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Theoretical, Developmental & Cultural Orientations of School-Based Prevention Programs for Preschoolers

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Schools are the primary environment in which to conduct prevention programs for school-age children. Educators, policy makers, and psychologist argue that prevention efforts should begin as early as possible to maximize their effectiveness. Surprisingly, there are relatively few school-based prevention programs targeted for preschoolers. Given the evidence supporting earlier rather than later prevention efforts and the fact that many children in the United States attend preschool programs, more research on the feasibility and effectiveness of prevention programs administered in preschool environments is warranted. In this article, we review the existing literature on school-based prevention programs targeted for preschool children. We examine whether school-based prevention programs are theory driven, developmentally appropriate, culturally sensitive, and aimed specifically at symptom reduction or behavior promotion. Based on the findings of this review, our aim is to identify gaps in the prevention research literature regarding programs for preschoolers and propose research to address such gaps to create more effective school-based prevention programs for young children.

KEY WORDS: cultural sensitivity; developmental appropriateness; preschool; school-based prevention; theoretically based.

SCHOOL-BASED PREVENTION PROGRAMS FOR PRESCHOOLERS

Schools have become the context for delivering prevention programs for school-aged children targeting a variety of emotional and behavioral problems. One reason schools have become the context of choice for prevention programs is that schools provide easy access to a large population of children compared to other community agencies and programs (Atkins *et al*., 2003). Furthermore, children who have difficulties with their emotional, behavioral or social functioning have a more difficult time being successful in school (Rones and Hoagwood, 2000). In comparison to the elementary grades; however, the preschool level is not often targeted as an environment for these school-based programs. This is surprising given the tenet that prevention efforts should begin as early as possible to minimize problematic behaviors and maximize effective competence across various domains (e.g., Burns *et al*. 1999; Reid *et al*., 1999; Walker *et al*., 1998; Webster-Stratton and Reid, 2004). One reason why school-based programs may not routinely be offered to preschool-age children is due to the fact that compulsory education does not begin until ages six or seven, kindergarten or 1st grade, depending on the state. However, with the rising enrollment of children in preschool services (Magnuson *et al*., 2004), preschool education programs seem to be an ideal context for delivering such program. Between 1991 and 1999 preschool-age children's enrollment in center-based child care rose to 59.3%, while non-parental home based childcare rose to 23.3% (U.S. Department of Education, 2000).

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We contend that the preschool period is ripe for intervention for those children who do receive such schooling for several reasons.

One reason to target preschool-age children is that the preschool period is characterized with the development of significant social–emotional skills. Prevention programs that target these skills can reinforce these skills during the optimal developmental period. Another reason to target preschool-age children is that the delivery of prevention programs during the preschool years may be more efficacious because there is less likely to be a substantial accumulation of problematic behaviors or cognitive deficits due to maturation. For instance, transitioning to first grade may expose children who are placed at-risk to additional risk factors (Dumas *et al*., 1999). It can be quite difficult for children to transition from being with family everyday to the school environment where they have to learn new rules, how to interact with non-family peers and adults, in addition to adjusting to educational demands. Therefore, instead of waiting for this transition and the introduction of additional risk factors, it may be more appropriate to prepare and buffer children from such effects by teaching them appropriate ways of coping prior to facing these new risk factors. Finally, prevention programs that begin early prior to the accumulation of deficits or risk factors may not need to encompass as many target behaviors due to the presence of fewer, less entrenched problems.

A recent meta-analysis of the long-term impact of prevention programs for preschool-age children indicated that such programs have positive effects, in the small to moderate range, on children's cognitive and social–emotional functioning during the elementary school years (kindergarten through eighth grades) (Nelson *et al*., 2003). This meta-analysis focused on programs that were delivered in various contexts (i.e., home visitation, parent-training, and schools) and began during, before and after preschool education (i.e., infancy or kindergarten). In addition, Nelson *et al*. only included studies that utilized a control or comparison group and included a post-intervention follow-up assessment. In the current review, we only examine school-based prevention programs for children ages 3–5-years-old who attend preschool education from four perspectives, (1) theoretical underpinnings, (2) developmental appropriateness, (3) cultural sensitivity to the target population and (4) the balance between symptom reduction versus behavior promotion.

OVERVIEW OF PREVENTION RESEARCH

Prevention programs are divided into three categories: universal, selective and indicated. Most prevention programs for young children typically are universal and selective intervention. This is in line with the school-based preschool programs presented in this review. Universal interventions include prenatal health and childhood immunizations programs for the general population. Whereas a very prominent selective intervention is the Head Start preschool program for children and families deemed at risk due to their low socioeconomic status. Regardless of the type of intervention program delivered, the overall goal is for the program to be effective. However, how do you examine effectiveness when reviewing prevention programs?

Nation *et al*. (2003) identified nine principles of effective prevention programs. This review, as noted above, will utilize three of these principles, *theory driven* (theoretical underpinnings), *appropriately timed* (developmental appropriateness), and *cultural relevance*, to critically examine school-based prevention programs for preschoolers. In addition, this review will also evaluate programs in terms of whether their focus is on the reduction of symptoms, the promotion of positive behaviors, or both.

Theoretical Underpinning

The theoretical underpinning principle is defined as the conceptual or theoretical scientific justification for the prevention or intervention program. Theories of prevention research often focus on etiological or intervention theories. Etiological theories focus on the cause of the targeted behavior problems whereas intervention theories focus on ways to change these behaviors. Theoretically based prevention program use the theory as the guiding principles from which variables of interest for intervention are identified. Furthermore, theory driven research advances the science of prevention research by producing empirically based research that targets behaviors and/or cognitions that have been demonstrated as having an impact on behavior.

Developmental Appropriateness

Programs need to be developed in such a way that they are sensitive to the target population's current level of development. As such, prevention techniques and materials need to match the cognitive,

social and physical development of the population of interest. It is important for a program to not only be consistent with the developmental level of the target population, but it also should be delivered at a time when its effects can be maximized.

Developmentally anchored preventive intervention should be delivered at a time when the program can maximize its effectiveness. Prevention programs that are delivered after the onset of behavioral difficulties or too early can possibly miss a critical developmental period for implementation. A potential consequence of programs being delivered too early is that children may not have developed the basic cognitive and/or motor skills needed to engage in the strategies or techniques that are taught or promoted by the prevention program. For instance, preventive techniques that largely focus on problem-solving techniques, which include thinking through the outcomes of several different options before choosing the correct solution, may be too cognitively advanced for preschoolers. During the preschool period, there are numerous cognitive, neurobiological, linguistic, social and emotional developmental changes (Manly *et al*., 2001) that need to be considered when developing and delivering a prevention program to this age group. This also includes early skill development in perspective-taking and empathy abilities (Crittenden, 1992). Due to the numerous developmental changes, it becomes critical for programs targeted at preschool populations to create programs that are inline with the developmental changes of this age period in order to maximize effectiveness.

Cultural Relevance

In addition to being sensitive to the development of the target population, programs need to be culturally relevant. Specifically, programs need to incorporate findings on how cultural factors influence participants and their behavior (Nation *et al*., 2003). However, the question arises as to what does it mean to be culturally relevant? Programs often contend that they are culturally sensitive because they use the language of the target population or the staff that delivers the services matches the race, ethnicity, gender and/or socioeconomic status of the target population. Although this is an important start to developing culturally relevant programs as it denotes cultural sensitivity (Lau, 2005), it does fully address the complexities of the interaction of culture and behavior. To be effective, prevention and intervention programs need to be developed with the specific target populations' culture in mind such that culture, theory and development should inform the development and delivery of the programs.

Symptom Reduction versus Behavior Promotion

Another area that this review will focus on is whether programs focus on symptom reduction or behavior promotion. These two constructs are not synonymous, and as a result may produce different findings. There are two reasons why we believe this balance is important. First, a program that focuses solely on symptom reduction and does not include behavior promotion does not provide individuals with more competent ways of coping. Second, behavior promotion may be more favorably received by the target population especially those groups that are disenfranchised from mainstream society such as minority and low- to working-income groups. Specifically, families, schools and communities may be more receptive to participating in or hosting a program that highlights or promotes the strengths that are already present within an individual or family as opposed to being targeted as deficient and/or needing to be "fixed." The acceptance of a program by the target population has significant implications on the success and effectiveness of the program. Behavior promotion focuses on well-being and supporting competence, not on an illness model that centers on intervening to prevent social or mental disorders (Munoz *et al*., 1996). It seems that programs may need to include both symptom reduction and behavior promotion to be effective.

Current Review

A review of all prevention programs targeted towards preschool age children is beyond the scope of this paper. Prevention programs that did not include a significant classroom-based component were not included in this review. As such, home visitation (e.g., Olds and Korfmacher, 1998), parent training (e.g., Miller Brotman *et al*., 2003), parent–child treatment programs (e.g., Nixon *et al*., 2004) were not included. In this paper, we selectively review school-based prevention programs that specifically were targeted to children between 3 and 5 years of age who attend preschool education program. The prevention programs in this review also had to begin while the children were 3–5 years of age. Programs that began before or after this age range were not included. This

review will focus on prevention programs for which efficacy findings are reported in peer review journals within the last 20 years (1986–2006). Relevant articles were identified from PsycINFO, and by reviewing the reference pages of identified articles and relevant articles and book chapters. Unpublished dissertations were not included in this review.

PRESCHOOL PREVENTION PROGRAMS

As indicated previously, this review will utilize four criteria (1) theoretical underpinnings, (2) developmental appropriateness, (3) cultural sensitivity, and (4) a balance between symptom reduction versus behavior promotion to evaluate school-based prevention programs targeted at preschool age children. The programs that will be addressed in this review are the Incredible Years: Parent and Teacher Training program, the Social–Emotional Intervention for At-Risk 4-Year Olds (SEI), Peaceful Kids Early Childhood Social–Emotional Learning (ECSEL), Resilient Children Making Healthy Choices, the High/Scope Preschool Curriculum, and the Chicago Child Parent Center & Expansion Program (see Table I). These programs target disruptive behavior, social and emotional competence, and educational instruction.

Theoretical Orientation

The theoretical orientations of the school-based preschool programs in this review encompass both etiological and intervention orientations. Several of the programs (Incredible Years, SEI, and ECSEL) utilized competence theories, social and emotional, as part if not as the entire basis for their program.

Webster-Stratton and colleagues' Incredible Years program (Webster-Stratton *et al.*, 2001) included competence theory for the intervention; however, the main theoretical orientation of the program was based on the etiology of conduct disorder and the stability of these behaviors over time in relation to antisocial behaviors in adolescents. This theoretical framework is based on the notion that children who do not develop such skills are at increased risk of developing conduct disorder symptoms (Moffitt, 1993), whereas children who develop positive social interactions and develop age appropriate social problem-solving skills are more likely to be socially competent. Therefore, the program focuses on skill development in the areas of emotional understanding and regulation, in particular anger management and social problem solving abilities. The Incredible Years program, was originally adapted from Webster-Stratton and colleagues clinical treatment program for children diagnosed with Oppositional Defiant Disorder and Conduct Disorder. This combined parent- and teacher-training program was delivered to a racially/ethnically diverse group of 4-year-old children from 14 randomly selected Head Start centers. Teachers were trained in classroom management and discipline techniques and parents received training in parent groups in skills that focused on reducing risk factors for conduct problem, reducing aggression, and promoting social and academic competence. Outcomes revealed that children who participated in the combined school–parent intervention were reported to have fewer conduct problems at both home and school, and increased social competence. Teachers from the intervention classrooms were also rated as exhibiting better classroom management techniques. Webster-Stratton *et al.* (2001) contend that prevention programs targeting such symptoms should begin early in development because these symptoms become resistant to change over time.

Webster-Stratton and Reid (2004) have expanded the Incredible Years Teacher Training program into a 30–34-lesson classroom curriculum for 4–8 year old children that focuses on teaching school rules, developing emotional and social competence skills, and managing anger. Teachers deliver the curriculum with the assistance of program research staff. This program is currently being delivered to 628 children from low-income environments that attend Head Start and kindergarten classrooms. Preliminary findings indicate that children from the prevention classrooms generate more prosocial responses to conflict situations, have less aggressive behavior, higher school readiness scores and their classrooms are rated as more positive as compared to control children.

Like the Incredible Years program, Denham and Burton's (1996) Social–Emotional Intervention for At-Risk 4-Year olds (referred to as SEI from this point forward), also utilizes competence theory. In particular, SEI is based on emotional competence research that contends that children who develop age appropriate skills in emotional understanding and regulation have better social relationships, especially with their peers. The intervention included key components of emotional competences research, e.g., emotional labeling, knowledge, and regulation, as well as building positive relationships between

Table I. Review of Studies of Classroom Prevention Programs for Preschoolers

Program	Theoretical foundation	Developmental appropriateness	Cultural sensitivity	Inclusion of behavior promotion	Program outcomes
Incredible years: parent & teacher training program (Webster-Stratton and Reid)	Etiology of conduct disorders	Preschool emotional competence skills Three-step problem solving model Puppets	Puppets & videos matched family composition, gender and race/ethnicity of parents	Promote successful peer interactions Social skill development Teachers' promoting positive development	Increased social competence Fewer conduct problems Better classroom management techniques Improved school readiness
Social–emotional intervention for at-risk 4-year olds (Denham & Burton)	Emotional competence	Preschool social–emotional skills	Skills incorporated in classroom routine	Promote emotional and social competence among peers and with teachers	Better peer interactions Improved social skills Less negative affect
Peaceful Kids Early Childhood Social–Emotional Learning (Sandy & Boardman)	Emotional competence Conflict resolution	Preschool friendly program delivery techniques (e.g., songs, circle time, stories, etc.)	Teaching scenarios based on actual classroom behaviors Skills incorporated in classroom routine	Social skill development Reduce conflict and peer aggression	More cooperative and better self-control skills Decreased externalizing and internalizing behaviors
Resilient Children Making Healthy Choices (Dubas, *et al.*)	Resiliency theory	Preschool friendly program delivery techniques	Language and setting adapted by teacher to match children Skills incorporated in classroom routine	Increase social competence skills	Better social competence skills Teachers supported children's competence skills and had improved reactions to substance use dilemmas
High/Scope Preschool Curriculum (Schweinhart & Weikart)	Piaget's constructivist theory	Developmental education environment		Promotion of academic success	Fewer years in special education Fewer felony arrests No difference in highest level of schooling achieved More likely to be married
Chicago Child Parent Center & Expansion Program (Reynolds)	Prevention theory	Small class sizes Interventions delivered early	Parent involvement activities reflective of families economic constraints	Promotes reading and math skills Health promotion Teacher training/workshops	Better reading and math achievement, parent involvement, and grade retention Full intervention better than partial

teachers and children and teaching social problem solving skills. Of the 130 low-income children who participated in the study, 70 of the children received the 32-week teacher led social emotional intervention. Study outcomes indicated that children from intervention classrooms were observed at the post-test to exhibit less negative affect and better peer interactions, and were rated by their teachers as having improved social skills.

The Peaceful Kids Early Childhood Social–Emotional Learning (ECSEL) universal program was also based on the theoretical models of emotional competence as well as conflict resolution research. The classroom strategies focused on emotion knowledge skills in terms of facial recognition of emotions and the causes of children's emotions, and assisting children in developing conflict resolution and social skills. In addition to skill development, the program also focuses on decreasing aggressive behavior. The 15-lesson prevention program was delivered in 18 classrooms. Children were grouped into three intervention groups: classroom and teacher training, teacher training only, and control groups. Those children that received the ECSEL program in the classroom and had parents participate in the parent training groups were rated by teachers as being more cooperative and having more self control and they were rated as exhibiting fewer externalizing and internalizing behaviors than children in the classroom only or control conditions.

The Resilient Children Making Healthy Choices (RCMHC) project is an early childhood violence and substance abuse prevention program based on resiliency theory (Dubas *et al*., 1998). Resiliency theory contends that children who develop appropriate communication, empathy and other social competence skills can be protected from factors that place them at-risk for poor social, mental health, and school functioning. This selective prevention program was delivered to four-year-old, low-income children in 10 Head Start classrooms. The majority of the children in the study (76%) were African-American. Teachers delivered a 43-lesson curriculum, Al's Pals: Kids Making Healthy Choices, which taught skill development in the area of emotion understanding and regulation, effective communication, and problem-solving. Post-test analyses revealed that children from intervention classrooms were rated by their teachers as displaying more social competence skills compared to children in the four control classrooms. Teachers from intervention classrooms were more likely to produce appropriate responses to hypothetical situations of children bringing issues of substance use into the classroom than control teachers. Intervention teachers were also observed as utilizing more techniques that support children's competence skills. Although the theoretical orientation of the prevention programs reviewed thus far have focused on competence, the remaining programs in this review will focus on educational instruction.

Schweinhart and Weikart (1997) examined the longitudinal effects of the High/Scope Perry preschool instructional curriculum (developed by Weikart and colleagues in 1962) compared to two other preschool instructional curriculums, Direct Instruction and Nursery School, for 68 young children born into poverty. This curriculum is based on Piaget's constructivist theory of child development. Specifically, children are viewed as active learners and therefore are engaged in the learning process by adults through the arrangement of discrete interest areas within the classroom (Schweinhart and Weikart, 1997). The High/Scope program was designed to promote the cognitive and social development of children born into poverty. Children attended preschool three half-days a week, in addition each child's family received bi-weekly home visits. Long-term follow-up when the children were 23-years of age, revealed no differences among the three preschool curriculums in terms of the highest level of schooling the children received; however, there were differences in terms of experiences with the law and special education services. Specifically, children from both the High/Scope and Nursery School curriculums had fewer felony arrests compared to children in the Direct Instruction classrooms. Children who received the Direct Instruction curriculum participated in more years of special education for emotional impairment than the children from the other two curriculums. However, Schweinhart and Weikart's findings do not identify which of the two curricula, either the High/Scope or Nursery School, provides the best results. Since an overall conclusion about which of these programs was most effective was not provided, one can only deduce that the curricula that highlight the active role of children initiating learning in the classroom appear to yield the best long-term effects for low-income preschoolers.

The Chicago Parent Center & Expansion Program (CPC) is a selective early prevention program that is based on prevention theory that posits that intervention services should begin early and be comprehensive. This prevention program focuses on the academic and health of the child, teacher training,

and parent services and involvement with the overall goal of improving children's school readiness and emotional development. The children began attending parent–child centers either in pre-kindergarten or kindergarten and had the opportunity to continue on through the third grade. There were five intervention and two comparison groups. Reynolds (1994) evaluated the longitudinal effects of this program at the end of a two-year post-intervention follow-up for 1,106 low-income African-American children. This post-intervention follow-up allowed Reynolds to test the tenet that intervention services delivered longitudinally have a greater and lasting impact on target behaviors as opposed to a one-time intervention. However, little attention was given to the theoretical orientation from which the educational services were developed. One can only assume that actual program targets were based on the theoretical tenets of school readiness. Further discussion of the educational theory that was guiding this program was needed.

Reynolds found that although all children who received services through the CPC performed better than control children in reading and math, those children who received the entire program (preschool through third grade) had the largest positive effects over time. Specifically, they had better reading and math achievement, social adjustment and parental school involvement. Children in the intervention classrooms were also less likely to be retained in a grade than control children, although there did not appear to be a difference in terms of the rates of children who received special education services. His findings lend support to the tenet tat longitudinal prevention efforts produce effects that are long-term.

Developmental Appropriateness

Developmental appropriateness focuses on the appropriate timing of the delivery of preventive interventions to match children's development as well as ensuring that the skills and techniques of the program are age appropriate. The Incredible Years program appropriately modified a seven-step problem solving approach, to a three-step approach to make it more developmentally appropriate for the cognitive level of preschool-age children. The program also targeted the emotional skills that normally develop during the preschool years. A major component of the Incredible Years classroom prevention program is the use of puppets in the delivery of the program. Webster-Stratton and Reid (2004) contend that using puppets makes the program more developmentally appropriate and enjoyable for the children. The program also assisted teachers in the use of appropriate classroom management techniques and the implementation of developmentally appropriate discipline. However, it is unclear as to the specific types of discipline strategies utilized with the children in order to examine their developmental appropriateness.

Like the Incredible Year, Denham & Burton's SEI program targeted emotional competence skill development that is characteristic of the preschool period. The program also highlighted the importance of allowing teachers to individualize the techniques to meet the individual needs of the each student. Just how this individualized approach was implemented; however, is unclear.

Sandy and Boardman's ECSEL program also promoted and taught social–emotional skill development, which were consistent with preschool development. They also utilized activities to teach children the targeted skills that were more germane to preschool-age children. In particular, the program delivered the intervention during classroom "circle time" utilizing modeling, songs, and stories highlighting emotional labeling and understanding, and problem solving to teach skill development. Dubas *et al.*'s RCMHC program also utilized creative play, songs, games, children's books and puppetry to teach resiliency skills like emotional functioning and social interactions. However, it is unclear as to what specific skills the RCMHC program taught and if the content of the material was developmentally appropriate for preschoolers although the mechanism of delivery was appropriate.

The High/Scope curricula seemed to support developmental milestones associated with preschoolers by attempting to utilize the child as an active agent in the educational process. They focused on incorporating educational activities that matched the children's developmental interests. While the High/Scope program focused on developmentally appropriate educational strategies, the CPC program focused on developmental timing.

The longitudinal CPC program supported the importance of developmentally appropriately timed intervention services by delivery of services across the Reynolds' evaluation indicate that children, who received the program in pre-kindergarten and continued at least through second grade, had better academic outcomes than children who only received portions of the program. These findings provide support for the notion that prevention programs need

to be comprehensive and delivered over a period of time in order to have a lasting impact on children's overall development. This program also utilized small class sizes and small reading groups to provide a child-centered approach to reading development in the educational process. It is unclear as to whether the content of the curricula was developmentally appropriate. And more specifically how was the program adapted to adjust for the different developmental ages of the child as they moved from preschool to kindergarten to primary grades. Given that the CPC intervention did not have a uniform curriculum or at least none was reported, it calls into question its generalizability. It is unclear from the evaluation as to what components of the program led to the significant achievement effects. This limits the ability to replicate this program to other sites.

Cultural Relevance

There is a need within the field of prevention science to develop programs that are culturally informed and responsive to the target population (Castro *et al*., 2004). Ideally, prevention programs should be efficacious and culturally relevant (Castro *et al*., 2004). Webster-Stratton and Reid (2004) address the issue of cultural sensitivity in the Incredible Years program by utilizing puppets and videos that represent the family composition, gender and race/ethnicity of the children and families in the study. However, outside of the brief discussion of this issue, there was no further discussion of the cultural relevance of the programs. In terms of being sensitive to the culture of the school, an issue that was missing from the program description was how teachers taught children to utilize their skill development outside of the targeted intervention time. In addition, schools that typically serve low-income students may not have the resources available to staff co-leaders to assist the teachers in program delivery. Given the reliance on non-school staff to deliver the prevention program, this may reduce the generalizability of the Incredible Years program to schools with fewer or stressed resources, or the sustainability of the program once the research staff is no longer delivering the program. A more in-depth discussion and attention to how the program effectively addresses cultural relevance or sensitivity is still needed.

The SEI program focused on being culturally sensitive to the classroom by encouraging teachers to utilize the techniques throughout the school day and not just during the "intervention hour." This sensitivity to the culture of the classroom by generalizing intervention techniques throughout the day may increase the effectiveness of the program and allow the techniques to be viewed as a part of the classroom culture and not just a university implant. Furthermore, it may increase sustainability once the intervention is over. A majority (76%) of the children participating in Denham & Burton's study were ethnic minorities, however the authors did not specify as to which ethnic minority groups the children belonged to or the numbers of children with in each minority group. It is unclear as to whether or how Denham and Burton took into account the different ethnic backgrounds of the children in terms of the techniques utilized and/or program implementation to make the program culturally relevant. In addition, Denham and Burton (1996) contend that "at-risk" children may not be exposed to the emotion language needed to express their feelings. This contention was the basis for incorporating emotion language expression and understanding skills in the program. However, there is no discussion of possible cultural factors that may be the reason why children from low socioeconomic backgrounds may not have been exposed to the type of emotional labeling targeted in the program. For instance, children were taught to pretend as if they are a turtle by retreating into their "shell" by closing their eyes, lowering their head and pulling their arms in close to their body as a way to manage negative feelings before they act. Is this a technique that would be acceptable behavior to engage in outside of the intervention classroom? The acknowledgement of these cultural factors has implications on how emotion labeling and understanding techniques are delivered and the retention and sustainability of these techniques in different contexts (e.g., children's homes and neighborhoods), and once the intervention has been terminated.

The ECSEL program according to Sandy and Boardman (2000) was designed as a multicultural program. In an attempt to be sensitive to the culture of the childcare center environment, facilitators developed scripts to be used during circle time that were based on behaviors that they had observed among the children in the classroom as a means of program delivery. Although the facilitators attempted to illustrate ways to integrate the program into the typical classroom routine, the ECSEL utilized "outsiders" to deliver the intervention. The ECSEL facilitators were not teachers or school staff. By not utilizing teachers or school staff to deliver the program, the intervention did not capitalize on the

schools natural resources. Further, the non-use of teachers as facilitators seems contradictory to the goal of the ECSEL program to be integrated into the classroom routine. This possibly may have reduced the likelihood of intervention techniques being supported when the ECSEL facilitator was not present. It might be important to attempt to have teachers deliver the program on their own to determine if it is still effective in order to address this issue. Not only were aspects of the school culture not fully acknowledged in the implementation of the prevention program, but there were also concerns about the programs sensitivity to the racial and ethnic culture of the students. The majority of the children in the intervention were Latino and African-American, however there was no mention as to how the intervention was tailored to be culturally sensitive to an urban-dwelling, minority population. Although ECSEL was promoted as a multicultural program, it is unclear as to how Sandy and Boardman made the program "multicultural."

Efforts were made to make the RCMHC program culturally sensitive by encouraging teachers' to adapt the curriculum by modifying the language and/or setting of the curriculum to match that of the culture of the children in each classroom (Dubas *et al*., 1998). It is unclear as the specific steps that teachers utilized to make the curriculum more sensitive for culture of the children. Anecdotal examples of this individuation process would have been invaluable to other prevention researchers attempting to develop culturally relevant or sensitive programs that acknowledge the individual needs of the children. There was also no assessment of whether all or just some of the teachers adjusted the program to be culturally sensitive. The curriculum however did encourage the teachers to reinforce the intervention skills outside of the RCMHC formal teaching time and incorporate the material into their daily classroom management skills. A caveat to these findings is that although the RCMHC utilized teachers as the delivers of the program, they only used highly skilled teachers. The exclusive use of highly skilled teachers may have impacted the generalizability of the program's findings to preschools with teachers of differing skill levels.

Unfortunately, Schweinhart and Weikart did not address issues of cultural relevance or sensitivity in their review. Specifically, there was no mention of attempts by the program to adapt or adjust their curriculum to be responsive to low-income African-American children and their families.

The CPC program was developed to be sensitive to the economic difficulties of the families in the program. Specifically, the program developed creative ways (e.g., offering night classes for parents, parent reading groups, craft project activities, etc.) to encourage and support parental involvement given low-income families work schedules and the fact that they typically feel disconnected or even unwelcome at their children's school. Although the CPC program is specifically targeted toward economically disadvantaged children and this particular evaluation focused on an African-American sample, there is no mention as to how the curriculum or services provided were developed to be culturally sensitive to the race of the participants. As a result, conclusions about cultural sensitivity in terms of race cannot be assessed from Reynolds' evaluation study.

Symptom Reduction versus Behavior Promotion

Researchers have highlighted the overemphasis on symptom reduction to the almost exclusion of behavior promotion (Atkins *et al*., 2003; Hoagwood *et al*., 1996). So there was an interest in examining how each prevention program addressed the issue of symptom reduction or behavior promotion. The Incredible Years program focused on promoting positive interactions and social skill development with and between students and not just on symptom reduction. Teachers specifically were trained how to promote and teach social peer interaction, social problem solving, and emotion knowledge skills. Although Webster-Stratton and her colleagues were interested in the reduction of symptoms associated with the early development of Conduct Disorder, they utilized skill promotion or development as their means of intervention. However, it is unclear as to whether the reduction in aggressive behavior was clinically significant. Specifically, there was no mention as to whether children in intervention schools were less likely to be diagnosed with a Disruptive Behavior Disorder (i.e., Conduct Disorder, Oppositional Defiant Disorder, or Attention Deficit Hyperactivity Disorder) than children in the control schools.

The SEI program focused on skill development and promotion as a means of enhancing children's emotional competence well-being in order to prevent negative functioning. Given the program's focus on behavior promotion and skill development, there was no assessment of symptom or behavior reduction.

The ECSEL program combined both behavior promotion techniques with symptom reduction. The symptom reduction component of the program focused on reducing conflict and peer aggression. Specifically, adults taught children about the consequences of negative behavior and assisted them in developing more appropriate ways of responding to conflictual situations. However, the reduction in externalizing and internalizing behaviors were only assessed for statistical significance. It is unclear as to whether the program reduced the rates or likelihood of children being diagnosed with an externalizing or internalizing disorder. The issue of clinical versus statistical significance needs further exploration in prevention research. The balance between symptom reduction and behavior promotion attempted to teach the children more adaptive ways of coping.

The RCMHC preventive program focused on behavior promotion as opposed to symptom reduction. For instance, a major goal of the program was to increase social competence skills. Teaching and measuring skills that targeted children's competence behaviors, behaviors that are associated with resiliency, helped to achieve this goal.

Although the High/Scope curricula were specifically examined with African-American children who were considered at risk, the curriculum focused on promoting children's academic success. The focus on school success was seen as a way of contributing to children's successful functioning as adults. However, outcome variables did focus on reducing special education services and criminal records.

The CPC program focuses on promoting children academic development and health, and in supporting parents as opposed to symptom reduction. The core components of the program focuses on improving economically disadvantaged children's reading and mathematics skills through small class sizes and small group activities, providing children with health screenings, and providing teachers workshops and additional training.

CONCLUSION

The majority of school-based prevention programs that have been conducted have largely focused on children in 1st through 12th grades. Few programs have specifically targeted preschool classrooms, although most prevention scientist will contend that early intervention is likely to be more effective than intervention delivered later in childhood (Burns *et al*., 1999). Therefore the aim of this literature review was to evaluate effective school-based prevention programs targeted to 3–5 year old children attending preschool education programs, with a focus on programs being theory driven, developmentally appropriate, culturally relevant, and symptom reduction versus behavior promotion. And to propose next steps in the development of school-based prevention programs.

There are several conclusions that can be drawn from this review. First, the programs in this review had strong theoretical bases from which the prevention programs were developed. This included the theoretical models of the early onset of conduct disorder, social–emotional competence, resiliency, cognitive constructivist, and intervention research. The development of theory-based prevention programs provides scientific support for the need to have such a program as well as being able to identify empirically supported intervention variables. On the other hand, to accurately develop a theory-based preventive intervention that is supported by basic research, the theories and basic research need to include the population targeted for intervention.

The basic research that supports the theoretical models of the prevention programs in this review have focused on Caucasian, largely middle-class samples, with little attention to diverse racial/ethnic and economic populations. This is interesting given that the prevention programs identified in this review targeted children and families from low socioeconomic environments. If prevention efforts, especially universal prevention, are appropriate for all children, why are children and families from diverse racial/ethnic and economic groups missing from the basic research on normal development? In addition, why are middle-class children and families missing from prevention research? It is unclear as to whether developmental pathways toward problems with social and emotional functioning are the same across racial/ethnic and economic groups. Similarly, the factors associated with resilience may differ across racial, ethnic and socioeconomic groups. Perhaps, the constructs associated with positive social development are the same across diverse groups, but the process by which these relationships are established or manifested vary by group. We contend that for prevention programs to be effective they should be founded on basic developmental research conducted among the population of interest. Such research can be used to identify the factors that contribute to both negative and prosocial behavior for a specific population. Therefore it is important that both basic research and

prevention research include children and families that represent the spectrum of racial/ethnic and socioeconomic groups. Such information may have a crucial impact on the successfulness of a preventive intervention for diverse populations.

In order to maximize the effectiveness of prevention programs, the programs need to be developmentally appropriate. Specifically, programs need to be delivered when children are developmentally ready to receive the program, and the content of the program should match children's current level of cognitive, social and behavioral functioning. The Incredible Years, SEI, ECSEL, and the RCMHC programs focused on developing young children's emotion and behavior regulation, language abilities, and managing relationships with peers and teachers. These are skills more germane to preschool-age children compared to school-age children given that preschool-age children are often just being introduced to the educational system. This is not to say that these sills are exclusive to the preschool period; however, this is the developmental period where these skills are developed. This skill development provides the foundation for refining these skills later in childhood and adolescence.

It is important that prevention programs not be delivered too early or too late otherwise their impact may be minimal. The prevention programs in this review attempted to maximize on the idea of early intervention by providing services as children first entered the school context. It seems more appropriate and effective to intervene early in children's lives before more established and difficult to treat behaviors and psychopathology develops (Burns *et al*., 1999). Both the Incredible Years and CPC prevention programs focused on maximizing the effects of early intervention. Webster-Stratton and colleagues Incredible Years program (2001, 2004) is based on the tenet that in order to prevent the onset of Conduct Disorder prevention efforts need to begin early prior to the onset of symptoms. The CPC program also focused on the necessity of developmental timing by delivering a comprehensive longitudinal prevention program at the beginning young preschool children's school careers. Reynolds' review of the CPC program revealed that children who received the program during the preschool years for the full length of the intervention received the largest effect of the program compared to those children who received the program after preschool. Other programs (SEI, ECSEL, RCMHC, High/Scope and Nursery School) in this review utilized techniques like "circle time," puppets, storybooks and songs to deliver the intervention techniques to match the developmental level and interest of the children.

A culturally responsive prevention program needs to be responsive to both the context and the specific population of interest. In terms of the school context, Rones and Hoagwood (2000) found that school-based mental health prevention programs that were integrated into the everyday routine of schools and classrooms were found to be more effective than those that were delivered as a separate, specialized lesson. This concept of integration was successfully included in the SEI (Denham and Burton, 1996), ECSEL (Sandy and Boardman, 2000), RCMHC (Dubas *et al*., 1998), and in the CPC programs (Reynolds, 1994). This lends support for the notion that programs need to match or be responsive to the culture of the school in order to increase their success of being adopted by the school once the research study has ended. One way to address this issue is to possibly include teachers and/or parents as collaborators in the development of preventive intervention. Acknowledging and utilizing teachers and parents expertise not only will provide the researchers with a better understanding of the context in which teachers educate children, but may also increase the effectiveness and acceptance of the program by teachers and parents. This incorporation and use of teachers as the deliverers of the programs increases the generalizability of the program after the formal prevention program has ceased and to other preschool classrooms.

Most prevention programs are based on theoretical models that are based on European-Americans with a focus on Eurocentric values regarding mental health, behavior, and development (Roosa *et al*., 2002). Programs that attempt to address cultural relevance or sensitivity in terms of race or ethnicity appears to do so by adjusting the curricula to match the language or physical race of the participants (Lau, 2005). However, it is unclear as to whether these attempts at cultural sensitivity are substantial enough to tackle the complicated nature of culture. If a program is truly going to be culturally sensitive, it should attempt to incorporate the values and goal systems of the cultural group that is receiving the prevention program. For instance, African-Americans are often very emotionally expressive, especially in terms of anger (Boyd-Franklin and Bry, 2000). As a result a prevention program that targets emotional regulation among African-Americans may need to adjust the ways in which regulation skills around

anger are taught in order for the program to not only be successful, but also accepted by the target population. There should be greater systematic attention focused on developing programs that are culturally sensitive to minority children and children from diverse socioeconomic environment.

One way to increase the likelihood that values and belief systems of children from diverse racial and economic are interwoven into a prevention program is the inclusion of key stakeholders from the target cultural group in the design of the prevention program. These stakeholders can include, but are not limited to community advisors and members, parents, and teachers. It is important that these stakeholders have an equal voice or power in terms of decision-making regarding the program and not merely included as a "rubberstamp" to what the researchers develop. There should be true collaboration among community members and university researchers in the various phases and aspects of the program. Other university researcher-community collaborations have been successful in developing culturally sensitive intervention programs specifically targeted towards African-American families in economically stressed urban communities (e.g., Baptiste *et al.*, 2005; McCormick *et al.*, 2000). The inclusion of key community stakeholders can also allow for the inclusion of values that families and communities have identified as critical to children's optimal development. For instance, certain communities may place a larger emphasis on the inclusion of issues like racial socialization into a program depending on the racial/ethnic status of the community. This highlights the need to develop scientifically sound prevention programs that are culturally informed and responsive, thereby meeting the needs of the target community (Castro *et al.*, 2004). In addition the program has to promote behaviors that allow the target population to be successful within their own cultural context (Roosa *et al.*, 2002). As such, it may be imperative for programs to utilize theoretical research in the area of cultural sensitivity or community research as a foundation for how to develop and/or adapt prevention programs accordingly.

In general, the prevention programs reviewed here focused on both symptom reduction and promotion. It is important to note that these two concepts are not synonymous. Symptom reduction focuses on reducing or eliminating symptoms while promotion focuses on encouraging optimal wellness (Munoz *et al.*, 1996). A program that only focuses on reducing negative behavioral or psychological outcomes does not intuitively mean that positive development is being promoted. Programs that focus on symptom reduction without teaching participants promotion techniques leave participants without an adaptive means of coping. This could possibly put them at risk of re-engaging in the same maladaptive behaviors that were initially targeted in the prevention program. However, it is important that the development of promotion programs be based in healthy development research and not just from a symptom reduction model by changing the concepts to focus on promotion. Furthermore, the target population may perceive programs that focus on promoting positive development more favorably. Parents may be more willing to not only consent to having their children participate in a program, but also be active participants themselves in a program that is geared to enhance their child's positive development as opposed to having their child identified as being problematic or deficient.

The majority of programs in this review were selective interventions. Specifically, most programs targeted children and their families considered "at-risk" due to their low socioeconomic status. The reliance on demographic variables to determine "at risk" status, however, may not be optimal. Although many studies have identified socio-demographic variables as risk factors for children's social and emotional development, most children from these racial/ethnic and economic backgrounds develop normally. A more systematic assessment of at-risk status that includes, but moves beyond basic demographic data is needed. Developmental data or developmental trajectories toward health and problem behaviors within "at-risk" groups would be useful. Programs might want to begin to focus on samples that may be displaying initial behaviors or symptoms, an indicated sample, which would place them at risk for later developing the behavior that the prevention program is trying to target.

The majority of the selective interventions in this review reported they were designed for children from low-income backgrounds. Despite this, relatively few of these programs identified any specific ways in which their program was more germane to a low-income population, except the CPC program. It appeared that a majority of the prevention programs in this review were tailored for this population based on what was thought to be that population's potential area of risk because of their low-income status. By not tailoring the prevention program to make it specific for a selective population, researchers are

theoretically just delivering a universal program to a selective population. Although certain prevention programs may not truly be developed for the specific needs of a selective population they can still be efficacious, however they may place the population at risk. For instance, if low-income children are taught in an intervention program to lower their heads, put their arms at their sides and close their eyes when they get angry or sad to help them calm down before they act, this may be viewed outside of that intervention classroom as child who can be victimized. In some low-income communities that are plagued with violence, this behavior may place children in harms way in their neighborhoods if others view this well-intentioned behavior as a sign of weakness. This is the challenge of delivering universal programs to a selective population without developing a program that truly is for a selective population.

In addition to how the population of interest may impact the type of prevention program (e.g., universal, selective, or indicated) delivered, identifying a population of interest for preschool prevention is further complicated by the fact many families do not take advantage of preschool education (National Center for Education Statistics, 2005). It is important to understand who are the families that are and are not taking advantage of preschool education prior to the development of such programs. Given this, researchers need to decide the specific population they will target for preschool prevention programs.

Program effectiveness appears to be increased when classroom based programs include another target of intervention like utilizing home visiting, parent or child groups. This tenet was supported by findings from the Incredible Years (Webster-Stratton *et al*., 2001), ECSEL (Sandy and Boardman, 2000), and CPC (Reynolds, 1994) programs. All three prevention programs found that children who received classroom interventions in addition to their parents receiving some form of service, either through home visiting or parent groups, had better academic and social success than those children who only received the classroom intervention. Researchers who develop and implement preschool interventions should provide additional services that include the parents in the intervention in order to maximize the program effectiveness.

This review attempted to evaluate the current state of school-based prevention programs for preschool children. Although there are school-based programs targeted for this age group, there are relatively few. If prevention scientists want to maximize the effectiveness of prevention programs on children's future development, they may want to engage in early prevention programs that target preschool classrooms. This review identified some gaps in the field that should be addressed in order to enhance scientifically supported and effective school-based prevention programs for preschoolers.

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