Evidence-Based Prevention Practice in Mental Health: What Is It and How Do We Get There?

Carrie W. Rishel, PhD
West Virginia University

A substantial number of children in the United States suffer from mental health problems. These children enter into adulthood at a disadvantage and often continue to experience mental health problems as adults. Historically, much less attention has been paid to prevention of mental health problems than to treatment and rehabilitative services. In recent years, however, great strides have been made in developing and evaluating prevention interventions in the area of mental health. Nevertheless, the study of prevention still lags behind clinical treatment research in identifying and disseminating effective programs and interventions. The following article draws on the work of numerous prevention scholars to develop a conceptual framework of evidence-based prevention practice in the area of mental health. Suggestions for how researchers, policy makers, and service providers can contribute to the development of evidence-based prevention practice in mental health are considered.

Keywords: child mental health, prevention, evidenced-based practice

The prevalence of mental health disorders in children is a serious problem that constitutes a public health crisis for our country. The exact scope of the problem is difficult to determine because there have been no national epidemiological studies conducted in the United States of mental health disorders in children. However, most evidence reflects a disorder rate hovering around 20%. One of the most reliable estimates available comes from the “Methods for the Epidemiology of Child and Adolescent Mental Disorders” (MECA) study, funded by the National Institute of Mental Health. Estimates from this study indicate that 20.9% of children between the ages of 9 and 17 meet criteria for at least one mental health disorder (Shaffer et al., 1996). Furthermore, the MECA study estimates that 11% of youth experience significant functional impairment at home and school as a result of a mental health disorder (U.S. Department of Health & Human Services, 1999).

A large number of American adults also suffer from mental health problems. The National Comorbidity Survey Replication study, which involved 9,282 English-speaking adults age 18 or older, found a 12-month prevalence estimate for any mental health disorder of 26.2% (Kessler, Chiu, Demler, & Walters, 2005) and a lifetime prevalence estimate of 46.4% (Kessler, Berglund, et al., 2005). Many of these adults first experienced mental health problems in childhood. In fact, half of all lifetime cases start by age 14 (Kessler, Berglund, et al., 2005). Therefore, prevention of mental health problems in childhood may substantially decrease mental health problems in the adult population.

Prevention of mental health disorders in children is critically important for the health of our nation. Mental health problems in childhood slow normal development and may prevent the mastering of important developmental tasks (U.S. Department of Health & Human Services, 1999). Children who experience mental health problems enter into adulthood at a disadvantage and will likely continue to experience mental health problems as adults (Kazdin, 1993). Although more attention has been paid in recent years to developing child-specific mental health treatment than in the past, the rate of mental health problems in children remains disturbingly high. Even when effective treatments for childhood mental health problems are developed, many children in need do not benefit. Estimates indicate that only one third to one half of children needing mental health services actually receive them (Starr, Campbell, & Herrick, 2002), and individual studies have found this rate to be as low as 25% (Verhulst & van der Ende, 1997). Prevention of even some childhood mental health problems would enhance the well-being of both children and adults, as well as benefit society as a whole by supporting the development of more productive citizens.

Historically, the majority of resources available for mental health services have been used for treatment and rehabilitative services with a relatively small amount allocated for the prevention of mental illness (Dulmus & Wodarski, 1997). The field of mental health must embrace a paradigm shift and move away from a sole focus on pathology and treatment toward a focus on wellness and prevention. It is only by moving in this direction that we as mental health scientists and professionals can fully address the wide spectrum of mental health needs in our country.

What Is Prevention Science?

Although prevention research in the area of mental health has been conducted since at least the 1960s (Cowen, 1997), prevention science as a unique discipline was not formally recognized until the 1980s (Shore, 1998). The goal of prevention science is to prevent major problems of living. By definition, prevention occurs before a problem is fully visible or developed. Therefore, prevention research most often focuses on the antecedents of illness or health, called risk factors and protective factors (Coie et al., 1993).
Risk factors are defined as circumstances in a child’s life that increase the likelihood of negative outcomes for that child, whereas protective factors are circumstances in a child’s life that decrease the likelihood of negative outcomes for that child (Durlak, 1998a; Smith & Carlson, 1997). Although adults may also be the targets of prevention efforts, because first onset of mental health problems usually occurs in childhood or adolescence, prevention efforts should focus on youth (Kessler, Berglund, et al., 2005).

Recent Developments in Prevention Science

The field of prevention science has made great strides over the past decade. Notable examples include the Institute of Medicine (IOM) report, Reducing the Risks for Mental Disorders: Frontiers for Preventive Intervention Research (Mrazek & Haggerty, 1994); the National Institute of Mental Health (NIMH) Prevention Research Plan, A Plan for Prevention Research for the National Institute of Mental Health: A Report to the National Advisory Mental Health Council (NIMH, 1995); a meta-analytic review of primary prevention programs in mental health, Primary Prevention Mental Health Programs for Children and Adolescents: A Meta-Analytic Review (Durlak & Wells, 1997a); and development of standards of evidence for prevention research by the Society for Prevention Research (SPR) (Flay et al., 2005; Society for Prevention Research, 2004). The first two reports provide research- and policy-related recommendations for the field of prevention science (Koretz & Moscicki, 1997). The third, an empirical summary of 177 primary prevention programs in mental health, clearly demonstrates that primary prevention is effective in reducing mental health problems (Durlak & Wells, 1997a). Finally, the fourth describes standards of evidence a prevention program or intervention should meet to be considered efficacious or effective.

Current Trends in Prevention Science

Because prevention science is a relatively young discipline, researchers in the field continue to develop and define it. The 1994 IOM report, which still guides current prevention efforts, popularized a shift in terminology regarding classification of prevention programs (Farmer & Farmer, 2001). Whereas the traditional classification system labeled prevention efforts as primary, secondary, or tertiary, the new classification system uses the terms universal, selective, and indicated. Universal prevention programs are targeted at everyone, or the general public. Selective prevention efforts are aimed at those who at are higher risk for the targeted disorder or problem than the general population. Finally, indicated prevention efforts are aimed at those who already show signs or symptoms of the targeted disorder or problem but do not meet diagnostic criteria for the disorder (Mrazek & Haggerty, 1994).

Although it appears that most prevention researchers have adopted this new classification system into their standard terminology, a clear lack of consensus exists regarding another, vitally important issue: defining the desired outcome, or goal, of mental health prevention efforts (Cowen, 1997). Namely, the question remains: should prevention efforts focus solely on prevention of diagnostic mental health disorders defined by psychiatric nomenclature or include wellness promotion as an integral component? Many prevention scientists argue that mental health promotion is a vital aspect of prevention science (Cowen, 1994, 1997; Durlak & Wells, 1997a; Kaltiala-Heino & Rimpelae, 1999). However, the 1994 IOM report specifically excludes mental health promotion efforts from the broad spectrum of programs aimed at preventing mental health disorders, arguing that promotion is focused on enhancing well-being rather than on averting illness (Mrazek & Haggerty, 1994). This omission seems shortsighted because it ignores the important contribution of mental health promotion efforts to the overall prevention of mental health problems for the general population. The field of prevention science must move past the debate over whether mental health promotion and wellness enhancement count as real prevention efforts. Clearly, both efforts aimed at reducing diagnostic mental health disorders in children and adults and efforts focused on enhancing the mental health functioning of the general population are important aspects of a comprehensive strategy to address the nation’s mental health needs. Durlak and Wells (1997a) recognize this in their landmark meta-analysis of primary prevention programs in mental health by including both programs aimed at reducing psychological dysfunction and ones aimed at promoting mental health. Although scientists in the field will likely continue to debate the exact nature and scope of prevention science, many already embrace wellness promotion as an integral aspect of prevention in the area of mental health (Weisz, Sandler, Durlak, & Anton, 2005).

Why Evidence-Based Practice?

Although the need for prevention in the area of mental health is quite clear, mental health researchers and clinicians have historically paid little attention to prevention. This is, in part, due to lack of empirical evidence to support prevention efforts in the field of mental health (Davis, 2002). The vast majority of mental health research has focused on clinical outcome trials examining the efficacy of various modes of treatment rather than on prevention (Beardslee, 1998). Beardslee and Gladstone (2001) suggest several factors that contribute to the lack of prevention research in the area of mental health. First, the study of prevention requires a public health, population-based approach, which contrasts to the clinical approach in which most mental health clinicians and researchers are trained. Second, the methodology of prevention research requires that large samples be followed over a period of years, in contrast to controlled clinical trials that can be conducted with relatively small sample sizes in a much shorter period of time. Finally, the study of childhood mental health problems is a relatively young field and until recently, little has been known about risk and protective factors that may serve as targets for prevention efforts.

The lack of rigorous prevention research has inhibited the growth of a prevention orientation in the field of mental health. Lawmakers, especially at the federal level, now demand that public money aimed at alleviating mental health problems be spent on “evidence-based” programs (Kellam & Langevin, 2003). Solid empirical evidence that prevention efforts will be effective may be required for public and private organizations to fund large-scale prevention trials. For this reason, embracing an evidence-based framework in the area of mental health prevention is an important step in moving the entire field of mental health toward a focus on wellness and prevention. Prevention science has made great strides in recent years toward the development of an empirical research
base by drafting standards of evidence and rigorously evaluating prevention efforts. The field must continue this effort and focus on defining, developing, and implementing evidence-based prevention practice in the area of mental health.

**What Is Evidence-Based Prevention Practice in Mental Health?**

The evidence-based practice framework has become more and more prevalent in the field of mental health treatment and intervention. Scholars concerned with the prevention of mental health problems have also begun to recognize the potential of this framework for improving prevention research and practice. Tailoring the evidence-based framework to the field of prevention requires understanding how it is used in treatment and intervention settings and considering how to best apply the framework to the unique aspects of prevention.

**What Is Evidence-Based Practice?**

The past decade has brought forth a significant shift in the area of mental health intervention and treatment: the move to evidence-based practice (APA Presidential Task Force on Evidence-Based Practice, 2006; Hardiman, Theriot, & Hodges, 2005). Evidence-based practice (EBP), which grew out of evidence-based medicine (EBM), assumes that the best evidence can be applied to produce the best practice decisions for optimizing client outcomes (Gilgun, 2005; Tanenbaum, 2003). The EBP framework is now used throughout the mental health field as a way of determining which interventions or practices are most likely to produce desired client outcomes (Drake et al., 2001). The evidence-based practice has traditionally been used to differentiate between therapies that have been studied rigorously and proven efficacious or effective and those that have not been studied or have been studied less rigorously (Hoagwood, Burns, Kiser, Ringeisen, & Schoenwald, 2001).

EBP relies on the best empirical evidence available. Available evidence is evaluated based on a hierarchy of research methods used to determine treatment effects. The rough order of this hierarchy is as follows: systematic reviews or meta-analyses, randomized controlled trials (RCTs), quasi experiments, case-control or cohort studies, cross-sectional studies, and case reports (McNeece & Thyer, 2004; Reynolds, 2000). In practice, use of an evidence-based model includes a clinician who (a) defines the clinical problem or question, (b) finds the best evidence available to address that question, (c) evaluates the evidence for its validity and usefulness, (d) applies the evidence to the client situation in question, and (e) evaluates the outcome of the practice decision or intervention (Hardiman et al., 2005; Reynolds, 2000). The clarity and structure of this process, along with the clear reliance on “hard” numbers in evaluating evidence, has popularized the evidence-based framework in both the areas of medicine and mental health (Tanenbaum, 2003). The field of prevention science should adopt this framework as well to best position itself to support the need for, and effectiveness of, prevention efforts in the area of mental health.

**What Is “Evidence” in Prevention Science?**

On the treatment end of the mental health services continuum, the term evidence typically refers to results from empirical studies (with the gold standard being RCTs) indicating that a certain treatment or intervention is efficacious or effective for a particular population. Similarly, on the prevention end of the continuum, the term refers to results from empirical studies indicating that prevention programs are efficacious or effective in preventing a particular problem in a certain population. An evidence-based prevention approach, therefore, focuses on developing and applying empirical knowledge about what prevention programs work, for whom, and under what circumstances (Brown, Berndt, Brinales, Zong, & Bhagwat, 2000).

For evidence in any field to be consistently evaluated, a clear framework or standards must be used to provide structure to the process. Prevention scientists have recognized this need, and the SPR (an association of prevention scholars) has recently developed and adopted a set of standards to guide researchers, policy makers, and service providers in evaluating prevention interventions (Flay et al., 2005; Society for Prevention Research, 2004). These standards set forth the criteria that must be met for a prevention program to be considered tested and efficacious or effective. The term efficacious is applied to programs meeting the criteria when delivered and tested under optimal conditions, whereas the term effective is applied to programs meeting the criteria when delivered and tested under “real world” conditions (Flay et al., 2005; Society for Prevention Research, 2004).

The standards adopted by the SPR in 2004 address numerous aspects of high-quality prevention research. Research criteria that must be met for programs to be considered efficacious include measurement of the actual public health or behavioral outcome (rather than only related indicators), at least one follow-up evaluation of 6 months or more, use of at least one comparison group that does not receive the intervention, assignment to conditions that maximize causal explanation, a consistent pattern of statistically significant positive effects, and consistent findings from at least two different high-quality studies. Effective programs must meet all of the same standards as efficacy trials as well as additional criteria such as the provision of manuals or technical support, intervention delivered under “real world” conditions, measurement of level of exposure to intervention, and clear statements regarding for whom the program is effective and under what conditions (Flay et al., 2005; Society for Prevention Research, 2004). A complete summary of the standards is beyond the scope of this article. Readers should refer to the SPR report or the article by Flay and colleagues (2005) for a full description of the standards. The development and adoption of these standards of evidence by SPR is a critical step toward embracing an evidence-based framework in the field of prevention science because they provide a consistent guide for prevention researchers, policy makers, and service providers when determining which programs should be further tested and implemented.

**What Works in Prevention: What We Know Now**

The study of prevention has a longer history in the area of risky behaviors than in the area of mental health. Although prevention of risky behaviors has been extensively studied in adult and youth populations, findings from studies examining prevention of youth risk behaviors are most relevant when considering prevention of mental health problems in children and adolescents. Recent reviews of youth risk-behavior prevention have identified common
characteristics of effective programs that cut across areas of risky sexual behavior, substance abuse, juvenile delinquency, and academic problems (Kirby, 1997, 2001; Morrissey et al., 1997; Nation et al., 2003; Weissberg, Kumpfer, & Seligman, 2003). Common characteristics of effective youth risk-behavior prevention programs include the following.

Comprehensive

Comprehensive programs focus on both the individual and the social environment. They include multiple interventions aimed at affecting the target behavior and implement interventions in multiple settings. For example, programs aimed at reducing youth risk behavior should address risk and protective factors in all settings that directly impact the individual: the community, school, peer group, and family (Morrissey et al., 1997; Nation et al., 2003; Weissberg et al., 2003).

Theoretically Based

Effective programs are based on a clear theoretical model that explains why the intervention should impact the target problem (Morrissey et al., 1997; Nation et al., 2003). Moreover, delivery of the intervention is based on theoretical approaches that have demonstrated effectiveness at impacting other health-related behaviors (Kirby, 2001).

Sufficient Dosage

Prevention programs must last a sufficient length of time and include enough contact hours of intervention to achieve the desired effect (Mulvey, Arthur, & Reppucci, 1993).

 Appropriately Timed

Effective programs are appropriately matched to the developmental stage of participants. Moreover, preventive interventions should be timed to occur prior to the onset or development of the problem behavior—usually focusing on antecedents or risk factors of the target problem (Weissberg et al., 2003).

 Culturally Relevant

Teaching methods and materials used in effective prevention programs must be culturally relevant to the target population. Materials and methods may need to be adapted to best apply to different cultural groups (Kirby, 1997; Weissberg et al., 2003).

Interactive Teaching Methods

Effective programs utilize interactive teaching methods to involve participants and help them to personalize the information (Kirby, 2001; Tobler & Stratton, 1997). These methods often include hands-on experiences that focus on skill development (Morrissey et al., 1997; Nation et al., 2003).

Well-Trained Staff

Well-trained staffs are a critical component of effective programs. Staff chosen to implement the program must believe in the program and receive sufficient training to deliver the program well (Kirby, 1997, 2001; Weissberg et al., 2003).

Outcome Evaluation or Follow-up

Successful prevention programs include outcome evaluation or follow-up assessments to determine the long-term effects of the intervention (Morrissey et al., 1997; Nation et al., 2003). These characteristics of effective programs have been shown to be important across a wide range of prevention areas. They offer a starting point for the field of mental health when considering the identification, development, and implementation of evidence-based prevention practices in mental health.

Prevention of Children’s Mental Health Problems: Current Status

Although the field of mental health has lagged behind other health-related fields in terms of conducting prevention-oriented research, there have been great strides in recent years toward examining prevention of mental health problems for children and youth. Most notably, the landmark review of primary (including universal and selective) prevention programs in mental health by Durlak and Wells (1997a) clearly indicates that prevention in the area of mental health is effective in reducing problems for children. This meta-analysis of 177 universal or selective prevention programs aimed at preventing behavioral and social problems in children and adolescents resulted in an average mean effect of .42. In practical terms, the average participant of a primary prevention program demonstrated better outcomes than 59%–82% of those in control groups. Types of programs examined included both person-centered programs, focused on interpersonal problem solving or affective education, and environment-centered programs, mainly targeting changes in school settings. Outcome measures examined included internalizing behavior, externalizing behavior, academic performance, peer relationships, and cognitive processes. Durlak and Wells (1997a) note that these results summarizing prevention programs in the area of mental health for children and adolescents are similar to or higher than results achieved by other treatment and preventive programs in social science and medicine, confirming the merit of pursuing prevention as a strategy for enhancing youth outcomes in the area of mental health. This conclusion is supported by the finding that program results endured over time; follow-up data (where available) indicate that positive outcomes demonstrated by program participants did not significantly change between program completion and follow-up, suggesting these effects have holding power (Durlak & Wells, 1997a). The positive results achieved by prevention programs are especially impressive considering that participants of universal and selective prevention programs are already functioning within the normal range and therefore have little room to demonstrate change (Durlak, 1998b).

Demonstrating that universal and selective prevention programs in the area of mental health are effective in enhancing outcomes for children is certainly a vital step forward in moving toward evidence-based prevention practice in mental health. As Durlak and Wells (1997a) note, however, most programs included in their meta-analysis do not clearly specify intervention procedures or fully describe the implementation process. This makes it impossi-
ble to determine which program characteristics are related to positive outcomes for participants. So, unlike the study of youth risk-behavior prevention, the study of prevention in the area of mental health has not yet reached the point of identifying common characteristics of effective programs. This is a critical next step in moving toward the development of evidence-based prevention practice in mental health.

Although prevention researchers in the area of mental health have not yet been able to empirically identify common characteristics of effective programs, prevention scholars have suggested numerous best practices in the area of prevention of mental health problems. Davis (2002), drawing from several other published reviews (Greenberg, Domitrovich, & Bumbarger, 1999; Olds, Robinson, Song, Little, & Hill, 1999; U.S. Department of Health & Human Services, 1998), has compiled 10 guiding principles as best practices for prevention programming in the field of mental health. Although these best practice guidelines may not yet have obtained the same level of empirical support as currently available in the area of youth risk-behavior prevention, they represent an important step in moving toward the identification of characteristics of effective programs to prevent mental health problems. The 10 guiding principles identified by Davis (2002) include the following.

**Epidemiologic Foundation**

Prevention programs should be based on a thorough understanding of the modifiable risk and protective factors related to the target outcome (Olds et al., 1999).

**Theoretical Foundation**

Prevention programs should be based on a clear model of behavioral change that has been effectively used in other types of programs (Olds et al., 1999).

**Sound Research Design**

Prevention programs should demonstrate effectiveness through sound research designs based on the hierarchy of levels of evidence (Davis, 2002).

**Manualized**

Clear and detailed manuals should be developed for prevention programs to facilitate implementation and replication in other settings (Olds et al., 1999).

**Relevant to Target Population**

Prevention programs should be perceived as needed by the target population and relevant to their specific situation (Davis, 2002; Olds et al., 1999).

**Sufficient Duration (Dosage)**

Prevention programs must last a sufficient length of time to achieve the desired outcomes. Long-term programs are more likely to have lasting results (Greenberg et al., 1999).

**Multiple Domains (Comprehensive)**

Comprehensive programs focus simultaneously on both the child and on the environmental systems that impact the child (e.g., family, school, peers, community) (Greenberg et al., 1999).

**Collaborative**

Collaborative strategies should be used to implement a program across multiple domains in each community (Greenberg et al., 1999).

**Integrated With Other Systems of Care**

Prevention programs should be integrated with already existing systems of care (e.g., schools, mental health services) within a community (Greenberg et al., 1999).

**Accessible, Understandable, and Affordable for Communities to Replicate With Fidelity**

Davis (2002) cites the National Mental Health Association as suggesting that accessibility, understandability, and affordability of prevention programs should all be considered in the beginning stages of program development. Valuable resources should not be spent on programs without these characteristics.

Examining these suggested guidelines for best practices in mental health prevention programs reveals many similarities to the common characteristics of effective programs identified in youth risk-behavior prevention programs. Specifically, characteristics such as comprehensive, theoretically based, sufficient dosage, and relevance to target population are included in both lists. The best practice guideline of sound research design for mental health prevention programs closely links to the identification of outcome evaluation as a characteristic of effective youth risk-behavior prevention programs. The only two characteristics of effective youth risk-behavior prevention programs not identified in the best practice guidelines for mental health prevention are well-trained staff and interactive teaching methods. This could be because prevention programs in the area of mental health have not sufficiently described the specific characteristics of their programs to determine if these are vital characteristics of effective programs. The best practice guidelines for prevention programming in the area of mental health include several community-focused suggestions not identified in the common characteristics of effective youth risk-behavior prevention including collaborative, integrated with current systems of care, and consideration of replication issues (e.g., accessible, understandable, affordable, and manualized). Although these community-based suggestions seem like very important factors to consider in prevention programming, they should be empirically examined to determine their role in the development of effective prevention programs. The fact that many of the best practice guidelines developed by mental health prevention scholars are similar to those identified in the more established arena of youth risk-behavior prevention suggests that the study of prevention in the area of mental health is on the right track. Scholars in the field now need to move toward empirically validating these guidelines to determine if they are, indeed, common characteristics of effective programs. Researchers also need to more closely examine specific procedures of prevention programs.
to determine whether characteristics such as teaching methods and type of staff impact the effectiveness of mental health prevention programming.

Where Do We Need to Go?

The study of prevention in the area of mental health has made important steps forward in recent years. Developing standards of evidence and guidelines for best practices in prevention programming has helped move the field toward an EBP model. However, a great deal of work still needs to be done. In addition to continuing to develop and test prevention programs following the recently developed standards of evidence, several other important factors must be addressed. First, the field should agree on a set of common outcome measures—what are the desired outcomes of mental health prevention programming? Is the desired goal to (a) reduce symptoms of mental health disorders or behavior problems by reducing the number of problematic internalizing and externalizing behaviors? Or (b) prevent the onset of diagnostic psychiatric disorders? Or (c) enhance children’s competencies and promote their optimum mental health functioning? Likely the goal is a combination of all of these. Scholars in the field need to work toward operationalizing these goals with common outcome measures that will allow results to be compared across studies.

Solid outcome measures already exist for examining the first two potential goals of mental health prevention programming described previously. The Child Behavior Checklist (CBCL) developed by Achenbach and Edelbrock (1983) is a highly reliable and widely used measure (Achenbach, 1991) that is used to create a total problems score and two broadband scores of internalizing and externalizing behavior. Similarly, structured clinical interviews such as the Kiddie Schedule for Affective Disorders and Schizophrenia (K-SADS, Kaufman et al., 1997) are often used to assess children’s diagnostic status in research studies examining children’s mental health. Previous studies have demonstrated that the K-SADS generates reliable and valid psychiatric diagnoses for children (Ambrosini, 2000; Chambers et al., 1985; Kaufman et al., 1997). However, there is a critical lack of psychometrically sound measures to assess the third potential goal of promoting children’s competencies and mental health functioning (Kortez & Moscicki, 1997). To work toward the goal of promoting mental health functioning for all children, prevention scholars must first operationally define mental health well-being for children and develop measures to assess it.

Second, prevention trials must include long-term follow-up measuring multiple outcomes. Longitudinal designs with follow-up evaluations are the only way to determine whether mental health prevention programming has lasting benefits for children and adolescents. Of the 177 prevention studies examined by Durlak and Wells (1997a), only 8 studies included follow-up reports of 1 year or longer; only 25% collected follow-up data of any duration. To gather the evidence needed to demonstrate that prevention in the area of mental health has long-term benefits for children and society, prevention studies must include follow-up evaluation, preferably for many years down the road. The newly developed standards of evidence require follow-up of 6 months or more for a program to be considered efficacious or effective (Flay et al., 2005; Society for Prevention Research, 2004). This is a critical requirement that will help ensure at least some follow-up in prevention studies, but every effort should be made to include even longer term follow-up evaluation. Moreover, this long-term follow-up must include measurement of multiple outcomes. Mental health is a complex phenomenon that should be measured by multiple indicators. Possible indicators might include measurement of internalizing and externalizing behavior, presence or absence of diagnostic mental health disorders, academic and school-related success, and peer and family interaction.

Third, published studies of prevention trials need to fully describe program goals, procedures, and the implementation process to allow for replication of designs and understanding of what works and for whom. Only 36% of programs examined by Durlak and Wells (1997a) described specific goals. Even fewer provided any description of the implementation process. For the field of mental health prevention research to identify common characteristics of effective programs, descriptions of prevention trials must include detailed explanations of program characteristics and strive to link these characteristics to program outcomes.

Attaining these three steps (identify common outcome measures, conduct comprehensive follow-up evaluation, and operationalize program characteristics) would go a long way toward further developing evidence-based prevention practice in the area of mental health. However, it is just a beginning. Even once evidence-based prevention practices are empirically tested and validated, moving to an EBP model requires effective translation of research to practice. There are many challenges to merely conducting high-quality prevention research. Translating this research knowledge into practice involves numerous other challenges that must be met to reach the goal of evidence-based prevention practice in the area of mental health.

How Do We Get There?

To reach the end goal of evidence-based prevention practice in the area of mental health, several related areas must be addressed simultaneously. First, high-quality prevention studies are imperative to developing the empirical base needed for evidence-based prevention practice. Second, prevention scholars must work collaboratively with policy makers and service providers in finding ways to effectively disseminate findings and implement evidence-based prevention programs in community settings. Finally, as in other areas of mental health, we must continue to strive for an integration of research and practice in our efforts to prevent mental health problems in children and adolescents.

Conducting Prevention Research

Recent developments in the field of prevention science have resulted in more research examining prevention in the area of mental health than ever before. The IOM report (Mrazek & Haggerty, 1994) and prevention research plan developed by NIMH (1995) provide an important framework for prevention scholars when conceptualizing and organizing previous and future prevention research.

The preventive intervention research cycle. One of the most important contributions of these reports was the development of the five phases of preventive research in mental disorders described in the IOM report (Mrazek & Haggerty, 1994). The report identified the following five phases of the preventive intervention
research cycle: (a) identify the problem or disorder and determine its extent; (b) review relevant information on risk and protective factors associated with the onset of the problem; (c) develop, implement, and conduct pilot studies and replication trials of a preventive intervention to determine efficacy; (d) conduct large-scale field trials to test effectiveness; and (e) implement the preventive intervention in the community and conduct ongoing evaluation (Mrazek & Haggerty, 1994). Prevention scholars have increasingly recognized this cycle as a vitally important framework for prevention research (Kellam, Koretz, & Moscicki, 1999). When combined, the preventive intervention research cycle and the recently developed standards of evidence in prevention science provide a guiding framework for developing the empirical base needed for evidence-based prevention practice in the field of mental health. Individual programs should be developed and tested following the preventive intervention research cycle. At each stage along the way, especially at the testing stages for efficacy and effectiveness, the study results should be evaluated based on the standards of evidence to determine which programs meet criteria to be considered efficacious or effective and should, therefore, move on to be examined at the next stage of the preventive intervention research cycle.

Challenges of prevention research. Prevention research has lagged behind treatment-oriented research in developing an empirical base in part because of several inherent challenges that make it difficult for prevention researchers to match the methodological rigor of research found in mental health treatment or intervention trials. The first challenge is length of time between a preventive intervention and target outcome. Many mental health problems first occur in childhood or early adolescence (Kessler, Berglund, et al., 2005). Therefore, prevention programs targeting mental health–related symptoms or disorders should be offered early in a child’s life. To examine the effectiveness of a prevention intervention, long-term follow-up must be conducted to determine whether a child develops the targeted symptoms or mental health disorder. However, long-term follow-up evaluation is often quite difficult because of both logistical issues and funding constraints. For example, an increasingly mobile society makes it difficult to follow or track children for multiple years because families may move or relocate several times throughout the life of the study. Another inherent challenge of conducting longitudinal research involves the traditional academic reward system. Researchers based in academic settings holding traditional tenure-track positions often feel pressure to publish study results as quickly as possible. This may discourage academic researchers (especially those early in their career) from engaging in long-term, longitudinal research. Moreover, funding sources may not be willing to provide multiple years of funding for the same project. These obstacles have resulted in many prevention researchers substituting more immediate or proximal outcomes (such as a decrease in behavioral symptoms) for the desired long-term outcomes (such as prevention of a specific mental health disorder). For example, less than 7% of the studies included in Durlak and Wells (1997a) meta-analysis of prevention programs measured outcomes up to 1 year or longer.

Another challenge facing prevention researchers involves the sample size required for prevention trials. Universal prevention interventions should be tested on samples that allow the making of population-based inferences. However, many mental health disorders have low base rates in the population. Therefore, very large sample sizes are required to achieve the necessary power to test the efficacy or effectiveness of a universal prevention intervention. The difficulty of obtaining large sample sizes sometimes leads prevention researchers to choose a smaller, high-risk sample on which to test a selective or indicated prevention program. Although this strategy can provide good evidence regarding the efficacy or effectiveness of selected or indicated prevention programs, it prevents making population-based inferences and therefore limits the generalizability of the findings (Brown & Liao, 1999).

One other common challenge faced by prevention researchers is the difficulty of utilizing pure random assignment to condition. Although treatment programs are often offered in controlled, clinical settings, prevention programs targeted at children and adolescents are often located in educational settings, because schools provide a place where many youth can be accessed at one time. Randomly assigning children in schools to an intervention or control condition is often impractical for several reasons (Dynarski, 1997). First, children are usually grouped by classroom, and it is logistically difficult to divide them in other manners. Second, prevention interventions often involve a focus on interpersonal relationships and changing group or peer norms. Successful implementation of the program may require providing the same intervention to an entire group of students. These difficulties often lead prevention researchers to either randomly assign schools, rather than individuals, to a condition, or to implement comparison group designs that do not meet criteria for pure random assignment (Dynarski, 1997). Although these strategies may be appropriate in certain cases, the end results may not provide the same level of evidence that is found in randomized controlled trials of individuals.

Prevention researchers targeting school-based settings face the additional challenge of representing and reaching minority populations in their work. The high dropout rates of ethnic minorities (US Department of Education, National Center for Educational Statistics, 2000) may result in research and prevention programs that fail to reach populations most in need of attention. This challenge makes it difficult to adequately represent the target population, especially in longitudinal studies that follow students over a period of years.

Improving study designs. Although prevention researchers in the area of mental health continue to struggle with these mentioned challenges to prevention research, scholars recognize the need to improve study designs to develop a sound empirical base for prevention research in the area of mental health. Brown and Liao (1999) acknowledge that RCTs are considered the gold standard in the scientific community and suggest several principles for designing randomized prevention trials in the area of mental health. Because prevention programs targeted at children and adolescents are often delivered in school settings, they focus on developing RCTs in school-based prevention programs. First, RCTs seeking funding must demonstrate solid theoretical and empirical support. Scholars should identify risk factors and potential mediators from the published literature and use a developmental framework to design an intervention targeted at changing one or more of these mediators. There is a much greater likelihood that an intervention will be effective when it is theoretically and empirically linked to known risk and protective factors (Brown & Liao, 1999).
Second, developmental epidemiologic preventive trials are preferred (Brown & Liao, 1999). Developmental epidemiologic preventive trials combine an epidemiologic perspective, focusing on the distribution of risk factors or disorders in a population, and a developmental perspective, focusing on how mental health problems develop and what elements may mediate or moderate this development (Kellam et al., 1999). Developmental epidemiologic preventive trials examine multiple outcomes over a sustained period of time with a population-based approach (Brown & Liao, 1999).

Finally, Brown and Liao (1999) address specific design issues linked to sample selection and random assignment. Prior to randomization, several factors should be considered. Following the population-based approach, samples should be selected to be representative of the target population. Great thought and effort should be given to the invitation and recruitment process to ensure as representative a sample as possible. Analyses examining hypothesized moderators should be planned in advance to determine if the program is more effective for certain groups of youth. Pretreatment or preintervention measures should be taken to allow for better comparison of intervention and control group outcomes later on. Principles for designing the actual intervention phase include the selection of an intervention and comparison or control condition for the preventive trial, randomly assigning (whenever possible) units (usually schools or classrooms) to the intervention or control setting, maximizing the statistical power of the study, and carefully thinking through implementation issues. Brown and Liao (1999) suggest that the statistical power of a school-based design is much more affected by the number of schools involved than by the number of children or classes. Therefore, increasing the number of schools involved in a study will result in a better overall design than simply increasing the number of classrooms per school. After the intervention is complete, participants should be followed for as long as possible. If the incident rate of the target outcome is low (e.g., development of depression or other mental health disorder), less severe outcomes such as symptom level can be used to screen participants. Any participants with high symptom levels (as identified by the screen) can then participate in a more expensive diagnostic assessment aimed at determining the presence or absence of the target mental health outcome or disorder (Brown & Liao, 1999).

These suggestions provide an excellent guide for prevention researchers seeking to improve preventive intervention research design and move the field toward developing the sound empirical base needed for evidence-based prevention practice in the area of mental health. See Table 1 for a summary of suggestions for improving prevention research. These design principles, combined with the framework provided by the preventive intervention research cycle and the standards for evaluating research described in the standards of evidence, offer clear direction for prevention researchers in moving the field of prevention science forward.

### Addressing Implementation Issues

As prevention scientists in the area of mental health move toward the development of an empirical research base, it is important to keep in mind the implementation issues involved in reaching evidence-based prevention practice in the field of mental health. Mental health treatment researchers have long been frustrated by the failure of routine mental health programs to provide EBPs to their clients (Drake et al., 2001). This frustration points to the long-standing gap between research and practice and highlights the need for proactive consideration of implementation issues by prevention scholars in the field of mental health.

Biglan and Taylor (2000) note that the five phases of the preventive intervention research cycle described in the IOM report imply that research on a particular program is complete when effectiveness trials have been conducted and the program has been

### Table 1

**Suggestions for Improvement in Three Components of Prevention Research**

<table>
<thead>
<tr>
<th>Overall design</th>
<th>Intervention</th>
<th>Measures of effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Select sample to represent target population</td>
<td>● Target intervention to identified risk and/or protective factors</td>
<td>● Develop common outcome measures to increase comparability of findings</td>
</tr>
<tr>
<td>● Focus on recruitment of sample to optimize generalizability of findings</td>
<td>● Test interventions developed in practice community as well as by researchers</td>
<td>● Include preintervention measures to better compare intervention and control groups</td>
</tr>
<tr>
<td>● Use a comparison or control group</td>
<td>● Develop and test interventions following the prevention intervention research cycle</td>
<td>● Examine multiple outcomes over as long a period as possible</td>
</tr>
<tr>
<td>● Use random assignment whenever possible</td>
<td>● Fully describe intervention and implementation characteristics to move toward identifying common characteristics of effective programs</td>
<td>● Measure potential moderators to determine intervention effectiveness among various populations</td>
</tr>
<tr>
<td>● Increase statistical power by increasing number of schools (or child care settings) involved in the study</td>
<td>● Explore multiple settings for interventions, especially during early childhood years</td>
<td>● Use less severe outcomes to screen participants if there is low incident rate of target outcome</td>
</tr>
</tbody>
</table>
demonstrated in the community. However, this mindset assumes that there will be no difficulty with implementation issues and that organizations will eagerly implement the new evidence-based program in their community. It is clear from experience in other fields that this is not always the case. In addition to developing evidence-based prevention programs, prevention scholars must also explore strategies for dissemination and determine what factors increase the likelihood of long-term implementation of evidence-based programs (Biglan & Taylor, 2000; Domitrovich & Greenberg, 2000). Biglan and Taylor (2000) suggest three steps for prevention scholars pursuing implementation research: (a) identify organizations that might adopt each program, (b) analyze factors that might influence the organizations to adopt and maintain the evidence-based program, and (c) manipulate one of these factors to determine if changing it would increase the likelihood of implementation and maintenance of the program. These steps provide a starting point for prevention scholars to begin to explore implementation issues, a critical step to reaching the goal of evidence-based prevention practice in the area of mental health.

Although implementation issues certainly involve both researchers and service providers, policy makers are another critical component in reaching the goal of evidence-based prevention practice. Prevention scholars and service providers must gain support from policy makers by educating them about the importance of prevention, the effectiveness of prevention (including cost-effectiveness), and the nature of the preventive intervention research cycle (Mrazek & Hall, 1997). Policy makers can provide a huge boost in the efforts to develop evidence-based prevention practice in mental health by linking funding to implementation and maintenance of evidence-based programs (Biglan & Taylor, 2000). Collaboration among researchers, policy makers, and service providers offers the best opportunity to establish evidence-based prevention practice in the area of mental health.

Integration of Research and Practice

Successful implementation of evidence-based prevention programs promotes an integration of research and practice. The integration of research and practice is the final step necessary in reaching the goal of evidence-based prevention practice in the area of mental health. Although it is vitally important for researchers in the field to strive to develop evidence-based programs and interventions based on the preventive intervention research cycle and the recently developed standards of evidence, it is not enough. Service providers must have easy access to clear information (such as model programs, including well-developed program manuals) regarding evidence-based prevention programs. Policy makers must encourage and support the adoption and implementation of evidence-based prevention programs in schools and communities. Biglan and colleagues (Biglan, Mrazek, Carnine, & Flay, 2003) suggest several strategies to promote the integration of research and practice in prevention of youth behavior problems, including use of mass-media communication campaigns to advocate for the adoption of evidence-based prevention practices, modifying the national research agenda to include research on the integration of evidence-based programs into practice settings, adapting the traditional research process to include examination of programs developed in the field in addition to those developed by researchers, and finally, repeating the phases of the preventive intervention research cycle on a new problem—how to influence provider organizations to implement EBPs. These suggestions provide a starting point for the field in moving toward the integration of research and practice.

Suggestions and Future Directions

A major dilemma in the field of prevention is how to balance the need for universal prevention programs provided to all youth with the need for selective or indicated prevention programs targeted at youth most at risk (Weissberg et al., 2003). Limited resources often force communities, schools, and other organizations to choose between these two types of programs, when the optimal strategy is likely a combination approach. Universal programs, based on a public health perspective, provide the best opportunity to affect the largest number of youth. Selective or indicated programs, on the other hand, allow for more intensive services to be provided to those most at risk. Several comprehensive prevention programs combining universal, selective, and indicated approaches have recently demonstrated highly positive effects (Weissberg et al., 2003). Prevention scholars, working together with schools and communities, should strive to implement and evaluate comprehensive prevention programs that aim at promoting and enhancing the mental health of all children while still targeting those most at risk for more intensive services.

The dilemma regarding the need for universal versus selective or indicated prevention programs is closely related to the question of whether prevention efforts should focus on the promotion of mental health well-being or the prevention of mental health disorders. The comprehensive approach embraces both approaches with programs that strive to promote the well-being and competencies of all children as well as work toward preventing mental health disorders in those most at risk. However, the lack of psychometrically sound measures to assess mental health well-being limits prevention research in this area. To address this deficiency, prevention scholars should begin with qualitative studies by talking with children about their mental health well-being and what defines it. The strategy of integrating qualitative and quantitative methods in instrument development has been successfully implemented by others studying children and adolescents (Fantuzzo, Coolahan, Mendez, McDermott, & Sutton-Smith, 1998; Fantuzzo et al., 1995; Hitchcock et al., 2005). To develop measures assessing mental health well-being, researchers could conduct focus groups with children who display exceptionally positive mental health functioning (likely referred by teachers and schools) and look for common themes—not regarding what causes these children to display positive mental health functioning but rather what defines it. This would be the first step toward the development of common outcome measures assessing mental health well-being in children. Quantitative methods could then be used to refine and validate these measures.

Prevention scholars agree that preventive interventions are likely to have the most impact when directed at known risk and protective factors associated with the target outcome (Beardslee, 1998; Brown & Liao, 1999; Mrazek & Haggerty, 1994; Weissberg & Bell, 1997). One promising way to select and target youth most at mental health risk is to identify those clearly exposed to salient risk factors for the development of mental health problems. Family history of mental health problems is one of the most potent risk
factors for the development of mental health disorders (Dulmus & Rapp-Paglicci, 2000). Specifically, children of parents with mental health problems are at increased risk for developing a mental health disorder (Downey & Cooney, 1990; Lieb, Isensee, Hofler, Pfister, & Wittchen, 2002). Moreover, of children experiencing mental health problems, children of mothers with mental health problems demonstrate a higher severity of problems than those of mentally healthy mothers (Rishel, Greeno, Marcus, Sales, et al. (2006). Targeting children of parents with mental health problems for more intensive services is a promising prevention strategy in the area of mental health that has the potential to greatly enhance outcomes for these children and families.

The strong relationship between parent and child mental health suggests the need for better integration of adult and child services. Mental health services and programs targeting children are also often totally separate from adult mental health services (Fellin, 1996). Because children of parents with mental health problems are at increased risk for experiencing mental health problems themselves, screening the children of parents who present for mental health services should become routine practice. One place to begin the integration of adult and child mental health services may be the area of prenatal and pediatric care. Many mothers receive regular medical services during pregnancy. Mental health screenings of both mothers and fathers could occur at this time. Parents are often very engaged in the health care system during prenatal and pediatric care. Therefore, this might be a good time to educate parents about the relationship between parental and child mental health, encourage early screening for children of parents with mental health disorders, and offer prevention interventions to children at increased risk. Future research should explore the feasibility of this type of early screening and test the effectiveness of prevention interventions targeted to children of parents with mental health problems.

Although this is clearly a challenging population in which to affect change, previous work demonstrates that children of mothers with mental health problems improve during mental health treatment when brought to community mental health clinics for services (Rishel, Greeno, Marcus, Sales, et al. (2006); Rishel, Greeno, Marcus, & Anderson, 2006). If these children respond successfully to treatment, then it seems likely that they may also be responsive to preventive interventions. Beardslee and Gladstone (2001) have demonstrated initial positive results of a prevention program aimed at adolescents at risk for developing a mental health disorder due to one or both parents experiencing mental health problems. More work examining selective and indicated preventive interventions, as well as evaluation of universal prevention programs, is needed to move the field toward evidence-based prevention practice in the area of mental health.

Prevention scholars and service providers also should explore multiple settings for preventive interventions. Although schools are undeniably ideal places for reaching large groups of children with universal prevention programs and for screening children to identify those who may be at higher risk, other settings for programs should also be considered. Two of the previously mentioned best practice guidelines for prevention in the area of mental health include developing comprehensive programs (targeted at multiple domains) and integrating prevention programs with systems of care in the community (Greenberg et al., 1999). For example, targeting children who may be at high risk for developing a mental health disorder due to parental mental health problems may be best accomplished through clinical mental health settings where parents may be receiving treatment. Beardslee (1998) suggests that clinical training should include education addressing preventive education for clinicians to target known risk factors early in life.

Another promising setting for implementing preventive interventions in the area of mental health is in early childhood services. Based on their meta-analysis of 177 primary prevention programs in the area of mental health, Durlak and Wells (1997b) conclude that one way to prevent mental health problems in children and adolescents is to offer intensive family-oriented services before children enter kindergarten or first grade. Although researchers have developed some prevention programs targeted at early childhood, the vast majority of prevention research and programs still revolve around school-based settings. This is likely due in large part to convenience—it is much easier to access large numbers of children in school settings than it is in other locations. However, focusing solely on school-age children ignores the important principle of grounding research and programs with strong theoretical support. Many theories of developmental psychology focus on early childhood as a vital period for healthy child development (Bowen, 1978; Erikson, 1963; Scharff & Scharff, 1987). This suggests that prevention scholars in the area of mental health should pay more attention to developing and evaluating preventive services targeted at families and children in the early childhood years. Well-established early childhood service programs (such as Head Start) could become vital partners in developing and implementing evidence-based prevention practice in the area of mental health.

The field of prevention in the area of mental health shows great promise. Important strides forward have been made in recent years toward establishing prevention as a vitally important component in the overall goal of improved mental health for our nation. By embracing an evidence-based framework, researchers, policy makers, and service providers concerned with the prevention of mental health problems can work together to ensure that the best information available is used to develop programs and policies aimed at enhancing outcomes for children and youth.

References


Received December 15, 2005
Revision received December 1, 2006
Accepted December 7, 2006