tracking 245 third- through sixth-grade students revealed that individual differences in relational aggression were stable, and predictive of increased peer rejection, across a 1-year period (Crick, 1996). These findings, however, were not specific to girls.

2.3. Race

Very few studies have examined racial differences in aggressive behavior. There is some evidence that African American children tend to be more aggressive in the elementary school years (Hartup, 1974). This racial difference becomes more pronounced in adolescence (Achenbach, 1991). There is a high risk for the onset of serious violent offenses for African American males between the ages of 13 and 16 (Coie & Dodge, 1997). Data from arrest records indicate that although African American youth comprise only 15% of the juvenile population, they account for 52% of the juveniles arrested for violent crimes (Dryfoos, 1990). There is also evidence suggesting racial differences in the topography of aggressive behavior with African Americans being more likely to display physical aggression and Whites more likely to exhibit verbal aggression (Harris, 1992). Racial differences in aggressive behavior are reduced somewhat when confounds, such as socioeconomic status, are taken into consideration (Coie & Dodge, 1997).

2.3.1. *Clinical implications*

As with gender, the potential importance of racial differences has been largely overlooked in the intervention literature. Many of the more dated studies did not even report the racial make-up of samples (e.g., Goodwin & Mahoney, 1975; Gottman et al., 1976; Gresham & Nagle, 1980; Ladd, 1981; Oden & Asher, 1977; Zahavi & Asher, 1978). Of the more recent studies reporting racial composition, some have more racially homogenous samples (e.g., Bierman & Furman, 1984; Hudley & Graham, 1993; Lochman et al., 1993; Mize & Ladd, 1990), whereas others have mixed samples but did not evaluate race as a potential mediator of treatment outcome (e.g., Kazdin et al., 1989; Lochman et al., 1984).

In light of the increased risks faced by aggressive African American children, some researchers have suggested that specific early intervention efforts are needed (Hudley, 1994; Hudley & Graham, 1993; Lochman et al., 1993; Middleton & Cartledge, 1995). Lochman et al. (1993) targeted both aggressive- and nonaggressive-rejected African American children with a school-based social relations intervention consisting of prosocial skill training and cognitive-behavioral procedures aimed at enhancing SPS. The intervention was successful, but only with the aggressive-rejected children. In discussing failure of the SST component to impact nonaggressive-rejected children, the authors proposed that traditional skills training might be less effective with low-income African American children than with more middle-class and White children. If this were true, they further suggested that the cognitive-behavioral aspect of the intervention might have been the “most active ingredient” for the aggressive-rejected children.

The proposal offered by Lochman (1992), Lochman et al. (1984), Lochman et al. (1993), Lochman and Curry (1986), and Lochman et al. (1989) is intriguing but purely speculative at this point. Both social skills instruction and cognitive approaches appear to be effective, and direct comparisons within African American, or between African American and White, samples have not been undertaken. Intervening with five elementary-aged African American boys identified by classroom teachers, Middleton and Cartledge (1995) combined prosocial skill instruction using modeling, role playing, corrective feedback, and differential reinforcement of incompatible behaviors with a parent involvement component. A multiple baseline

design across students evidenced appreciable reductions in aggressive behavior for four of the five students that generalized to untrained settings and were maintained at follow-up. Using a cognitive approach, Hudley (1994), Hudley et al. (1998) and Hudley and Graham (1993) have targeted aggressive African American boys with reattribution training aimed at reducing hostile attribution tendencies in ambiguous provocation situations. Through discussions and role play, these boys are taught to identify ambiguous peer intent, to make attributions to nonhostile intent when negative social encounters are portrayed as ambiguous, and to generate nonaggressive responses given attributional uncertainty. Following the 12-session program, Hudley and Graham found that, in contrast to controls, aggressive boys were less likely to presume hostile intent by peers and less likely to react with aggression in response to hypothetical situations and laboratory simulations of ambiguous provocation. These boys were also rated as being less aggressive by their teachers.

2.4. Identification

Recent research has uncovered a surprising degree of heterogeneity in the characteristics of aggressive children. Despite the once prevailing assumption that aggression was the primary determinant of rejection, as many as one-third of aggressive boys are not rejected by their peers (Bierman, Smoot, & Aumiller, 1993). Moreover, as many as half of all rejected boys do not exhibit excessive levels of aggression. To examine relationships between aggression and peer rejection more closely, Bierman et al. (1993) compared the characteristics of grade school boys placed into four groups based on a combination of their sociometric and aggressive behavior ratings: (1) aggressive-rejected, (2) aggressive-nonrejected, (3) nonaggressive-rejected, and (4) neither aggressive nor rejected. Interestingly, although aggressive boys were found to be similar in terms of prosocial behavior and physical aggression when compared to the aggressive-nonrejected boys, the aggressive-rejected group exhibited more conduct problems, such as verbal aggression, rule violation, and hyperactivity. Within the rejected subgroups, the nonaggressive-rejected boys exhibited more shyness, passivity, and inhibition than their aggressive peers. About 2 years later, these aggressive-rejected boys were found to experience more negative behavioral and social outcomes, including stable elevations in aggressive behavior and continuing peer rejection, than the aggressive-nonrejected or nonaggressive-rejected boys (Bierman & Wargo, 1995). Such heightened risk for negative outcomes carries into the adolescent years when aggressive-rejected boys are more likely to experience conduct disorder and delinquency (Coie, Lochman, Terry, & Hyman, 1992).

2.4.1. Clinical implications

The heterogeneity of aggressive children casts doubt on the notion that they will respond uniformly to intervention attempts. Determinations of the relative efficacy of existing treatment approaches with relevant subtypes are needed. For example, Lochman et al. (1993) compared effectiveness of a social relations intervention with aggressive- and nonaggressive-rejected children. Incorporating both traditional SST and cognitive-behavioral components, the social relations intervention included instruction in SPS, positive play skills, group-entry skills, and coping effectively with angry feelings. Despite the

absence of demonstrable effects for the entire intervention group, the aggressive-rejected children showed significant declines in aggression and rejection, as well as improvements in peer acceptance, relative to an aggressive-rejected control group. As noted by the authors, these results illustrate the importance of subtyping as the group of children most likely to display social-cognitive distortions and deficits responded best to a cognitive-behavioral intervention designed to remediate those distortions and deficits. The failure, however, of the rejected-only children to respond to a SST program patterned after interventions with documented effectiveness in improving peer status was not expected. This finding was attributed to the possibility that SST may be relatively less effective with low-income African American samples than with more middle-class White samples. As suggested earlier though, this is purely speculative as the authors did not make any SES or racial comparisons.

Progress in subtyping has been hampered by the seeming presumption in intervention research that all aggressive children are alike. This presumption is reflected in the remarkable lack of uniformity in the procedures used to identify samples (see Tables 1, 2, and 3). Identification has most often been based on single indices of aggressive behavior that have included the direct observation of aggressive behavior and social skills, sociometric ratings, peer nominations for aggression, teacher-rated aggression and disruptive behavior, parent-rated aggression, and self-reported anger. Alternatively, some studies reported using special education, inpatient, incarceration, or diagnostic status to select participants.

2.5. Social cognition

Developmental research examining social-cognitive processes has had an enormous impact on our understanding of aggression. Of the major theoretical models proposing links between such processes and aggressive behavior (e.g., Ladd & Crick, 1989; Rubin & Krasnor, 1986), the social-information processing model offered by Dodge (1986) has emerged as the most influential. A reformulated version proposes that the enactment of an aggressive behavioral response is part of a complex six-step nonlinear process with various feedback loops: (1) observation and encoding of both external and internal cues during peer interaction; (2) interpretation and mental representation of those cues; (3) clarification of goals; (4) response access or construction; (5) response decision; and (6) behavioral enactment (Crick & Dodge, 1994). Empirical support for this model is rather impressive. Compared to their more well-adjusted peers, aggressive children tend to be less attentive to relevant social cues, less accurate in interpreting peer intention cues, more likely to attribute hostile intent to the actions of peers, more likely to endorse social goals that damage rather than enhance relationships, and have a social strategy repertoire mostly comprised of aggressive alternatives (cf. Crick & Dodge, 1994). Moreover, aggressive children are more likely to believe that they are good at being aggressive, that aggression leads to positive outcomes, and that aggression is a legitimate response. While acknowledging the rich empirical support for the model, it is important to note that the findings summarized above are primarily correlational, and there is little evidence supporting the notion that the social-cognitive skills proposed by the model actually mediate changes in behavior and/or peer acceptance (Kazdin, 1995; McFadyen-Ketchum & Dodge, 1998).

2.5.1. Clinical implications

Intervening at the social-cognitive level appears to be an effective approach to treatment (e.g., Forman, 1980; Guerra & Slaby, 1990; Guevremont & Foster, 1993; Hudley & Graham, 1993; Kazdin et al., 1987; Shure & Spivack, 1982). The increased popularity of this approach is partly due to its potential to address some of the major shortcomings of the more traditional behavioral skills training interventions. Specifically, the failure of the more traditional approaches to achieve greater temporal and cross-setting generalization is thought to result, in part, from the fact that these interventions focus on overt behavior change without attempting to alter the social-cognitive patterns that presumably guide the aggressive behavior (McFadyen-Ketchum & Dodge, 1998). The overt behavior changes brought about by active instruction and contingency management are likely to fade when aggressive children return to their natural environments. In addition to changes in settings and contingencies, unaltered maladaptive cognitive patterns contribute to the maintenance of aggressive behavior and work against generalization. The acquisition of social-cognitive skills, according to the Crick and Dodge's (1994) model, would be expected to result in more durable behavioral changes that generalize to a broad range of social situations.

Of course, the eventual impact of the social information processing model on clinical intervention hinges on demonstrations that the proposed cognitive skills actually mediate behavior change. In general, social-cognitive interventions have been shown to be effective, but efforts to find links between cognitive change and behavioral improvements have had mixed results (see Durlak et al., 1991 for a complete review). Within the SST literature, for example, a number of studies have reported success in improving children's problem-solving skills but concluded that the acquired cognitive skills did not mediate changes in behavior (e.g., Amish et al., 1988; Sharp, 1981; Tisdelle & St. Lawrence, 1988; Weissberg et al., 1981; Winer et al., 1982; Yu et al., 1986). Evaluating linkage in other problem-solving skills training (PSST) studies that reported successfully eliciting behavior change is not possible due to a failure to assess cognitive skills (e.g., Kazdin et al., 1989; Kazdin et al., 1987).

Studies with closer ties to developmental social-cognitive models, more comprehensive assessment efforts, and direct examinations of the mediating role of cognitions have found more encouraging results (e.g., Guerra & Slaby, 1990; Hudley & Graham, 1993). Guerra and Slaby (1990) targeted adolescents incarcerated for offenses involving aggression with a 12-week cognitive mediation training program aimed at modifying beliefs regarding the legitimacy of aggression and improving SPSS. Notably, the trained cognitive skills were found to differentiate violent juvenile offenders from nonoffenders in a previous assessment study (Slaby & Guerra, 1988). The assessment battery included seven SPSS measures, a questionnaire assessing beliefs supporting aggression, a behavior rating scale, and recidivism data. Compared to attention controls, trained adolescents evidenced improved SPSS, decreased endorsement of beliefs supporting aggression, and decreased aggressive behavior. Moreover, the changes in SPSS and beliefs supporting aggression significantly predicted post-test aggression even after controlling for pretest aggression. After successfully implementing an attributional intervention, Hudley and Graham (1993) concluded that their findings suggested a causal relationship between biased cognition and aggressive behavior. Boys in their attribution-retraining group evidenced significant reductions in hostile attributions of intent

in both hypothetical and laboratory simulations, as well as decreases in teacher-rated aggression.

2.6. Peer group influences

With age, peers appear to exert increasingly powerful influences on aggressive children. As early as middle childhood, aggressive children show a tendency to befriend other aggressive children and form social networks that reinforce aggression and other antisocial behaviors (Cairns, Cairns, Neckerman, Gest, & Garipey, 1988; Dishion et al., 1994). Entrance into these social networks may place aggressive children on trajectories leading to future antisocial behavior. A longitudinal study revealed that among poor peer relations, academic skill deficits, and low parent monitoring, antisocial behavior and involvement with antisocial peers at age 10 were the best predictors of membership in a deviant peer group by age 12 (Dishion et al., 1991). Association with deviant peers consistently emerges as the strongest correlate of adolescent antisocial behavior, including substance abuse and delinquency (cf. Dishion et al., 1994).

The formation of deviant social networks begins with the well-documented tendency for children to affiliate with peers who are similar to themselves in salient lifestyle dimensions, including proclivities toward aggressive behavior (Cairns et al., 1988). Selective acceptance by aggressive peers and/or selective exclusion by nonaggressive peers serve to consolidate these affiliation patterns and strengthen the network. Relationships within the network allow for repeated reciprocal processes that may result in further escalations in aggressive behavior. Thus, in a seeming paradox, the aggression that is consistently associated with rejection by the conventional peer group may actually facilitate the formation of some relationships (Dishion et al., 1994).

Rejection by nonaggressive peers may also be maintained by what Hymel et al. (1990) refer to as “reputational biases.” Hymel et al. contend that a child’s social status or reputation, once established, strongly influences how peers respond to that child. Because children are likely to maintain reputation-congruent perceptions of others, they are apt to evaluate the behavior of a rejected and/or aggressive child in ways that preserve that child’s negative reputation. Overall, disliked children seem to be held more accountable for negative behaviors than are liked children (Hymel, 1986). Further, disliked children are likely to evoke more active behavioral responses and more negative emotional responses from peers than are liked children who perform the exact same behaviors (DeLawyer & Foster, 1986). It appears, then, that peers may often be resistant to changing their feelings toward a child that they dislike, even when positive change has occurred.

2.6.1. Clinical implications

Much of the early interest in peer group influences in the SST literature was motivated by criticisms regarding the failure of some interventions to impact children’s social status despite achieving behavioral improvements (e.g., Gresham & Nagle, 1980; LaGreca & Santogrossi, 1980). Bierman and Furman (1984) proposed that interventions might be more successful in improving social status if active efforts to modify peer group responsivity were incorporated. In a demonstration of such efforts, Bierman and Furman placed low-accepted children who

were deficient in conversation skills into one of four treatment conditions with varying levels of peer involvement: (1) individual coaching (IC), (2) group experience (GE), (3) GE with coaching (GEC), and (4) no treatment. Coaching involved the use of instruction, rehearsal, and performance feedback techniques to teach specific conversation skills. Not receiving any skills training, children in the GE condition met in small groups with more-accepted peers to work on making a friendly interaction film. Although each approach was effective, the outcomes were different. Coaching produced gains in targeted conversation skills, whereas GE resulted in improvements in social status. Only the combination of GE and coaching resulted in both improved skills and peer partner acceptance.

In addition to facilitating exposure to prosocial peer networks, the inclusion of more-accepted peers provides competent models for aggressive children (Hudley & Graham, 1993; Middleton & Cartledge, 1995; Prinz et al., 1994). In the process of selecting aggressive children for a PCS training program, Prinz et al. (1994) identified equal numbers of competent-nonaggressive children to serve as coping models and sources of social support. Probes in which aggressive/nonaggressive dyads matched by sex and ethnicity practiced taught skills were an integral part of the training. Structured group activities and group rewards for adhering to the rules were also used to enhance peer involvement. Compared to a no-PCS control group, trained children showed significant improvements in information-exchange skills and reductions in teacher-rated aggression but no change in peer acceptance. There were no adverse effects on the competent-nonaggressive children who showed improvements in information-exchange skills relative to their no-PCS training counterparts.

Negative peer influences constitute a major obstacle to successfully intervening with aggressive children. Since children more readily imitate a model whose behavior is likely to be subsequently reinforced and who is viewed as being similar to them, prosocial children may not serve as effective models for aggressive children. Further, the positive skills we teach may well be punished in the peer networks to which trained children return. Indeed, the very act of aggregating aggressive youth in group interventions may have unintended iatrogenic consequences. Studies examining this effect have determined that some peer-group interventions actually end up increasing adolescent problem behavior and negative outcomes in adulthood (Dishion, McCord, & Poulin, 1999; Dishion, Poulin, & Burraston, in press). In response to such negative peer influences, Dishion et al. suggest that even more vigorous attempts to engineer the social environments of aggressive children may be indicated (Dishion et al., 1994). For example, such attempts might include exposing aggressive children to broader prosocial peer networks by introducing school-wide interventions at early ages, teaching parents to monitor peer interactions and networks more closely, and identifying and altering school and neighborhood characteristics that contribute to antisocial behavior.

3. Summary and conclusions

The SST literature clearly offers an impressive array of effective treatments for aggressive children and adolescents. As evidenced in this review, these interventions are not only capable of ameliorating aggression but building prosocial skill repertoires as well. Efforts to

incorporate developmental findings and principles within this literature, however, have fallen woefully short. Indeed, our review revealed that even the most fundamental developmental considerations were frequently overlooked. Developmental level often appeared to play no role in the selection of treatment samples or approaches. Samples commonly included participants ranging from early elementary school-aged children to young adolescents and approaches requiring more advanced cognitive skills were used with preschoolers. Potential gender and racial differences have also been neglected. Samples with different genders and races commonly received identical treatment approaches. In fact, we did not uncover a single study that examined gender and/or race as mediators of treatment outcome. In short, from a developmental perspective, this literature can be characterized as “one size fits all.”

Despite these general limitations, our review managed to unveil a number of noteworthy integration efforts. Though only a rough indicator of developmental level, some researchers have used age in determining samples and treatment approaches. For instance, standardized norm-referenced measures have been used in the selection of participants (e.g., Kazdin et al., 1989; Lochman et al., 1989; Prinz et al., 1994) and in the assessment of the clinical significance of treatment outcomes (e.g., Kazdin et al., 1989; Prinz et al., 1994). Developmental findings have also been used in the selection of target behaviors (e.g., Bierman et al., 1987; Lochman et al., 1993). With respect to race, studies by Hudley (1994), Hudley and Graham (1993), and Lochman et al. (1993) have aptly demonstrated that we can effectively treat aggressive African American boys. Advances in social cognitive research have been translated into an impressive corpus of intervention approaches (e.g., Guerra & Slaby, 1990; Guevremont & Foster, 1993; Hudley & Graham, 1993; Kazdin et al., 1987; Lochman et al., 1993; Shure & Spivack, 1982). Finally, several interventions have included active efforts to target peer group responsivity (e.g., Bierman & Furman, 1984; Hudley & Graham, 1993; Middleton & Cartledge, 1995; Prinz et al., 1994).

Some of the areas in need of further investigation highlighted in this review warrant further comment. The groundbreaking research of Crick (1996) and Crick et al. (1996) should result in a reconsideration of gender differences in social skills interventions. What, if any, are the negative long-term consequences of relationally aggressive behavior? Is it a worthy treatment target? If so, will it require the development of new treatment approaches? At a more basic level, we need to know whether or not boys and girls respond differently to existing treatment approaches. Considering the number of recent studies evaluating social skills interventions for African American boys, we were struck by the paucity of descriptive developmental research addressing racial differences in aggressive behavior. In addition to suring up the descriptive literature, we need to determine whether or not racial differences mediate treatment outcome. Regarding the social-cognitive interventions, attempts to link cognitive change and behavioral improvements have often yielded mixed results. Demonstrating linkage has implications for treatment, as well as the social-cognitive models of aggressive behavior. The rigor evident in studies by Guerra and Slaby (1990) and Hudley and Graham (1993) provide excellent templates for future examinations of this important issue. It is worth noting that progress on each of these fronts would be facilitated by efforts to make the procedures used to identify samples and assess aggressive behavior across studies more uniform.

In closing, we are excited to note that a number of the researchers highlighted in this review for their integration efforts, including Bierman, Dodge, and Lochman, have recently

joined forces to create Fast Track, a multisite, multicomponent preventive intervention targeting young children at risk for long-term antisocial behavior (Conduct Problems Prevention Research Group, 1992, 1999a, 1999b). A major focus of the program is on helping children learn prosocial skills and enhance positive peer relationships (Bierman, Greenberg, & Conduct Problems Prevention Research Group, 1996). A class-wide curriculum targets instruction in prosocial skills, inhibition and redirecting of inappropriate behaviors, and SPSS. At-risk children also attend social skills groups that provide more intensive remedial intervention. Finally, structured peer-pairing sessions are held outside of the school day to promote generalization and peer exposure. This comprehensive program serves as a model for future developmental–clinical intervention efforts. Most notably, the Fast Track Program is a long-term effort that unfolds across a 6-year span covering key developmental periods, shifts in structure and focus to address changing developmental needs, and utilizes developmentally based and empirically supported treatment approaches. Preliminary evaluations of the Fast Track Program evidenced more positive peer relations and decreases in aggressive behavior after the first year of implementation (Conduct Problems Prevention Research Group, 1999a, 1999b).

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